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

MAY - 2 2005

05

28 April 2005

MAR042023

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 due 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,

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 Hqrts. Release contained and cleaned with absorbents Absorbents drummed and moved to Hazwaste Accumulation Area

MAY - 2 2005

GROUNDWATER ANALYTICAL

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

April 13, 2005

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

RECEIVED
APR 18 2005

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

ATTACHMENT 8

GROUNDWATER ANALYTICAL

Sample Receipt Report

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
82298-1	GN050089		Aqueous	3/29/05 0:00	EPA 8260B Volatile Organics with Oxygenates				
Con ID	Container	Vendor	QC Lot	Preserv	QC Lot	Prep	Ship		
C526424	40 mL VOA Vial	Proline	BX14916	HCl	R-4183D	11-04-04	11-19-04		
C526412	40 mL VOA Vial	Proline	BX14916	HCl	R-4183D	11-04-04	11-19-04		
C526400	40 mL VOA Vial	Proline	BX14916	HCl	R-4183D	11-04-04	11-19-04		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
82298-2	GN050090		Aqueous	3/29/05 0:00	EPA 8260B Volatile Organics with Oxygenates				
Con ID	Container	Vendor	QC Lot	Preserv	QC Lot	Prep	Ship		
C577753	40 mL VOA Vial	Proline	BX14996	HCl	R-4183D	11-10-04	11-22-04		
C577741	40 mL VOA Vial	Proline	BX14996	HCl	R-4183D	11-10-04	11-22-04		
C577729	40 mL VOA Vial	Proline	BX14996	HCl	R-4183D	11-10-04	11-22-04		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
82298-3	GN050091		Aqueous	3/29/05 0:00	EPA 8260B Volatile Organics with Oxygenates				
Con ID	Container	Vendor	QC Lot	Preserv	QC Lot	Prep	Ship		
C577742	40 mL VOA Vial	Proline	BX14996	HCl	R-4183D	11-10-04	11-22-04		
C577754	40 mL VOA Vial	Proline	BX14996	HCl	R-4183D	11-10-04	11-22-04		
C577730	40 mL VOA Vial	Proline	BX14996	HCl	R-4183D	11-10-04	11-22-04		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
82298-4	GN050089		Aqueous	3/29/05 0:00	Ethylene and Propylene Glycols				
Con ID	Container	Vendor	QC Lot	Preserv	QC Lot	Prep	Ship		
C555402	40 mL VOA Vial	Proline	BX14992	None	n/a	n/a	11-22-04		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
82298-5	GN050090		Aqueous	3/29/05 0:00	Ethylene and Propylene Glycols				
Con ID	Container	Vendor	QC Lot	Preserv	QC Lot	Prep	Ship		
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
82298-6	GN050091		Aqueous	3/29/05 0:00	Ethylene and Propylene Glycols				
Con ID	Container	Vendor	QC Lot	Preserv	QC Lot	Prep	Ship		
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
82298-7	GN050089		Aqueous	3/29/05 0:00	EPA 8100 Mod Diesel Range Organics				
Con ID	Container	Vendor	QC Lot	Preserv	QC Lot	Prep	Ship		
C527559	1 L Amber Glass	Proline	BX15074	H2SO4	R-4252D	11-17-04	11-22-04		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
82298-8	GN050090		Aqueous	3/29/05 0:00	EPA 8100 Mod Diesel Range Organics				
Con ID	Container	Vendor	QC Lot	Preserv	QC Lot	Prep	Ship		
C527563	1 L Amber Glass	Proline	BX15074	H2SO4	R-4252D	11-17-04	11-22-04		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
82298-9	GN050091		Aqueous	3/29/05 0:00	EPA 8100 Mod Diesel Range Organics				
Con ID	Container	Vendor	QC Lot	Preserv	QC Lot	Prep	Ship		
C527568	1 L Amber Glass	Proline	BX15080	H2SO4	R-4252D	11-17-04	11-22-04		

GROUNDWATER ANALYTICAL

Sample Receipt Report (Continued)

Project:	Work Item #4	Delivery:	Hand	Temperature:	3.6'C
Client:	Otis 102nd Fighter Wing/Environmental Management	Airbill:	n/a	Chain of Custody:	Present
Lab ID:	82298	Lab Receipt:	03-29-05	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

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
82298-16	GN050089		Aqueous	3/29/05 0:00	EPA 6010B Pb Ni As Ba Cd Cr Cu Zn Se Ag Mn Total EPA 7470A Hg Total				
Con ID	Container	Vendor	QC Lot	Preserv	QC Lot	Prep	Ship		
C554009	250 mL Plastic	Greenwood	BX14786	HNO3	R-4184C	11-01-04	11-22-04		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
82298-17	GN050090		Aqueous	3/29/05 0:00	EPA 6010B As Ba Cd Cu Pb Ni Se Ag Zn Cr Mn Total EPA 7470A Hg Total				
Con ID	Container	Vendor	QC Lot	Preserv	QC Lot	Prep	Ship		
C554007	250 mL Plastic	Greenwood	BX14786	HNO3	R-4184C	11-01-04	11-22-04		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
82298-18	GN050091		Aqueous	3/29/05 0:00	EPA 6010B As Ba Cd Cu Pb Ni Se Ag Zn Cr Mn Total EPA 7470A Hg Total				
Con ID	Container	Vendor	QC Lot	Preserv	QC Lot	Prep	Ship		
C554177	250 mL Plastic	Greenwood	BX14786	HNO3	R-4184C	11-01-04	11-22-04		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
82298-19	GN050089		Aqueous	3/29/05 0:00	SM 9222 D Fecal Coliform				
Con ID	Container	Vendor	QC Lot	Preserv	QC Lot	Prep	Ship		
C608189	120mL Sterile Plastic	n/a	n/a	None	n/a	n/a	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
82298-20	GN050090		Aqueous	3/29/05 0:00	SM 9222 D Fecal Coliform				
Con ID	Container	Vendor	QC Lot	Preserv	QC Lot	Prep	Ship		
C608188	120mL Sterile Plastic	n/a	n/a	None	n/a	n/a	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
82298-21	GN050091		Aqueous	3/29/05 0:00	SM 9222 D Fecal Coliform				
Con ID	Container	Vendor	QC Lot	Preserv	QC Lot	Prep	Ship		
C608186	120mL Sterile Plastic	n/a	n/a	None	n/a	n/a	n/a		

GROUNDWATER ANALYTICAL

EPA Method 8260B
Volatile Organics by GC/MS

Field ID:	GN050089	Matrix:	Aqueous
Project:	Work Item #4	Container:	40 mL VOA Vial
Client:	Otis 102nd Fighter Wing/Environmental Management	Preservation:	HCl/Cool
Laboratory ID:	82298-01	QC Batch ID:	VM7-1747-W
Sampled:	03-29-05 00:00	Instrument ID:	MS-7 Agilent 6890
Received:	03-29-05 15:30	Sample Volume:	25 mL
Analyzed:	04-12-05 16:28	Dilution Factor:	1
Analyst:	LMG		

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 (Continued)
Volatile Organics by GC/MS

Field ID:	GN050089	Matrix:	Aqueous
Project:	Work Item #4	Container:	40 mL VOA Vial
Client:	Otis 102nd Fighter Wing/Environmental Management	Preservation:	HCl/Cool
Laboratory ID:	82298-01	QC Batch ID:	VM7-1747-W
Sampled:	03-29-05 00:00	Instrument ID:	MS-7 Agilent 6890
Received:	03-29-05 15:30	Sample Volume:	25 mL
Analyzed:	04-12-05 16:28	Dilution Factor:	1
Analyst:	LMG		

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	11	108 %	70 - 130 %
1,2-Dichloroethane-d_4	10	9.8	98 %	70 - 130 %
Toluene-d_8	10	11	106 %	70 - 130 %
4-Bromofluorobenzene	10	12	116 %	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 8260B
Volatile Organics by GC/MS

Field ID:	GN050090	Matrix:	Aqueous
Project:	Work Item #4	Container:	40 mL VOA Vial
Client:	Otis 102nd Fighter Wing/Environmental Management	Preservation:	HCl/Cool
Laboratory ID:	82298-02	QC Batch ID:	VM7-1747-W
Sampled:	03-29-05 00:00	Instrument ID:	MS-7 Agilent 6890
Received:	03-29-05 15:30	Sample Volume:	25 mL
Analyzed:	04-12-05 17:04	Dilution Factor:	1
Analyst:	LMG		

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 (Continued)
Volatile Organics by GC/MS

Field ID:	GN050090	Matrix:	Aqueous
Project:	Work Item #4	Container:	40 mL VOA Vial
Client:	Otis 102nd Fighter Wing/Environmental Management	Preservation:	HCl/Cool
Laboratory ID:	82298-02	QC Batch ID:	VM7-1747-W
Sampled:	03-29-05 00:00	Instrument ID:	MS-7 Agilent 6890
Received:	03-29-05 15:30	Sample Volume:	25 mL
Analyzed:	04-12-05 17:04	Dilution Factor:	1
Analyst:	LMG		

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	11	107 %	70 - 130 %
1,2-Dichloroethane-d_4	10	9.9	99 %	70 - 130 %
Toluene-d_8	10	11	106 %	70 - 130 %
4-Bromofluorobenzene	10	12	116 %	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 8260B
Volatile Organics by GC/MS

Field ID:	GN050091	Matrix:	Aqueous
Project:	Work Item #4	Container:	40 mL VOA Vial
Client:	Otis 102nd Fighter Wing/Environmental Management	Preservation:	HCl/Cool
Laboratory ID:	82298-03	QC Batch ID:	VM7-1747-W
Sampled:	03-29-05 00:00	Instrument ID:	MS-7 Agilent 6890
Received:	03-29-05 15:30	Sample Volume:	25 mL
Analyzed:	04-12-05 17:39	Dilution Factor:	1
Analyst:	LMG		

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 (Continued)
Volatile Organics by GC/MS

Field ID:	GN050091	Matrix:	Aqueous
Project:	Work Item #4	Container:	40 mL VOA Vial
Client:	Otis 102nd Fighter Wing/Environmental Management	Preservation:	HCl/Cool
Laboratory ID:	82298-03	QC Batch ID:	VM7-1747-W
Sampled:	03-29-05 00:00	Instrument ID:	MS-7 Agilent 6890
Received:	03-29-05 15:30	Sample Volume:	25 mL
Analyzed:	04-12-05 17:39	Dilution Factor:	1
Analyst:	LMG		

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	11	108 %	70 - 130 %
1,2-Dichloroethane-d_4	10	9.6	96 %	70 - 130 %
Toluene-d_8	10	10	105 %	70 - 130 %
4-Bromofluorobenzene	10	11	115 %	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:	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:	GN050090	Matrix:	Aqueous
Project:	Work Item #4	Container:	1 L Amber Glass
Client:	Otis 102nd Fighter Wing/Environmental Management	Preservation:	H2SO4/Cool
Laboratory ID:	82298-08	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:	900 mL
Extracted:	04-04-05 13:30	Final Volume:	1 mL
Analyzed:	04-11-05 20:13	Dilution Factor:	1
Analyst:	MM		

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	0.038	85 %	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:	GN050089	Matrix:	Aqueous
Project:	Work Item #4	Container:	250 mL Plastic
Client:	Otis 102nd Fighter Wing/Environmental Management	Preservation:	HNO3 / Cool
Laboratory ID:	82298-16	Preserved:	03-29-05 00:00
Sampled:	03-29-05 00:00		
Received:	03-29-05 15:30		

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 13:24	EPA 6010B[1]
7440-39-3	Barium, Total	BRL		mg/L	0.2	1	04-08-05 13:24	EPA 6010B[1]
7440-43-9	Cadmium, Total	BRL		mg/L	0.005	1	04-08-05 13:24	EPA 6010B[1]
7440-47-3	Chromium, Total	BRL		mg/L	0.01	1	04-08-05 13:24	EPA 6010B[1]
7440-50-8	Copper, Total	BRL		mg/L	0.025	1	04-08-05 13:24	EPA 6010B[1]
7439-92-1	Lead, Total	BRL		mg/L	0.005	1	04-08-05 13:24	EPA 6010B[1]
7439-96-5	Manganese, Total	BRL		mg/L	0.05	1	04-08-05 13:23	EPA 6010B[1]
7439-97-6	Mercury, Total	BRL		mg/L	0.0002	1	04-04-05 13:59	EPA 7470A[2]
7440-02-0	Nickel, Total	BRL		mg/L	0.04	1	04-08-05 13:24	EPA 6010B[1]
7782-49-2	Selenium, Total	BRL		mg/L	0.05	1	04-08-05 13:24	EPA 6010B[1]
7440-22-4	Silver, Total	BRL		mg/L	0.007	1	04-08-05 13:24	EPA 6010B[1]
7440-66-6	Zinc, Total	BRL		mg/L	0.2	1	04-08-05 13:24	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

Trace Metals

Field ID:	GN050090	Matrix:	Aqueous
Project:	Work Item #4	Container:	250 mL Plastic
Client:	Otis 102nd Fighter Wing/Environmental Management	Preservation:	HNO3 / Cool
Laboratory ID:	82298-17	Preserved:	03-29-05 00:00
Sampled:	03-29-05 00:00		
Received:	03-29-05 15:30		

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

Trace Metals

Field ID:	GN050091	Matrix:	Aqueous
Project:	Work Item #4	Container:	250 mL Plastic
Client:	Otis 102nd Fighter Wing/Environmental Management	Preservation:	HNO3 / Cool
Laboratory ID:	82298-18	Preserved:	03-29-05 00:00
Sampled:	03-29-05 00:00		
Received:	03-29-05 15:30		

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 13:43	EPA 6010B[1]
7440-39-3	Barium, Total	BRL		mg/L	0.2	1	04-08-05 13:43	EPA 6010B[1]
7440-43-9	Cadmium, Total	BRL		mg/L	0.005	1	04-08-05 13:43	EPA 6010B[1]
7440-47-3	Chromium, Total	BRL		mg/L	0.01	1	04-08-05 13:43	EPA 6010B[1]
7440-50-8	Copper, Total	BRL		mg/L	0.025	1	04-08-05 13:43	EPA 6010B[1]
7439-92-1	Lead, Total	**0.011**		mg/L	0.005	1	04-08-05 13:43	EPA 6010B[1]
7439-96-5	Manganese, Total	BRL		mg/L	0.05	1	04-08-05 13:43	EPA 6010B[1]
7439-97-6	Mercury, Total	BRL		mg/L	0.0002	1	04-04-05 14:11	EPA 7470A[2]
7440-02-0	Nickel, Total	BRL		mg/L	0.04	1	04-08-05 13:43	EPA 6010B[1]
7782-49-2	Selenium, Total	BRL		mg/L	0.05	1	04-08-05 13:43	EPA 6010B[1]
7440-22-4	Silver, Total	BRL		mg/L	0.007	1	04-08-05 13:43	EPA 6010B[1]
7440-66-6	Zinc, Total	BRL		mg/L	0.2	1	04-08-05 13:43	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 10-107-06-2-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: GN050090
Project: Work Item #4
Client: Otis 102nd Fighter Wing/Environmental Management

Matrix: Aqueous
Received: 03-29-05 15:30

Lab ID: 82298-11 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)	0.21	mg/L	0.02	1	5 mL	03-29-05 17:21	NI-2528-W	SM 4500-NO3 F	1	DDW
Nitrite (as Nitrogen)	BRL	mg/L	0.02	1	5 mL	03-29-05 17:21	NI-2528-W	SM 4500-NO3 F	1	DDW
Ammonia (as Nitrogen)	BRL	mg/L	0.2	1	50 mL	04-07-05 15:22	AM-1463-W	Lachat 10-107-06-1-B (SM 4500-NH3 B, G)	1	AVB
Chemical Oxygen Demand	BRL	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)	0.21	mg/L	0.02	1	5 mL	03-29-05 17:21	NI-2528-W	Lachat 10-107-04-1-C (SM 4500-NO3 F)	1	DDW
Nitrogen, Total Kjeldahl (TKN)	1.6	mg/L	0.5	1	20 mL	04-08-05 15:15	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 15:15	TP-1592-W	Lachat 10-115-01-1-C (EPA 365.4)	1	AVB

Lab ID: 82298-14 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 11:31	BOD-2016-W	SM 5210 B	4	DB
Solids, Total Suspended	51	mg/L	10	1	100 mL	03-31-05 09:33	TSS-1064-W	SM 2540 D	5	DB
pH	6.5	pH	NA	1	50 mL	03-29-05 16:00	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, Inc., P.O. Box 1200, 228 Main Street, Buzzards Bay, MA 02532

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, G)	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 10-107-04-1-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	Matrix:	Aqueous
Project:	Work Item #4	Container:	120mL Sterile Plastic
Client:	Otis 102nd Fighter Wing/Environmental Management	Preservation:	Cool
Laboratory ID:	82298-19		
Sampled:	03-29-05 00:00		
Received:	03-29-05 15:30		

Analyte	Result	Units	DF	Volume	Analyzed	QC Batch	Method	Analyst
Coliform, Fecal	<10	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.

GROUNDWATER ANALYTICAL

Microbiology

Field ID:	GN050089	Matrix:	Aqueous
Project:	Work Item #4	Container:	120mL Sterile Plastic
Client:	Otis 102nd Fighter Wing/Environmental Management	Preservation:	Cool
Laboratory ID:	82298-20		
Sampled:	03-29-05 00:00		
Received:	03-29-05 15:30		

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.

GROUNDWATER ANALYTICAL

Microbiology

Field ID:	GN050091	Matrix:	Aqueous
Project:	Work Item #4	Container:	120mL Sterile Plastic
Client:	Otis 102nd Fighter Wing/Environmental Management	Preservation:	Cool

Laboratory ID: 82298-21
Sampled: 03-29-05 00:00
Received: 03-29-05 15:30

Analyte	Result	Units	DF	Volume	Analyzed	QC Batch	Method	Analyst
Coliform, Fecal	2,400	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.

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

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
GN050089
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	DATE ANAL	ID
Glycol Organics by GC/FID				12 E202		0407 09 13 RL	
Ethylene glycol	ND	mg/l	5.0				

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

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

MA:M-MA086 NH:200301-A CT:PH-0574 ME:MA086 RI:65 NY:11148 NJ:MA935 Army:USACE

Laboratory Sample Number: L0503236-02
GN050090
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	DATE ANAL	ID
Glycol Organics by GC/FID				12 E202		0407 09 42	RL
Ethylene glycol	ND	mg/l	5.0				

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

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

MA:M-MA086 NH:200301-A CT:PH-0574 ME:MA086 RI:65 NY:11148 NJ:MA935 Army:USACE

Laboratory Sample Number: 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	DATE ANAL	ID
Glycol Organics by GC/FID				12 E202		0407 10 10	RL
Ethylene glycol	ND	mg/l	5.0				

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

GROUNDWATER ANALYTICAL

Project Narrative

Project:	Work Item #4	Lab ID:	82298
Client:	Otis 102nd Fighter Wing/Environmental Management	Received:	03-29-05 15:30

A. Documentation and Client Communication

The following documentation discrepancies, and client changes or amendments were noted for this project:

1. Analysis for Herbicides was cancelled, as discussed with Rose Ware, 03-31-05.

B. Method Modifications, Non-Conformances and Observations

The sample(s) in this project were analyzed by the references analytical method(s), and no method modifications, non-conformances or analytical issues were noted, except as indicated below:

1. No method modifications, non-conformances or analytical issues were noted.

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

CHAIN OF CUSTODY RECORD

PROJ. NO.

PROJECT NAME

CLIENT
102 FW/EM
Otis ANG Base MA 02542-5028

SAMPLE I.D.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	NH3-N	NO3-N	COLIFORM	TKN	BORON	MBAS	FLUORIDE	REMARKS
GN050089	29 MAR 05			X	SD-1	12								SEE REQUEST FORM
GN050090	29 MAR 05			X	SD-3	12								" " "
GN050091	29 MAR 05			X	SD-4	12								" " "

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
	29 MAR 05 1500			3 29 05 1530	3/30/05 3.6C
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Relinquished by: (Signature)	Date/Time	Received for Laboratory by: (Signature)	Date/Time	Remarks	

. Work Item (4) Storm Water Drainage Swales

(a) Four areas (surface water) four times per year for one year. Analyze samples for:

(1) Total Suspended Solids
(2) Total Phosphorous
(3) Total Kjeldahl Nitrogen
(4) Total Copper
(5) Total Zinc
(6) Total Lead
(7) TPH – Diesel Range Organics
(8) Regulated/Unregulated Volatile Organic Compounds via EPA Method 8260
(9) Ethylene Glycol (SARA III)
(10) COD
(11) BOD(5)
(12) Nitrate + Nitrite Nitrogen
(13) Ammonia
(14) pH
(15) Herbicides
(16) Total Arsenic
(17) Total Barium
(18) Total Cadmium
(19) Total Chromium
(20) Total Manganese
(21) Total Mercury
(22) Total Nickel
(23) Total Selenium
(24) Total Silver

(b) Four areas (surface water) four times per year for one year. Analyze samples for:

(1) Fecal Coliform

NOTE: Sampling will be conducted by government personnel once per quarter of a year for a storm event producing rainfall greater thatn 0.1 inch in magnitude. For this reason timely submittal of samples for analysis will vary.

ENVIRONMENTAL SAMPLING DATA

(Use this space for mechanical imprint)

OEHL USE ONLY

SAMPLING SITE IDENTIFIER (AFR 19-7): 0305 N0 537

BASE WHERE SAMPLE COLLECTED: OTIS ANG BASE

SAMPLING SITE DESCRIPTION: SD-1

DATE COLLECTION BEGAN (YYMMDD): 051218

TIME COLLECTION BEGAN (24 hour clock):

COLLECTION METHOD: [X] GRAB [ ] COMPOSITE HOURS

MAIL REPORTS TO (circle if changed)

ORIGINAL: 102FW/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

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		Surfactans-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	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)	70300		Methoxychlor	39480		Temperature 00010 °C
	Chromium, Total	01034	Residue, Nonfilterable	00530		Pramitol (Pramaton)	XY4200000		Odor 00086
	Chromium VI	01032	Residue, Settleable	50085		Toxaphene	39400		Iodide 71865
	Copper	01042	Residue, Volatile	00505		2, 4-D	39730		Sulfite 00740

REMARKS: WORK ITEM 4A (SEE OVER)

ENVIRONMENTAL SAMPLING DATA

(Use this space for mechanical imprint)

OEHL USE ONLY

SAMPLING SITE IDENTIFIER (AFR 19-7): 0305 NO 536

BASE WHERE SAMPLE COLLECTED: OTIS ANG BASE

SAMPLING SITE DESCRIPTION: SD-4 OWS Reilly ST

DATE COLLECTION BEGAN (YYMMDD): 051312 8

TIME COLLECTION BEGAN (24 hour clock):

COLLECTION METHOD: [X] GRAB [ ] COMPOSITE HOURS

MAIL REPORTS TO (circle if changed)

ORIGINAL: 102FW/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 0091

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		Surfactans-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	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)	70300		Methoxychlor	39480		Temperature 00010	°C
	Chromium, Total	01034	Residue, Nonfilterable	00530		Promitol (Pramaron)	KV4200000		Odor 00086	
	Chromium VI	01032	Residue, Settleable	50085		Toxaphene	39400		Iodide 71565	
	Copper	01042	Residue, Volatile	00505		2, 4–D	39730		Sulfite 00740	

REMARKS: WORK ITEM 4A (SEE OVER)

ENVIRONMENTAL SAMPLING DATA

(Use this space for mechanical imprint)

OEHL USE ONLY

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): 910328

TIME COLLECTION BEGAN (24 hour clock):

COLLECTION METHOD: [X] GRAB [ ] COMPOSITE HOURS

MAIL REPORTS TO (circle if changed)

ORIGINAL	102FW/EM
COPY 1	197 GRANVILLE AVE BOX 46
COPY 2	OTIS ANG BASE MA 02542-1330

SAMPLE COLLECTED BY (Name, Grade, AFSC):

SIGNATURE:

AUTOVON: 508 968-4072

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		Surfactans-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	39300		
	Antimony	01097	Bromide	71870		Dieldrin	39380		
	Arsenic	01002	Carbon Dioxide	00405		Dursban	77969		
	Barium	01007	Chloride	00940		Endrin	39390		
	Beryllium	01012	Color	00080		Heptachlor	39410		
	Boron	01022	Fluoride	00951		Heptachlor Epoxide	39420		
	Cadmium	01027	Residue, Total	00500		Lindane	39782		
	Calcium	00916	Residue, Filterable (TDS)	70300		Methoxychlor	39480		
	Chromium, Total	01034	Residue, Nonfilterable	00530		Promitol (Pramaton)	XY4200000		
	Chromium VI	01032	Residue, Settleable	50085		Toxaphene	39400		
	Copper	01042	Residue, Volatile	00505		2, 4—D	39730		

ON SITE ANALYSES

PARAMETER		VALUE
Flow	50050	mgd
Chlorine, Total	50060	mg/L
Dissolved Oxygen	00300	mg/L
pH	00400	units
Temperature	00010	°C
Odor	00086	
Iodide	71865	
Sulfite	00740	

REMARKS: WORK ITEM 4A (SEE OVER)

GROUNDWATER ANALYTICAL

Quality Assurance/Quality Control

A. Program Overview

Groundwater Analytical conducts an active Quality Assurance program to ensure the production of high quality, valid data. This program closely follows the guidance provided by *Interim Guidelines and Specifications for Preparing Quality Assurance Project Plans,* US EPA QAMS-005/80 (1980), and *Test Methods for Evaluating Solid Waste,* US EPA, SW-846, Update III (1996).

Quality Control protocols include written Standard Operating Procedures (SOPs) developed for each analytical method. SOPs are derived from US EPA methodologies and other established references. Standards are prepared from commercially obtained reference materials of certified purity, and documented for traceability.

Quality Assessment protocols for most organic analyses include a minimum of one laboratory control sample, one method blank, one matrix spike sample, and one sample duplicate for each sample preparation batch. All samples, standards, blanks, laboratory control samples, matrix spikes and sample duplicates are spiked with internal standards and surrogate compounds. All instrument sequences begin with an initial calibration verification standard and a blank; and excepting GC/MS sequences, all sequences close with a continuing calibration standard. GC/MS systems are tuned to appropriate ion abundance criteria daily, or for each 12 hour operating period, whichever is more frequent.

Quality Assessment protocols for most inorganic analyses include a minimum of one laboratory control sample, one method blank, one matrix spike sample, and one sample duplicate for each sample preparation batch. Standard curves are derived from one reagent blank and four concentration levels. Curve validity is verified by standard recoveries within plus or minus ten percent of the curve.

B. Definitions

Batches are used as the basic unit for Quality Assessment. A Batch is defined as twenty or fewer samples of the same matrix which are prepared together for the same analysis, using the same lots of reagents and the same techniques or manipulations, all within the same continuum of time, up to but not exceeding 24 hours.

Laboratory Control Samples are used to assess the accuracy of the analytical method. A Laboratory Control Sample consists of reagent water or sodium sulfate spiked with a group of target analytes representative of the method analytes. Accuracy is defined as the degree of agreement of the measured value with the true or expected value. Percent Recoveries for the Laboratory Control Samples are calculated to assess accuracy.

Method Blanks are used to assess the level of contamination present in the analytical system. Method Blanks consist of reagent water or an aliquot of sodium sulfate. Method Blanks are taken through all the appropriate steps of an analytical method. Sample data reported is not corrected for blank contamination.

Surrogate Compounds are used to assess the effectiveness of an analytical method in dealing with each sample matrix. Surrogate Compounds are organic compounds which are similar to the target analytes of interest in chemical behavior, but which are not normally found in environmental samples. Percent Recoveries are calculated for each Surrogate Compound.

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

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
Method Blank

Category: Inorganic Chemistry
Matrix: Aqueous

Analyte	Result	Units	RL	Analyzed	QC Batch	Method	Inst	Analyst
Solids, Total Suspended	BRL	mg/L	10	03-31-05 09:33	TSS-1064-W	SM 2540 D	4	DEB
Phosphorus, Total	BRL	mg/L	0.5	04-08-05 15:03	TP-1592-W	Lachat 10-115-01-1-C (EPA 365.4)	1	AVB
Total Kjeldahl Nitrogen (TKN)	BRL	mg/L	0.5	04-08-05 15:03	TKN-1592-W	Lachat 10-107-06-2-D (EPA 351.2)	1	AVB
Nitrite (as Nitrogen)	BRL	mg/L	0.02	03-29-05 17:15	NI-2528-W	Lachat 10-107-04-1-C (SM 4500-NO3 F)	1	DDW
Nitrate (as Nitrogen)	BRL	mg/L	0.02	03-29-05 17:15	NI-2528-W	Lachat 10-107-04-1-C (SM 4500-NO3 F)	1	DDW
Ammonia (as Nitrogen)	BRL	mg/L	0.2	04-07-05 15:20	AM-1463-W	Lachat 10-107-06-1-B (SM 4500-NH3 B, G)	1	AVB
Chemical Oxygen Demand	BRL	mg/L	20	04-05-05 10:00	COD-0524-W	SM 5220 D	2	MW
Biochemical Oxygen Demand	BRL	mg/L	2	03-30-05 09:18	BOD-2016-W	SM 5210 B	3	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:

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.

1 Instrument ID: Lachat 8000 Autoanalyzer

2 Instrument ID: Milton Roy Spectronic 401

3 Instrument ID: YSI 5100

4 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
Method Blank

Category: Metals
Matrix: Aqueous

Analysis Method	QC Batch ID	Prep Method	Prepared	Sample Volume	Instrument ID	Analyst
EPA 6010B	MB-1498-WB	EPA 3010A	03-31-05 08:29	50 mL	ICP-2 PE 3300	MWR
EPA 7470A	MP-1655-WB	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	BRL		mg/L	0.01	1	04-08-05 12:10	EPA 6010B
7440-39-3	Barium	BRL		mg/L	0.2	1	04-08-05 12:10	EPA 6010B
7440-43-9	Cadmium	BRL		mg/L	0.005	1	04-08-05 12:10	EPA 6010B
7440-47-3	Chromium	BRL		mg/L	0.01	1	04-08-05 12:10	EPA 6010B
7440-50-8	Copper	BRL		mg/L	0.025	1	04-08-05 12:10	EPA 6010B
7439-92-1	Lead	BRL		mg/L	0.005	1	04-08-05 12:10	EPA 6010B
7439-96-5	Manganese	BRL		mg/L	0.05	1	04-08-05 12:09	EPA 6010B
7439-97-6	Mercury	BRL		mg/L	0.0002	1	04-04-05 13:54	EPA 7470A
7440-02-0	Nickel	BRL		mg/L	0.04	1	04-08-05 12:10	EPA 6010B
7782-49-2	Selenium	BRL		mg/L	0.05	1	04-08-05 12:10	EPA 6010B
7440-22-4	Silver	BRL		mg/L	0.007	1	04-08-05 12:10	EPA 6010B
7440-66-6	Zinc	BRL		mg/L	0.2	1	04-08-05 12:10	EPA 6010B

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

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
Method Blank

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 08:17
		Analyst:	MM

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

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
ortho -Terphenyl	0.040	0.036	90 %	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-C28. 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

Quality Control Report
Laboratory Control Samples

		LCS		LCSD	
Category:	EPA Method 8260B	Instrument ID:	MS-7 Agilent 6890	Instrument ID:	MS-7 Agilent 6890
QC Batch ID:	VM7-1747-WL	Analyzed:	04-12-05 13:21	Analyzed:	04-12-05 13:56
Matrix:	Aqueous	Analyst:	LMG	Analyst:	LMG
Units:	ug/L				

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
Laboratory Control Samples

		LCS		LCSD	
Category:	EPA Method 8260B	Instrument ID:	MS-7 Agilent 6890	Instrument ID:	MS-7 Agilent 6890
QC Batch ID:	VM7-1747-WL	Analyzed:	04-12-05 13:21	Analyzed:	04-12-05 13:56
Matrix:	Aqueous	Analyst:	LMG	Analyst:	LMG
Units:	ug/L				

CAS Number	Analyte	LCS			LCS Duplicate				QC Limits	
		Spiked	Measured	Recovery	Spiked	Measured	Recovery	RPD	Spike	RPD
108-86-1	Bromobenzene	10	8.7	87 %	10	9.1	91 %	4 %	70 - 130 %	25%
79-34-5	1,1,2,2-Tetrachloroethane	10	9.5	95 %	10	9.8	98 %	2 %	70 - 130 %	25%
96-18-4	1,2,3-Trichloropropane	10	9.6	96 %	10	9.7	97 %	1 %	70 - 130 %	25%
103-65-1	*n*-Propylbenzene	10	8.7	87 %	10	8.9	89 %	2 %	70 - 130 %	25%
95-49-8	2-Chlorotoluene	10	8.7	87 %	10	8.9	89 %	2 %	70 - 130 %	25%
108-67-8	1,3,5-Trimethylbenzene	10	8.9	89 %	10	9	90 %	1 %	70 - 130 %	25%
106-43-4	4-Chlorotoluene	10	8.6	86 %	10	8.9	89 %	3 %	70 - 130 %	25%
98-06-6	*tert*-Butylbenzene	10	8.8	88 %	10	8.9	89 %	1 %	70 - 130 %	25%
95-63-6	1,2,4-Trimethylbenzene	10	9	90 %	10	9.1	91 %	1 %	70 - 130 %	25%
135-98-8	*sec*-Butylbenzene	10	8.9	89 %	10	9	90 %	1 %	70 - 130 %	25%
541-73-1	1,3-Dichlorobenzene	10	8.9	89 %	10	9.1	91 %	2 %	70 - 130 %	25%
99-87-6	4-Isopropyltoluene	10	9	90 %	10	9	90 %	0 %	70 - 130 %	25%
106-46-7	1,4-Dichlorobenzene	10	8.7	87 %	10	8.9	89 %	3 %	70 - 130 %	25%
95-50-1	1,2-Dichlorobenzene	10	9.1	91 %	10	9.3	93 %	2 %	70 - 130 %	25%
104-51-8	*n*-Butylbenzene	10	8.9	89 %	10	8.7	87 %	2 %	70 - 130 %	25%
96-12-8	1,2-Dibromo-3-chloropropane	10	10	103 %	10	9.7	97 %	7 %	70 - 130 %	25%
120-82-1	1,2,4-Trichlorobenzene	10	9.7	97 %	10	9.1	91 %	7 %	70 - 130 %	25%
87-68-3	Hexachlorobutadiene	10	9.9	99 %	10	9.4	94 %	5 %	70 - 130 %	25%
91-20-3	Naphthalene	10	9.7	97 %	10	8.9	89 %	9 %	70 - 130 %	25%
87-61-6	1,2,3-Trichlorobenzene	10	10	102 %	10	9.2	92 %	10 %	70 - 130 %	25%
75-65-0	*tert*-Butyl Alcohol (TBA)	200	230	116 %	200	220	110 %	5 %	70 - 130 %	25%
108-20-3	Di-isopropyl Ether (DIPE)	10	9.9	99 %	10	9.7	97 %	2 %	70 - 130 %	25%
637-92-3	Ethyl *tert*-butyl Ether (ETBE)	10	10	100 %	10	9.9	99 %	1 %	70 - 130 %	25%
994-05-8	*tert*-Amyl Methyl Ether (TAME)	10	9.6	96 %	10	9.6	96 %	0 %	70 - 130 %	25%

QC Surrogate Compound	Spiked	Measured	Recovery	Spiked	Measured	Recovery		QC Limits
Dibromofluoromethane	10	11	108 %	10	11	108 %		70 - 130 %
1,2-Dichloroethane-d_4	10	9.7	97 %	10	9.7	97 %		70 - 130 %
Toluene-d_8	10	11	105 %	10	11	106 %		70 - 130 %
4-Bromofluorobenzene	10	9.8	98 %	10	9.9	99 %		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: 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
Method Blank

Category:	EPA Method 8260B	Instrument ID:	MS-7 Agilent 6890
QC Batch ID:	VM7-1747-WB	Analyzed:	04-12-05 14:39
Matrix:	Aqueous	Analyst:	LMG

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

Quality Control Report
Method Blank

Category:	EPA Method 8260B	Instrument ID:	MS-7 Agilent 6890
QC Batch ID:	VM7-1747-WB	Analyzed:	04-12-05 14:39
Matrix:	Aqueous	Analyst:	LMG

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
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	11	108 %	70 - 130 %
1,2-Dichloroethane-d_4	10	9.6	96 %	70 - 130 %
Toluene-d_8	10	11	105 %	70 - 130 %
4-Bromofluorobenzene	10	11	112 %	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

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

MAY - 2 2005

GROUNDWATER ANALYTICAL

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

September 15, 2004

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

RECEIVED
SEP 24 2004

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

ATTACHMENT 8

GROUNDWATER ANALYTICAL

Sample Receipt Report

Project:	**Work Item 4A + 4B**	Delivery:	**Hand**	Temperature:	**6.7'C**
Client:	**Otis 102nd Fighter Wing/Environmental Management**	Airbill:	**n/a**	Chain of Custody:	**Present**
Lab ID:	**76188**	Lab Receipt:	**08-31-04**	Custody Seal(s):	**n/a**

Lab ID	Field ID		Matrix	Sampled	Method				Notes
76188-1	GN-040253 SD-1		Aqueous	8/31/04 10:00	EPA 8260B Volatile Organics with Oxygenates				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C330069	40 mL VOA Vial	Industrial	BX10047	HCl	R-3722D	10-30-03	11-25-03		
C330057	40 mL VOA Vial	Industrial	BX10047	HCl	R-3722D	10-30-03	11-25-03		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
76188-2	GN-040254 SD-3		Aqueous	8/31/04 10:15	EPA 8260B Volatile Organics with Oxygenates				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C386930	40 mL VOA Vial	Industrial	BX10006	HCl	R-3722D	10-29-03	11-25-03		
C386929	40 mL VOA Vial	Industrial	BX10006	HCl	R-3722D	10-29-03	11-25-03		
C386919	40 mL VOA Vial	Industrial	BX10006	HCl	R-3722D	10-29-03	11-25-03		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
76188-3	GN-040255 SD-4		Aqueous	8/31/04 10:30	EPA 8260B Volatile Organics with Oxygenates				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C386918	40 mL VOA Vial	Industrial	BX10006	HCl	R-3722D	10-29-03	11-25-03		
C386920	40 mL VOA Vial	Industrial	BX10006	HCl	R-3722D	10-29-03	11-25-03		
C386917	40 mL VOA Vial	Industrial	BX10006	HCl	R-3722D	10-29-03	11-25-03		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
76188-4	GN-040255 SD-4		Aqueous	8/31/04 10:30	Ethylene Glycol				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C386931	40 mL VOA Vial	Industrial	BX10006	HCl	R-3722D	10-29-03	11-25-03		
C386933	40 mL VOA Vial	Industrial	BX10006	HCl	R-3722D	10-29-03	11-25-03		
C386932	40 mL VOA Vial	Industrial	BX10006	HCl	R-3722D	10-29-03	11-25-03		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
76188-5	GN-040254 SD-3		Aqueous	8/31/04 10:15	Ethylene Glycol				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C386908	40 mL VOA Vial	Industrial	BX10006	HCl	R-3722D	10-29-03	11-25-03		
C386907	40 mL VOA Vial	Industrial	BX10006	HCl	R-3722D	10-29-03	11-25-03		
C386906	40 mL VOA Vial	Industrial	BX10006	HCl	R-3722D	10-29-03	11-25-03		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
76188-6	GN-040253 SD-1		Aqueous	8/31/04 10:00	Ethylene Glycol				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C330070	40 mL VOA Vial	Industrial	BX10047	HCl	R-3722D	10-30-03	11-25-03		
C330071	40 mL VOA Vial	Industrial	BX10047	HCl	R-3722D	10-30-03	11-25-03		
C330059	40 mL VOA Vial	Industrial	BX10047	HCl	R-3722D	10-30-03	11-25-03		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
76188-7	GN-040253 SD-1		Aqueous	8/31/04 10:00	EPA 8100 Mod Diesel Range Organics				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C304505	1 L Amber Glass	Proline	BX10252	H2SO4	R-3778A	11-10-03	11-25-03		
C304506	1 L Amber Glass	Proline	BX10252	H2SO4	R-3778A	11-10-03	11-25-03		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
76188-8	GN-040254 SD-3		Aqueous	8/31/04 10:15	EPA 8100 Mod Diesel Range Organics				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C304582	1 L Amber Glass	Proline	BX10259	H2SO4	R-3778A	11-10-03	11-25-03		
C304581	1 L Amber Glass	Proline	BX10259	H2SO4	R-3778A	11-10-03	11-25-03		

GROUNDWATER ANALYTICAL

Sample Receipt Report (Continued)

Project:	**Work Item 4A + 4B**	Delivery:	**Hand**	Temperature:	**6.7'C**
Client:	**Otis 102nd Fighter Wing/Environmental Management**	Airbill:	**n/a**	Chain of Custody:	**Present**
Lab ID:	**76188**	Lab Receipt:	**08-31-04**	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		

GROUNDWATER ANALYTICAL

Sample Receipt Report (Continued)

Project:	**Work Item 4A + 4B**	Delivery:	**Hand**	Temperature:	**6.7'C**
Client:	**Otis 102nd Fighter Wing/Environmental Management**	Airbill:	n/a	Chain of Custody:	**Present**
Lab ID:	**76188**	Lab Receipt:	**08-31-04**	Custody Seal(s):	**n/a**

Lab ID	Field ID		Matrix	Sampled	Method				Notes
76188-18	GN-040253 SD-1		Aqueous	8/31/04 10:00	SM 2540 B Total Suspended Solids EPA 9040B pH				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C488976	250 mL Plastic	Greenwood	BX13346	None	n/a	n/a	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
76188-19	GN-040253 SD-1		Aqueous	8/31/04 10:00	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**		
C348490	500 mL Plastic	Proline	BX10153	H2SO4	R-3778A	10-29-03	11-25-03		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
76188-20	GN-040254 SD-3		Aqueous	8/31/04 10:15	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**		
C348460	500 mL Plastic	Proline	BX10153	H2SO4	R-3778A	10-29-03	11-25-03		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
76188-21	GN-040255 SD-4		Aqueous	8/31/04 10:30	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**		
C348499	500 mL Plastic	Proline	BX10153	H2SO4	R-3778A	10-29-03	11-25-03		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
76188-22	GN-040255 SD-4		Aqueous	8/31/04 10:30	SM 9222 D Fecal Coliform				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C315973	120 mL Sterile Plastic	Fisher	BX9218	None	n/a	n/a	11-25-03		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
76188-23	GN-040254 SD-3		Aqueous	8/31/04 10:15	SM 9222 D Fecal Coliform				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C190967	120 mL Sterile Plastic	n/a	n/a	None	n/a	n/a	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
76188-24	GN-040253 SD-1		Aqueous	8/31/04 10:00	SM 9222 D Fecal Coliform				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C190966	120 mL Sterile Plastic	n/a	n/a	None	n/a	n/a	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
76188-25	GN-040253 SD-1		Aqueous	8/31/04 10:00	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**		
C316714	250 mL Plastic	Greenwood	BX9458	HNO3	R-3760B	10-24-03	11-25-03		

GROUNDWATER ANALYTICAL

Sample Receipt Report (Continued)

Project:	Work Item 4A + 4B	Delivery:	Hand	Temperature:	6.7'C
Client:	Otis 102nd Fighter Wing/Environmental Management	Airbill:	n/a	Chain of Custody:	Present
Lab ID:	76188	Lab Receipt:	08-31-04	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		

GROUNDWATER ANALYTICAL

EPA Method 8260B
Volatile Organics by GC/MS

Field ID:	GN-040253 SD-1	Matrix:	Aqueous
Project:	Work Item 4A + 4B	Container:	40 mL VOA Vial
Client:	Otis 102nd Fighter Wing/Environmental Management	Preservation:	HCl/Cool
Laboratory ID:	76188-01	QC Batch ID:	VM4-2988-W
Sampled:	08-31-04 10:00	Instrument ID:	MS-4 HP 6890
Received:	08-31-04 15:50	Sample Volume:	25 mL
Analyzed:	09-12-04 01:39	Dilution Factor:	1
Analyst:	EMC		

14

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 (Continued)
Volatile Organics by GC/MS

Field ID:	GN-040253 SD-1	Matrix:	Aqueous
Project:	Work Item 4A + 4B	Container:	40 mL VOA Vial
Client:	Otis 102nd Fighter Wing/Environmental Management	Preservation:	HCl/Cool
Laboratory ID:	76188-01	QC Batch ID:	VM4-2988-W
Sampled:	08-31-04 10:00	Instrument ID:	MS-4 HP 6890
Received:	08-31-04 15:50	Sample Volume:	25 mL
Analyzed:	09-12-04 01:39	Dilution Factor:	1
Analyst:	EMC		

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.

GROUNDWATER ANALYTICAL

EPA Method 8260B
Volatile Organics by GC/MS

Field ID:	GN-040254 SD-3	Matrix:	Aqueous
Project:	Work Item 4A + 4B	Container:	40 mL VOA Vial
Client:	Otis 102nd Fighter Wing/Environmental Management	Preservation:	HCl/Cool
Laboratory ID:	76188-02	QC Batch ID:	VM4-2988-W
Sampled:	08-31-04 10:15	Instrument ID:	MS-4 HP 6890
Received:	08-31-04 15:50	Sample Volume:	25 mL
Analyzed:	09-12-04 02:19	Dilution Factor:	1
Analyst:	EMC		

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 (Continued)
Volatile Organics by GC/MS

Field ID:	GN-040254 SD-3	Matrix:	Aqueous
Project:	Work Item 4A + 4B	Container:	40 mL VOA Vial
Client:	Otis 102nd Fighter Wing/Environmental Management	Preservation:	HCl/Cool
Laboratory ID:	76188-02	QC Batch ID:	VM4-2988-W
Sampled:	08-31-04 10:15	Instrument ID:	MS-4 HP 6890
Received:	08-31-04 15:50	Sample Volume:	25 mL
Analyzed:	09-12-04 02:19	Dilution Factor:	1
Analyst:	EMC		

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.

GROUNDWATER ANALYTICAL

EPA Method 8260B
Volatile Organics by GC/MS

Field ID:	GN-040255 SD-4	Matrix:	Aqueous
Project:	Work Item 4A + 4B	Container:	40 mL VOA Vial
Client:	Otis 102nd Fighter Wing/Environmental Management	Preservation:	HCl/Cool
Laboratory ID:	76188-03	QC Batch ID:	VM4-2988-W
Sampled:	08-31-04 10:30	Instrument ID:	MS-4 HP 6890
Received:	08-31-04 15:50	Sample Volume:	25 mL
Analyzed:	09-12-04 02:59	Dilution Factor:	1
Analyst:	EMC		

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 (Continued)
Volatile Organics by GC/MS

Field ID:	GN-040255 SD-4	Matrix:	Aqueous
Project:	Work Item 4A + 4B	Container:	40 mL VOA Vial
Client:	Otis 102nd Fighter Wing/Environmental Management	Preservation:	HCl/Cool
Laboratory ID:	76188-03	QC Batch ID:	VM4-2988-W
Sampled:	08-31-04 10:30	Instrument ID:	MS-4 HP 6890
Received:	08-31-04 15:50	Sample Volume:	25 mL
Analyzed:	09-12-04 02:59	Dilution Factor:	1
Analyst:	EMC		

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-040253 SD-1	Matrix:	Aqueous
Project:	Work Item 4A + 4B	Container:	1 L Amber Glass
Client:	Otis 102nd Fighter Wing/Environmental Management	Preservation:	H2SO4/Cool
Laboratory ID:	76188-07	QC Batch ID:	HF-1510-F
Sampled:	08-31-04 10:00	Instrument ID:	GC-12 Agilent 6890
Received:	08-31-04 15:50	Sample Volume:	900 mL
Extracted:	09-07-04 16:00	Final Volume:	1 mL
Analyzed:	09-15-04 10:13	Dilution Factor:	1
Analyst:	MM		

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	0.041	93 %	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:	**GN-040254 SD-3**	Matrix:	**Aqueous**
Project:	**Work Item 4A + 4B**	Container:	**1 L Amber Glass**
Client:	**Otis 102nd Fighter Wing/Environmental Management**	Preservation:	**H2SO4/Cool**
Laboratory ID:	**76188-08**	QC Batch ID:	**HF-1510-F**
Sampled:	**08-31-04 10:15**	Instrument ID:	**GC-12 Agilent 6890**
Received:	**08-31-04 15:50**	Sample Volume:	**900 mL**
Extracted:	**09-07-04 16:00**	Final Volume:	**1 mL**
Analyzed:	**09-15-04 11:15**	Dilution Factor:	**1**
Analyst:	**MM**		

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

GROUNDWATER ANALYTICAL

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

Field ID:	**GN-040255 SD-4**	Matrix:	**Aqueous**
Project:	**Work Item 4A + 4B**	Container:	**1 L Amber Glass**
Client:	**Otis 102nd Fighter Wing/Environmental Management**	Preservation:	**H2SO4/Cool**
Laboratory ID:	**76188-09**	QC Batch ID:	**HF-1510-F**
Sampled:	**08-31-04 10:30**	Instrument ID:	**GC-12 Agilent 6890**
Received:	**08-31-04 15:50**	Sample Volume:	**900 mL**
Extracted:	**09-07-04 16:00**	Final Volume:	**1 mL**
Analyzed:	**09-15-04 11:47**	Dilution Factor:	**1**
Analyst:	MM		

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	0.041	92 %	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, Inc., P.O. Box 1200, 228 Main Street, Buzzards Bay, MA 02532

GROUNDWATER ANALYTICAL

EPA Method 8151A
Chlorinated Herbicides by GC/ECD

Field ID:	**GN-040253 SD-1**	Matrix:	**Aqueous**
Project:	**Work Item 4A + 4B**	Container:	**1 L Amber Glass**
Client:	**Otis 102nd Fighter Wing/Environmental Management**	Preservation:	**Cool**
Laboratory ID:	**76188-12**	QC Batch ID:	**HB-0270-F**
Sampled:	**08-31-04 10:00**	Instrument ID:	**GC-11 HP 6890**
Received:	**08-31-04 15:50**	Sample Weight:	**900 mL**
Extracted:	**09-07-04 08:00**	Final Volume:	**1 mL**
Analyzed:	**09-13-04 17:49**	Dilution Factor:	**1**
Analyst:	**JJT**		

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

GROUNDWATER ANALYTICAL

EPA Method 8151A
Chlorinated Herbicides by GC/ECD

Field ID:	**GN-040254 SD-3**	Matrix:	**Aqueous**
Project:	**Work Item 4A + 4B**	Container:	**1 L Amber Glass**
Client:	**Otis 102nd Fighter Wing/Environmental Management**	Preservation:	**Cool**
Laboratory ID:	**76188-11**	QC Batch ID:	**HB-0270-F**
Sampled:	**08-31-04 10:15**	Instrument ID:	**GC-11 HP 6890**
Received:	**08-31-04 15:50**	Sample Weight:	**1000 mL**
Extracted:	**09-07-04 08:00**	Final Volume:	**1 mL**
Analyzed:	**09-13-04 17:14**	Dilution Factor:	**1**
Analyst:	**JJT**		

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
75-99-0	Dalapon	BRL		ug/L	5
93-65-2	MCPP	BRL		ug/L	200
1918-00-9	Dicamba	BRL		ug/L	0.2
120-36-5	Dichloroprop	BRL		ug/L	2
94-74-6	MCPA	BRL		ug/L	200
94-75-7	2,4-D	BRL		ug/L	2
87-86-5	Pentachlorophenol	BRL		ug/L	0.4
93-72-1	2,4,5-TP (Silvex)	BRL		ug/L	0.2
93-76-5	2,4,5-T	BRL		ug/L	0.2
88-85-7	Dinoseb	BRL		ug/L	1
94-82-6	2,4-DB	BRL		ug/L	2

QC Surrogate Compound		Spiked	Measured	Recovery	QC Limits
First Column	2,4-Dichlorophenylacetic acid	4.0	2.8	**71 %**	30 - 150 %
Second Column	2,4-Dichlorophenylacetic acid	4.0	4.2	**104 %**	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, Inc., P.O. Box 1200, 228 Main Street, Buzzards Bay, MA 02532

GROUNDWATER ANALYTICAL

EPA Method 8151A
Chlorinated Herbicides by GC/ECD

Field ID:	**GN-040255 SD-4**	Matrix:	**Aqueous**
Project:	**Work Item 4A + 4B**	Container:	**1 L Amber Glass**
Client:	**Otis 102nd Fighter Wing/Environmental Management**	Preservation:	**Cool**
Laboratory ID:	**76188-10**	QC Batch ID:	**HB-0270-F**
Sampled:	**08-31-04 10:30**	Instrument ID:	**GC-11 HP 6890**
Received:	**08-31-04 15:50**	Sample Weight:	**900 mL**
Extracted:	**09-07-04 08:00**	Final Volume:	**1 mL**
Analyzed:	**09-13-04 16:41**	Dilution Factor:	**1**
Analyst:	**JJT**		

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	0.22
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-040253 SD-1	Matrix:	Aqueous
Project:	Work Item 4A + 4B	Container:	120 mL Sterile Plastic
Client:	Otis 102nd Fighter Wing/Environmental Management	Preservation:	Cool

Laboratory ID: 76188-24
Sampled: 08-31-04 10:00
Received: 08-31-04 15:50

Analyte	Result	Units	DF	Volume	Analyzed	QC Batch	Method	Analyst
Coliform, Fecal	7,200	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

Microbiology

Field ID:	**GN-040254 SD-3**	Matrix:	**Aqueous**
Project:	**Work Item 4A + 4B**	Container:	**120 mL Sterile Plastic**
Client:	**Otis 102nd Fighter Wing/Environmental Management**	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, Inc., P.O. Box 1200, 228 Main Street, Buzzards Bay, MA 02532

GROUNDWATER ANALYTICAL

Microbiology

Field ID:	GN-040255 SD-4	Matrix:	Aqueous
Project:	Work Item 4A + 4B	Container:	120 mL Sterile Plastic
Client:	Otis 102nd Fighter Wing/Environmental Management	Preservation:	Cool

Laboratory ID: 76188-22
Sampled: 08-31-04 10:30
Received: 08-31-04 15:50

Analyte	Result	Units	DF	Volume	Analyzed	QC Batch	Method	Analyst
Coliform, Fecal	3,800	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, Inc., P.O. Box 1200, 228 Main Street, Buzzards Bay, MA 02532

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, G)	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

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

GROUNDWATER ANALYTICAL

Inorganic Chemistry

Field ID: **GN-040254 SD-3** Matrix: **Aqueous**
Project: **Work Item 4A + 4B** Received: **08-31-04 15:50**
Client: **Otis 102nd Fighter Wing/Environmental Management**

Lab ID: **76188-14** Sampled: **08-31-04 10:15** Container: **1 L Plastic** Preservation: **Cool**

Analyte	Result	Units	RL	DF	Volume	Analyzed	QC Batch	Method	Inst	Analyst
Biochemical Oxygen Demand	3	mg/L	3	6	50 mL	09-01-04 18:38	BOD-1794-W	SM 5210 B	4	DDW

Lab ID: **76188-17** Sampled: **08-31-04 10:15** Container: **250 mL Plastic** Preservation: **Cool**

Analyte	Result	Units	RL	DF	Volume	Analyzed	QC Batch	Method	Inst	Analyst
Solids, Total Suspended	13	mg/L	10	1	100 mL	09-07-04 10:08	TSS-0993-W	SM 2540 B	5	DB
pH	5.9	pH	NA	1	50 mL	08-31-04 21:00	PH-1743-W	EPA 9040B	3	DDW

Lab ID: **76188-20** Sampled: **08-31-04 10:15** 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 21:07	NI-2290-W	SM 4500-NO3 F	1	LJD
Nitrite (as Nitrogen)	BRL	mg/L	0.02	1	5 mL	08-31-04 21:07	NI-2290-W	SM 4500-NO3 F	1	LJD
Ammonia (as Nitrogen)	BRL	mg/L	0.2	1	50 mL	09-03-04 21:39	AM-1376-W	Lachat 10-107-06-1-B (SM 4500-NH3 B, G)	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 21:07	NI-2290-W	SM 4500-NO3 F	1	N/A
Phosphorus, Total	BRL	mg/L	0.5	1	20 mL	09-08-04 15:31	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, Inc., P.O. Box 1200, 228 Main Street, Buzzards Bay, MA 02532

GROUNDWATER ANALYTICAL

Inorganic Chemistry

Field ID: **GN-040255 SD-4** Matrix: **Aqueous**
Project: **Work Item 4A + 4B** Received: **08-31-04 15:50**
Client: **Otis 102nd Fighter Wing/Environmental Management**

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, G)	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, Inc., P.O. Box 1200, 228 Main Street, Buzzards Bay, MA 02532

GROUNDWATER ANALYTICAL

Trace Metals

Field ID:	**GN-040253 SD-1**	Matrix:	**Aqueous**
Project:	**Work Item 4A + 4B**	Container:	**250 mL Plastic**
Client:	**Otis 102nd Fighter Wing/Environmental Management**	Preservation:	**HNO3 / Cool**
Laboratory ID:	**76188-25**	Preserved:	**08-31-04 10:00**
Sampled:	**08-31-04 10:00**		
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 17:22	EPA 6010B[1]
7440-39-3	Barium, Total	BRL		mg/L	0.2	1	09-03-04 17:21	EPA 6010B[1]
7440-43-9	Cadmium, Total	BRL		mg/L	0.005	1	09-03-04 17:21	EPA 6010B[1]
7440-47-3	Chromium, Total	BRL		mg/L	0.01	1	09-03-04 17:20	EPA 6010B[1]
7440-50-8	Copper, Total	BRL		mg/L	0.025	1	09-03-04 17:20	EPA 6010B[1]
7439-92-1	Lead, Total	BRL		mg/L	0.005	1	09-09-04 11:34	EPA 6010B[1]
7439-96-5	Manganese, Total	BRL		mg/L	0.05	1	09-03-04 17:20	EPA 6010B[1]
7439-97-6	Mercury, Total	BRL		mg/L	0.0002	1	09-03-04 13:25	EPA 7470A[2]
7440-02-0	Nickel, Total	BRL		mg/L	0.04	1	09-07-04 17:22	EPA 6010B[1]
7782-49-2	Selenium, Total	BRL		mg/L	0.05	1	09-03-04 17:21	EPA 6010B[1]
7440-22-4	Silver, Total	BRL		mg/L	0.007	1	09-03-04 17:20	EPA 6010B[1]
7440-66-6	Zinc, Total	BRL		mg/L	0.2	1	09-03-04 17:20	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

Trace Metals

Field ID:	**GN-040254 SD-3**	Matrix:	**Aqueous**
Project:	**Work Item 4A + 4B**	Container:	**250 mL Plastic**
Client:	**Otis 102nd Fighter Wing/Environmental Management**	Preservation:	**HNO3 / Cool**
Laboratory ID:	**76188-26**	Preserved:	**08-31-04 10:15**
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.

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

GROUNDWATER ANALYTICAL

Trace Metals

Field ID:	GN-040255 SD-4	Matrix:	Aqueous
Project:	Work Item 4A + 4B	Container:	250 mL Plastic
Client:	Otis 102nd Fighter Wing/Environmental Management	Preservation:	HNO3 / Cool
Laboratory ID:	76188-27	Preserved:	08-31-04 10:30
Sampled:	08-31-04 10:30		
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 17:36	EPA 6010B[1]
7440-39-3	Barium, Total	BRL		mg/L	0.2	1	09-03-04 17:35	EPA 6010B[1]
7440-43-9	Cadmium, Total	BRL		mg/L	0.005	1	09-03-04 17:35	EPA 6010B[1]
7440-47-3	Chromium, Total	BRL		mg/L	0.01	1	09-03-04 17:35	EPA 6010B[1]
7440-50-8	Copper, Total	BRL		mg/L	0.025	1	09-03-04 17:35	EPA 6010B[1]
7439-92-1	Lead, Total	BRL		mg/L	0.005	1	09-09-04 11:54	EPA 6010B[1]
7439-96-5	Manganese, Total	BRL		mg/L	0.05	1	09-03-04 17:35	EPA 6010B[1]
7439-97-6	Mercury, Total	BRL		mg/L	0.0002	1	09-03-04 13:37	EPA 7470A[2]
7440-02-0	Nickel, Total	BRL		mg/L	0.04	1	09-07-04 17:36	EPA 6010B[1]
7782-49-2	Selenium, Total	BRL		mg/L	0.05	1	09-03-04 17:35	EPA 6010B[1]
7440-22-4	Silver, Total	BRL		mg/L	0.007	1	09-03-04 17:35	EPA 6010B[1]
7440-66-6	Zinc, Total	BRL		mg/L	0.2	1	09-03-04 17:35	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

Address: P.O. Box 1200

Buzzards Bay, MA 02532

Attn: Mr. Eric Jensen

Project Number:

Site: 76188 WORK ITEM 4A+4B

Laboratory Job Number: L0409604

Date Received: 02-SEP-2004

Date Reported: 14-SEP-2004

Delivery Method: Client

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

aboratory 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: L0409604-01
GN-040255-SD-4
Sample Matrix: WATER

Date Collected: 31-AUG-2004 10:00
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	DATE ANAL	ID
Glycol Organics by GC/FID				12 E202		0909 21:27	RL
Ethylene glycol	ND	mg/l	50.				

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

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

MA:M-MA086 NH:200301-A CT:PH-0574 ME:MA086 RI:65 NY:11148 NJ:MA935 Army:USACE

Laboratory Sample Number: 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	DATE ANAL	ID
Glycol Organics by GC/FID				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

30

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: L0409604-03
GN-040253-SD-1
Sample Matrix: WATER

Date Collected: 31-AUG-2004 10:30
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	DATE ANAL	ID
Glycol Organics by GC/FID				12 E202		0909 22:24	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/FID for sample(s) 01-03 (L0409604-01, WG180609)					
Ethylene glycol	ND	ND	mg/l	NC	

ALPHA ANALYTICAL LABORATORIES
QUALITY ASSURANCE BATCH SPIKE ANALYSES

Laboratory Job Number: L0409604

Parameter	% Recovery	QC Criteria
Glycol Organics by GC/FID LCS for sample(s) 01-03 (WG180609)		
Ethylene glycol	101	
Glycol Organics by GC/FID SPIKE for sample(s) 01-03 (L0409604-01, WG180609)		
Ethylene glycol	98	

ALPHA ANALYTICAL LABORATORIES
QUALITY ASSURANCE BATCH BLANK ANALYSIS

aboratory Job Number: L0409604

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE PREP	DATE ANAL	ID
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				

REFERENCES

12. Annual Book of ASTM Standards. American Society for Testing and Materials.

GLOSSARY OF TERMS AND SYMBOLS

REF Reference number in which test method may be found.
METHOD Method number by which analysis was performed.
ID Initials of the analyst.
ND Not detected in comparison to the reported detection limit.

Please note that all solid samples are reported on dry weight basis unless noted otherwise.

LIMITATION OF LIABILITIES

Alpha Analytical, Inc. performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical, Inc., shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical, Inc. be held liable for any incidental consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical, Inc.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding times and splitting of samples in the field.

Chain of Custody Record

Project Name/Number: 76188 Work Item 4A+4B

Firm: Otis 102nd Fighter Wing/Environmental

Lab Subcontrated To: Alpha Analytical

Date	Time	Sample Identification	Number of Containers	Container Volume (mL)	Glass or Plastic (G/P)	Matrix (Water/Soil/Other)	Grab/Composite	Preservative (Type)	Filtered (Yes/No)	Ethylene Glycols							Remarks	Lab ID #
8/31/04	10:00	GN-040255 SD-4	3	40	G	W	–	HCL	–	X								
8/31/04	10:15	GN-040254 - SD-3	3	40	G	W	–	HCL	–	X								
8/31/04	10:30	GN-040253 SD-1	3	40	G	W	–	HCL	–	X								

Reporting and Billing Information

Groundwater Analytical
228 Main St., Buzzards Bay, MA 02532
Telephone: 508-759-4441 **Fax:** 508-759-4475
Contact Person: Eric Jensen
Purchase Order # _____

Please Fax Report Yes ☒ No ☐

Turnaround and Special Instructions

Results Due: 9/15

Special Instructions:

☐ **MA DEP Form Required**

Custody Record

Signature	Time	Date
Eric Jensen (Relinquished By:)	9/2/04	1045
[illegible] (Received By:)	9-2-04	1050

Method of Shipment:
USPO Express Mail ☐ Federal Express ☐
Hand ☐ GWA Courier ☐ Other ☐
Shipping Label/Airbill:

GROUNDWATER ANALYTICAL

Project Narrative

Project:	**Work Item 4A + 4B**	Lab ID:	**76188**
Client:	**Otis 102nd Fighter Wing/Environmental Management**	Received:	**08-31-04 15:50**

A. Documentation and Client Communication

The following documentation discrepancies, and client changes or amendments were noted for this project:

1. No documentation discrepancies, changes, or amendments were noted.

B. Method Modifications, Non-Conformances and Observations

The sample(s) in this project were analyzed by the references analytical method(s), and no method modifications, non-conformances or analytical issues were noted, except as indicated below:

1. Project Non-conformance. Project 76188 was received at a temperature of 6.7'C. This measurement is outside the recommended range of 2-6'C.
2. EPA 8151A Non-conformance: The Laboratory Control sample had analyte Dalapon and Dinoseb below recommended recovery limits for QC batch HB-0270-F.

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

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

76188

CHAIN OF CUSTODY RECORD

PROJ. NO.

PROJECT NAME

CLIENT
102 FW/EM
Otis ANG Base MA 02542-5028

SAMPLE I.D.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	NH3-N	NO3-N	COLIFORM	TKN	BORON	MBAS	FLUORIDE	REMARKS
GN-040253	31 AUG 2004	1000		X	SD-1	14								SEE REQUEST FORM
GN-040254	31 AUG 2004	1015		X	SD-3	15								" " "
GN-040255	31 AUG 2004	1030		X	SD-4	15								" " "

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Rose Wade	31 AUG 04 1100	[signature]	[signature]	31 Aug 04 1550	[signature] 8/31/04
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Relinquished by: (Signature)	Date/Time	Received for Laboratory by: (Signature)	Date/Time	Remarks 1 VOA VIAL FOR SD-1 DESTROYED.	

6.7

GROUNDWATER ANALYTICAL

Quality Assurance/Quality Control

A. Program Overview

Groundwater Analytical conducts an active Quality Assurance program to ensure the production of high quality, valid data. This program closely follows the guidance provided by *Interim Guidelines and Specifications for Preparing Quality Assurance Project Plans,* US EPA QAMS-005/80 (1980), and *Test Methods for Evaluating Solid Waste,* US EPA, SW-846, Update III (1996).

Quality Control protocols include written Standard Operating Procedures (SOPs) developed for each analytical method. SOPs are derived from US EPA methodologies and other established references. Standards are prepared from commercially obtained reference materials of certified purity, and documented for traceability.

Quality Assessment protocols for most organic analyses include a minimum of one laboratory control sample, one method blank, one matrix spike sample, and one sample duplicate for each sample preparation batch. All samples, standards, blanks, laboratory control samples, matrix spikes and sample duplicates are spiked with internal standards and surrogate compounds. All instrument sequences begin with an initial calibration verification standard and a blank; and excepting GC/MS sequences, all sequences close with a continuing calibration standard. GC/MS systems are tuned to appropriate ion abundance criteria daily, or for each 12 hour operating period, whichever is more frequent.

Quality Assessment protocols for most inorganic analyses include a minimum of one laboratory control sample, one method blank, one matrix spike sample, and one sample duplicate for each sample preparation batch. Standard curves are derived from one reagent blank and four concentration levels. Curve validity is verified by standard recoveries within plus or minus ten percent of the curve.

B. Definitions

Batches are used as the basic unit for Quality Assessment. A Batch is defined as twenty or fewer samples of the same matrix which are prepared together for the same analysis, using the same lots of reagents and the same techniques or manipulations, all within the same continuum of time, up to but not exceeding 24 hours.

Laboratory Control Samples are used to assess the accuracy of the analytical method. A Laboratory Control Sample consists of reagent water or sodium sulfate spiked with a group of target analytes representative of the method analytes. Accuracy is defined as the degree of agreement of the measured value with the true or expected value. Percent Recoveries for the Laboratory Control Samples are calculated to assess accuracy.

Method Blanks are used to assess the level of contamination present in the analytical system. Method Blanks consist of reagent water or an aliquot of sodium sulfate. Method Blanks are taken through all the appropriate steps of an analytical method. Sample data reported is not corrected for blank contamination.

Surrogate Compounds are used to assess the effectiveness of an analytical method in dealing with each sample matrix. Surrogate Compounds are organic compounds which are similar to the target analytes of interest in chemical behavior, but which are not normally found in environmental samples. Percent Recoveries are calculated for each Surrogate Compound.

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

GROUNDWATER ANALYTICAL

Quality Control Report
Laboratory Control Samples

		LCS		LCSD	
Category:	EPA Method 8260B	Instrument ID:	MS-4 HP 6890	Instrument ID:	MS-4 HP 6890
QC Batch ID:	VM4-2988-WL	Analyzed:	09-11-04 18:38	Analyzed:	09-11-04 19:28
Matrix:	Aqueous	Analyst:	EMC	Analyst:	EMC
Units:	ug/L				

CAS Number	Analyte	LCS			LCS Duplicate				QC Limits	
		Spiked	Measured	Recovery	Spiked	Measured	Recovery	RPD	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%

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

GROUNDWATER ANALYTICAL

Quality Control Report
Laboratory Control Samples

		LCS		LCSD	
Category:	EPA Method 8260B	Instrument ID:	MS-4 HP 6890	Instrument ID:	MS-4 HP 6890
QC Batch ID:	VM4-2988-WL	Analyzed:	09-11-04 18:38	Analyzed:	09-11-04 19:28
Matrix:	Aqueous	Analyst:	EMC	Analyst:	EMC
Units:	ug/L				

CAS Number	Analyte	LCS			LCS Duplicate				QC Limits	
		Spiked	Measured	Recovery	Spiked	Measured	Recovery	RPD	Spike	RPD
108-86-1	Bromobenzene	10	12	120 %	10	12	123 %	3 %	70 - 130 %	25%
79-34-5	1,1,2,2-Tetrachloroethane	10	12	120 %	10	12	118 %	2 %	70 - 130 %	25%
96-18-4	1,2,3-Trichloropropane	10	12	125 %	10	12	119 %	4 %	70 - 130 %	25%
103-65-1	*n*-Propylbenzene	10	11	111 %	10	12	117 %	6 %	70 - 130 %	25%
95-49-8	2-Chlorotoluene	10	11	111 %	10	12	117 %	5 %	70 - 130 %	25%
108-67-8	1,3,5-Trimethylbenzene	10	11	114 %	10	12	119 %	5 %	70 - 130 %	25%
106-43-4	4-Chlorotoluene	10	11	110 %	10	12	118 %	6 %	70 - 130 %	25%
98-06-6	*tert*-Butylbenzene	10	11	111 %	10	12	118 %	6 %	70 - 130 %	25%
95-63-6	1,2,4-Trimethylbenzene	10	11	113 %	10	12	119 %	5 %	70 - 130 %	25%
135-98-8	*sec*-Butylbenzene	10	11	106 %	10	11	114 %	7 %	70 - 130 %	25%
541-73-1	1,3-Dichlorobenzene	10	11	109 %	10	11	113 %	4 %	70 - 130 %	25%
99-87-6	4-Isopropyltoluene	10	11	108 %	10	12	115 %	6 %	70 - 130 %	25%
106-46-7	1,4-Dichlorobenzene	10	11	109 %	10	11	112 %	3 %	70 - 130 %	25%
95-50-1	1,2-Dichlorobenzene	10	11	109 %	10	11	113 %	4 %	70 - 130 %	25%
104-51-8	*n*-Butylbenzene	10	10	104 %	10	11	112 %	8 %	70 - 130 %	25%
96-12-8	1,2-Dibromo-3-chloropropane	10	11	115 %	10	11	109 %	5 %	70 - 130 %	25%
120-82-1	1,2,4-Trichlorobenzene	10	11	106 %	10	11	112 %	6 %	70 - 130 %	25%
87-68-3	Hexachlorobutadiene	10	10	100 %	10	11	112 %	12 %	70 - 130 %	25%
91-20-3	Naphthalene	10	11	106 %	10	11	111 %	4 %	70 - 130 %	25%
87-61-6	1,2,3-Trichlorobenzene	10	10	103 %	10	11	109 %	6 %	70 - 130 %	25%
75-65-0	*tert*-Butyl Alcohol (TBA)	200	180	92 %	200	190	94 %	3 %	70 - 130 %	25%
108-20-3	Di-isopropyl Ether (DIPE)	10	11	111 %	10	11	111 %	0 %	70 - 130 %	25%
637-92-3	Ethyl *tert*-butyl Ether (ETBE)	10	12	116 %	10	12	115 %	1 %	70 - 130 %	25%
994-05-8	*tert*-Amyl Methyl Ether (TAME)	10	11	106 %	10	10	105 %	1 %	70 - 130 %	25%

QC Surrogate Compound	Spiked	Measured	Recovery	Spiked	Measured	Recovery		QC Limits
Dibromofluoromethane	10	8.6	86 %	10	8.2	82 %		70 - 130 %
1,2-Dichlorobenzene-d_4	10	9.3	93 %	10	9.2	92 %		70 - 130 %
Toluene-d_8	10	9.2	92 %	10	9.1	91 %		70 - 130 %
4-Bromofluorobenzene	10	8.7	87 %	10	8.7	87 %		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: 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
Method Blank

Category:	**EPA Method 8260B**	Instrument ID:	**MS-4 HP 6890**
QC Batch ID:	**VM4-2988-WB**	Analyzed:	**09-11-04 20:08**
Matrix:	**Aqueous**	Analyst:	**EMC**

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

Quality Control Report
Method Blank

Category:	**EPA Method 8260B**	Instrument ID:	**MS-4 HP 6890**
QC Batch ID:	**VM4-2988-WB**	Analyzed:	**09-11-04 20:08**
Matrix:	**Aqueous**	Analyst:	**EMC**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
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	9.4	**94 %**	70 - 130 %
Toluene-d_8	10	8.9	**89 %**	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, Inc., P.O. Box 1200, 228 Main Street, Buzzards Bay, MA 02532

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				QC Limits		Method
		Spiked	Measured	Recovery	Spiked	Measured	Recovery	RPD	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.

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

GROUNDWATER ANALYTICAL

Quality Control Report
Method Blank

Category: **Metals**
Matrix: **Aqueous**

Analysis Method	QC Batch ID	Prep Method	Prepared	Sample Volume	Instrument ID	Analyst
EPA 6010B	MB-1258-WB	EPA 3010A	09-02-04 09:30	50 mL	ICP-2 PE 3300	MWR
EPA 7470A	MP-1561-WB	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	BRL		mg/L	0.01	1	09-07-04 15:56	EPA 6010B
7440-39-3	Barium	BRL		mg/L	0.2	1	09-07-04 15:56	EPA 6010B
7440-43-9	Cadmium	BRL		mg/L	0.005	1	09-07-04 15:56	EPA 6010B
7440-47-3	Chromium	BRL		mg/L	0.01	1	09-07-04 15:56	EPA 6010B
7440-50-8	Copper	BRL		mg/L	0.025	1	09-07-04 15:56	EPA 6010B
7439-92-1	Lead	BRL		mg/L	0.005	1	09-07-04 15:56	EPA 6010B
7439-96-5	Manganese	BRL		mg/L	0.05	1	09-07-04 15:56	EPA 6010B
7439-97-6	Mercury	BRL		mg/L	0.0002	1	09-03-04 13:20	EPA 7470A
7440-02-0	Nickel	BRL		mg/L	0.04	1	09-07-04 15:56	EPA 6010B
7782-49-2	Selenium	BRL		mg/L	0.05	1	09-07-04 15:56	EPA 6010B
7440-22-4	Silver	BRL		mg/L	0.007	1	09-07-04 15:56	EPA 6010B
7440-66-6	Zinc	BRL		mg/L	0.2	1	09-07-04 15:56	EPA 6010B

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

GROUNDWATER ANALYTICAL

Quality Control Report
Laboratory Control Samples

		LCS		LCSD	
Category:	EPA 8151A	Instrument ID:	GC-11 HP 6890	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	Spike	RPD
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.

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

GROUNDWATER ANALYTICAL

Quality Control Report
Method Blank

Category:	EPA Method 8151A	Instrument ID:	GC-11 HP 6890
QC Batch ID:	HB-0270-F	Extracted:	09-07-04 08:00
Matrix:	Aqueous	Analyzed:	09-13-04 15:01
		Analyst:	JJT

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
75-99-0	Dalapon	BRL		ug/L	5
93-65-2	MCPP	BRL		ug/L	200
1918-00-9	Dicamba	BRL		ug/L	0.2
120-36-5	Dichloroprop	BRL		ug/L	2
94-74-6	MCPA	BRL		ug/L	200
94-75-7	2,4-D	BRL		ug/L	2
87-86-5	Pentachlorophenol	BRL		ug/L	0.4
93-72-1	2,4,5-TP (Silvex)	BRL		ug/L	0.2
93-76-5	2,4,5-T	BRL		ug/L	0.2
88-85-7	Dinoseb	BRL		ug/L	1
94-82-6	2,4-DB	BRL		ug/L	2

QC Surrogate Compound		Spiked	Measured	Recovery	QC Limits
First Column	2,4-Dichlorophenylacetic acid	4.0	1.7	42 %	30 - 150 %
Second Column	2,4-Dichlorophenylacetic acid	4.0	3.1	76 %	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

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, G)	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.

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

GROUNDWATER ANALYTICAL

Quality Control Report
Method Blank

Category: **Inorganic Chemistry**
Matrix: **Aqueous**

Analyte	Result	Units	RL	Analyzed	QC Batch	Method	Inst	Analyst
Solids, Total Suspended	BRL	mg/L	10	09-07-04 10:00	TSS-0993-W	SM 2540 D	4	DB
Phosphorus, Total	BRL	mg/L	0.5	09-08-04 14:00	TP-1423-W	Lachat 10-115-01-1-C (EPA 365.4)	1	JW
Total Kjeldahl Nitrogen (TKN)	BRL	mg/L	0.5	09-08-04 14:00	TKN-1423-W	Lachat 10-107-06-2-D (EPA 351.2)	1	JW
Nitrite (as Nitrogen)	BRL	mg/L	0.02	08-31-04 20:50	NI-2290-W	Lachat 10-107-04-1-C (SM 4500-NO3 F)	1	LD
Nitrate (as Nitrogen)	BRL	mg/L	0.02	08-31-04 20:50	NI-2290-W	Lachat 10-107-04-1-C (SM 4500-NO3 F)	1	LD
Ammonia (as Nitrogen)	BRL	mg/L	0.2	09-03-04 16:00	AM-1376-W	Lachat 10-107-06-1-B (SM 4500-NH3 B, G)	1	LJD
Chemical Oxygen Demand	BRL	mg/L	20	09-02-04 12:00	COD-0498-W	SM 5220 D	2	MW
Biochemical Oxygen Demand	BRL	mg/L	2	09-01-04 00:00	BOD-1794-W	SM 5210 B	3	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:

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.

1 Instrument ID: Lachat 8000 Autoanalyzer

2 Instrument ID: Milton Roy Spectronic 401

3 Instrument ID: YSI 5100

4 Instrument ID: Mettler AT 200 Balance

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

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-1510-F**	Extracted:	**09-07-04 16:00**
Matrix:	**Aqueous**	Analyzed:	**09-15-04 01:47**
Units:	**mg/L**	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.

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

GROUNDWATER ANALYTICAL

Quality Control Report
Method Blank

Category:	**EPA 8015B Mod Diesel Range Organics**	Instrument ID:	**GC-12 Agilent 6890**
QC Batch ID:	**HF-1510-F**	Extracted:	**09-07-04 16:00**
Matrix:	**Aqueous**	Analyzed:	**09-15-04 01:08**
		Analyst:	**MM**

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

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
ortho-Terphenyl	0.040	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: 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

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