Appendix C

UIC Closure Assessment

SCANNED

.ecords Retention Check List

Segregated: May 27, 2004

DEP Box #

SRC Box #

RTN : 4-0001147 Notification Date: 4/15/1992
ction: DEPNFA Date: 2/1/1994

:/Location Aid: CHATHAM AIRPORT
GEORGE RYDER RD, CHATHAM

ıt Record

otification Records -- circle document(s): RNF RLF RLFA

:sponse Action Outcome -- circle type: Class A Class B

ctivity and Use Limitation

o Further Action (NFA) Submittal

Vaiver Completion Statement

.SP Evaluation Opinion – circle type: NDS NFA

ɔtice of Audit Findings (NOFA)
___ Level 1
___ Level 2
___ Level 3

ıdit Follow Up Plan and Post Audit Completion Statement

'orrespondence – circle document(s): NOR, NORA, NON, PAN, ACOP, UAO,

various DEP correspondence Other

Phase 1 Initial Site Investigation

_Phase II-Comprehensive Site Assessment

: Final Assess. Rept.

UIC CLOSURE ASSESSMENT

Chatham Municipal Airport
240 George Ryder Road
Chatham, MA
BO99-2262

August 11, 1999

4-1147

BENNETT & O'REILLY, Inc.

Engineering, Environmental & Surveying Services

Sanitary
Site Development
Waste Water Treatment
Water Supply

21E/Site Remediation
Hydrogeologic Survey
Water Quality Monitoring
Consulting

Property Line
Subdivision
Land Court
Trial Court Witness

1573 Main Street
PO Box 1667
Brewster, MA 02631
508-896-6630
508-896-4687 Fax

UIC CLOSURE ASSESSMENT

Chatham Municipal Airport
240 George Ryder Road
Chatham, MA
BO99-2262

August 11, 1999

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August 11, 1999

Underground Injection Control Program Attn: Mark Dakers
MA DEP (SERO)
Division of Water Supply, Cape Cod Basin Team
20 Riverside Drive
Lakeville, MA 02347

RE: UIC Closure Assessment
Chatham Municipal Airport
240 George Ryder Road - Chatham, MA

Dear Mr. Dakers:

BENNETT & O'REILLY, INC., has prepared the following UIC Closure Assessment Report as documentation of the environmental assessment and construction activities conducted for the abandonment of floor drains at the subject property. These activities were conducted in accordance with the provisions of the MA DEP "Closure Requirements for Shallow Injection Wells" UIC Closure Guidance, 1995), as consistent with the MA Contingency Plan (MCP), 310 CMR 40.000.

This project has proceeded with my oversight in a manner consistent with the MCP Response Action Performance Standards (RAPS) pursuant to 310 CMR 40.0191 and QA/QC policies of BENNETT & O'REILLY, INC. The facts and statements herein are, to the best of our knowledge, a true and accurate representation of the site activities, remedial response actions and environmental conditions associated with the project.

SITE DESCRIPTION/ENVIRONMENTAL CONDITIONS [Refer to Appendix A]

The subject site, the Chatham Municipal Airport, is located on the east side of George Ryder Road in Chatham, MA, some two miles northeast of Chatham Center. The Airport consists of 101 acres of land and contains two buildings: the terminal with attached maintenance building, and a corrugated steel airplane hanger with ten bays located north of the main building. The remainder of the property is developed by the runway, parking lots, and other maintenance facilities.

Abutting properties to the north, east, and west, primarily consists of single family seasonal use, residential dwellings. The Town of Chatham Town Office Annex is located on the west side of George Ryder Road, directly across from the Airport. Blue, Black and Bearses Ponds abut the southern property line, amidst various residential dwellings. Main Street, some 1,500' south of the property, is occupied by offices, shops restaurants, laudromats and dry cleaners.

The site primarily slopes to the south-southeast, with the exception of the northern portion which slopes to the north-northeast. Based upon review of topographical maps and local hydrologic surveys, groundsurface elevation is determined to be 60-65' GL in the area of the Airport buildings. Groundwater is estimated to be at approximately 53'+/- below grade in this same area. Regional groundwater contours appear to indicate a southeasterly groundwater flow direction at the site toward Aunt Lydia's Cove and Nantucket Sound.

The subject site, and surrounding area, are serviced by municipal water and the site is serviced by an on-site septic system. The site is located within the Zone II Protective Radius of the Town of Chatham's Wellfield, known as Indian Hill Well, located approximately 1,000' northwest of the Airport in a residential area near the intersection of George Ryder Road and Indian Hill Road. Based upon the site location within a Zone II and proximity of groundwater, the GW-1 and GW-3 groundwater catergories apply. The S-2/GW-1 and S-2/GW-2 soil catergories apply in the evaluation of potential soil impact associated with floor drain discharge.

BACKGROUND [Refer to Appendix C]

On January 23, 1992, the Chatham Municipal Airport was determined by the MA Department of Environmental Protection to be a Location To Be Investigated (LTBI), as a possible disposal site within the provisions of the MGL Chapter 21E and the Massachusetts Contingency Plan, 310 CMR 40.000, as associated with the discovery of moderate levels of tetrachloroethylene (PCE) within the Chatham Indian Hill wellfield. An on-site visit was conducted on December 10, 1991 by the Department, upon which one floor drain, which discharged into a MDC trap and leaching basin, and three, subsurface, 55 gallon perforated barrels used as leaching pits were observed in the main building. Subsequent to this LTBI determination, and on-site visit, the MA DEP Division of Water Supply issued a Notice of Noncompliance on March 2, 1992 to the Town of Chatham Municipal Airport.

A Phase I Limited Site Investigation was conducted in October, 1992 by the firm of DeFeo, Wait & Paré, Inc. (DWP), per the Department's request. The purpose of the Phase I investigation was to identify any release of oil and/or hazardous materials that may have occurred on or adjacent to the property, and/or to determine if there was a potential for such a release to occur under the jurisdiction of the MA Oil and Hazardous Material Release Prevention Act, Chapter 21E of the MA

General Laws. This investigation included the research of environmental records and collection of soil and groundwater samples for laboratory analysis.

According to the Phase I Limited Site Investigation Report issued by DWP, low level contamination was identified in two indoor leaching pits (UI-2 and UI-3) and the MDC trap. It was the recommendation of DWP that these drainage areas be sealed, in accordance with the UIC Closure Program (UIC) Regulations (310 CMR 27.00). It was further determined that the source of PCE contamination within the Indian Hill wellfield was not related to activities within the Chatham Municipal Airport, as no significant concentrations of PCE were discovered, and the Chatham Municipal Airport is located hydrologically downgradient to the wellfield. On February 1, 1994, the Department (Gregg Hunt) officially issued a determination that "no further action" was required at the site.

ASSESSMENT [Refer to Appendix B]

On February 4, 1999, BENNETT & O'REILLY, INC., was contacted by the Town of Chatham Water Quality Laboratory (Robert Duncanson) to provide environmental assessment and appropriate remedial response measures, if required, for the abandonment of the floor drain and three (3) leaching pits. Assessment activities were conducted on April 7, 1999, by BENNETT & O'REILLY, INC., personnel (Craig Sasse), as assisted by Bob Duncanson of the Chatham Water Quality Laboratory. Five hand borings were conducted within the four floor drain areas. As representating leach pit sidewalls and bottom of hole areas, soil samples were collected, preserved and forwarded to Groundwater Analytical of Buzzards Bay, MA for Total Petroleum Hydrocarbon (TPH ASTM D3328-90), Volative Organic Compounds (EPA 8260B) and trace metal (ICP-AES and CVAA) analysis.

RISK CHARACTERIZATION [Refer to Appendix D]

Laboratory analysis was received by BENNETT & O'REILLY, INC., on April 23, 1999. These results were compared to the Method 1 - Risk Characterization standards for the strictest GW-1 and S-1/GW-1 categories and to the Reportable Concentration standards of the RCS-1 standards. Although low levels of PCE were reported within the HB-1:0-5' and HB-2:0-5 intervals and low levels of trace metals, primarily arsenic and chromium, were noted in each sampling location, all reported concentrations were well below the most stringent Method 1 - Risk Characterization Standards and RCS-1 Standards. As such, soil conditions at the Chatham Municipal Airport represent a condition of "No Significant Risk", and no remedial response actions were conducted as part of the UIC closure procedure.

On July 26, 1999, EnviroSafe, as the environmental contractor, cleaned, filled and sealed the exterior components of the floor drain, consisting of the MDC trap, D-Box and leaching pit (UI-1) [Refer to Appendix A- Site Plan]. The sealing of the interior floor drain and leaching pits was

conducted by EnviroSafe, Corp., on August 4, 1999, under the supervision of BENNETT & O'REILLY, INC. These activities were initiated by the removal of metal plates which covered the UI-2 and UI-3 leaching pits in the main hanger. Grit/sludge was removed from within the perforated barrels and loaded into metal Department of Transportation (DOT) drums for off-site disposal as solid waste debris under a uniform hazardous waste manifest. The concrete cap used to seal the UI-4 leaching pit location was then broken up and the contents inspected. UI-4 appeared to have been filled with clean sand. The rubber mat and grate overlying the floor drain in the maintenance building were then removed and the area similarly cleaned. All areas were then backfilled with clean material and sealed with a concrete cap.

This UIC Closure Assessment has been conducted in accordance with the UIC Closure Guidance Document, as consistent with the MA DEP Contingency Plan, 310 CMR 40.000. Should you have any questions or require any further information, please contact me directly.

Very truly yours,
BENNETT & O'REILLY, INC.

Kara Shumway, ES
Project Manager

David C. Bennett, LSP
Director of Environmental Services

cc: Bob Duncanson - Chatham Water Quality Laboratory
Tinker Meades - Chatham Plumbing Inspector
Chatham Chief Municipal Officer

BENNETT & O'REILLY, Inc.

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Very truly yours,
BENNETT & O'REILLY, INC.

Kara Shumway, ES
Project Manager

David C. Bennett, LSP
Director of Environmental Services

cc: Bob Duncanson - Chatham Water Quality Laboratory
Tinker Meades - Chatham Plumbing Inspector
Chatham Chief Municipal Officer

UIC CLOSURE ASSESSMENT

Chatham Municipal Airport
240 George Ryder Road
Chatham, MA
BO99-2262

August 11, 1999

Prepared for:
Town of Chatham
c/o Robert Duncanson
Water Quality Laboratory
283 George Ryder Road
Chatham, MA 02633

Prepared by:
BENNETT & O'REILLY, INC.
P.O. Box 1667
Brewster, MA 02631

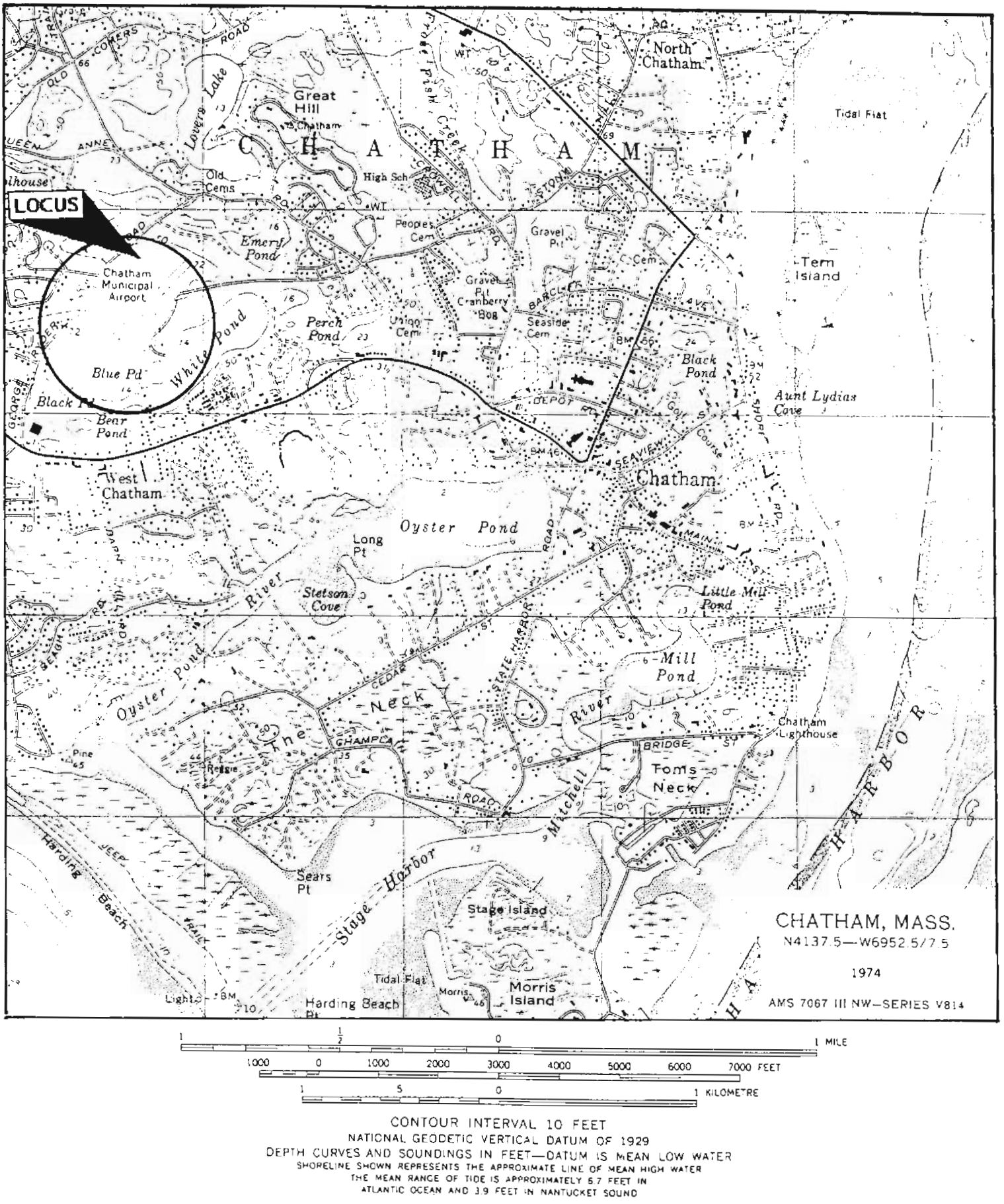


FIGURE 1: The subject site is located at 240 George Ryder Road, in Chatham, MA, some two miles northwest of Chatham Center. Abutting properties to the north, east and west primarily consist of single family seasonal use. residential dwellings. Blue, Black and Bearses Ponds abut the southern property line, amidst various residential dwelling.

GROUND-WATER RESOURCES OF CAPE COD, MASSACHUSETTS

By

Denis R. LeBlanc, John H. Guswa, Michael H. Frimpter, and Clark J. Londquist

1986

FIGURE 2: Hydrologic Atlas shows the location of the subject site, Chatham Municipal Airport, relative to regional groundwater flow contours and topographic elevations. Regional groundwater contours indicate a southeasterly groundwater flow direction at the site toward Aunt Lydia's Cove and Nantucket Sound.

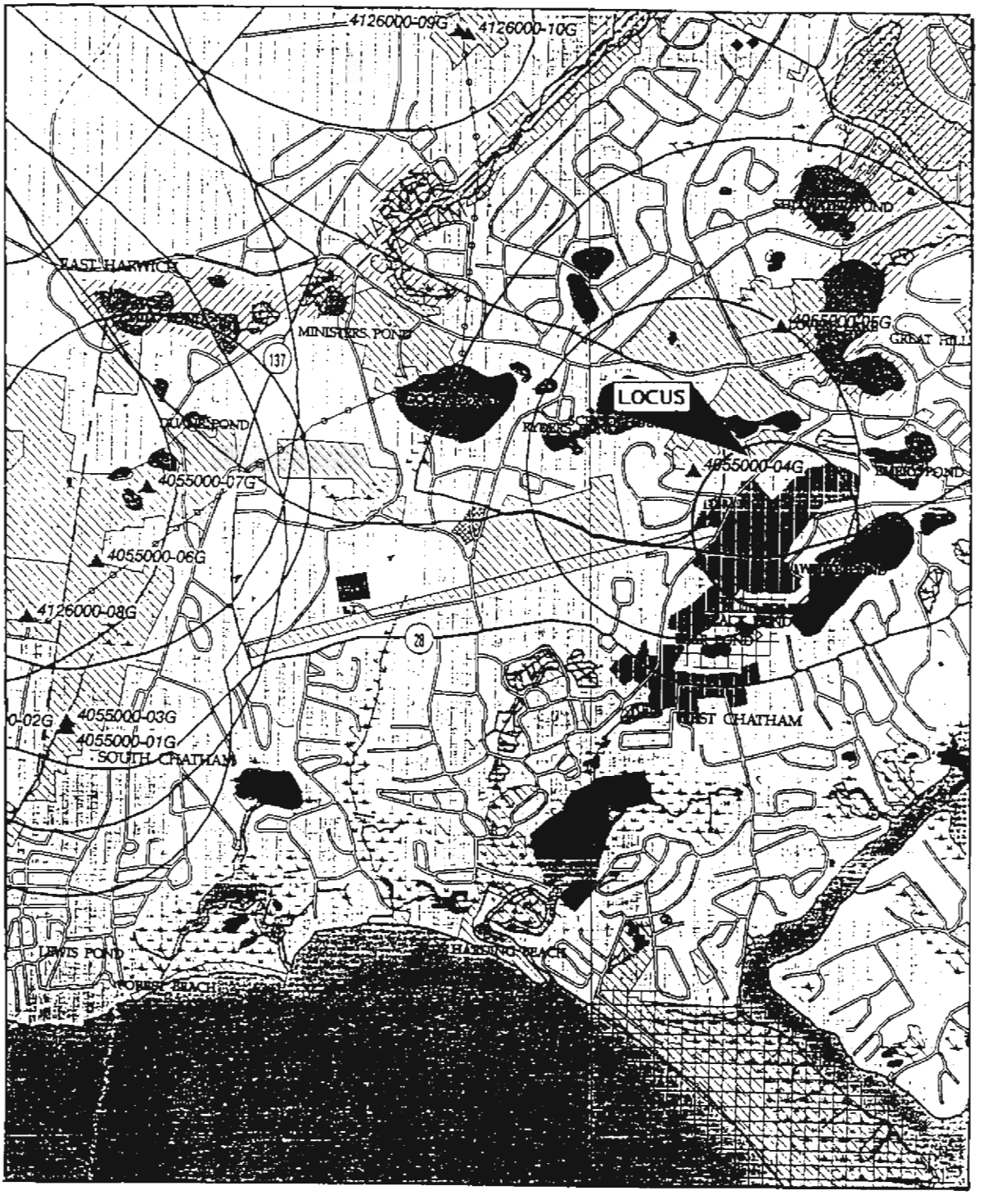
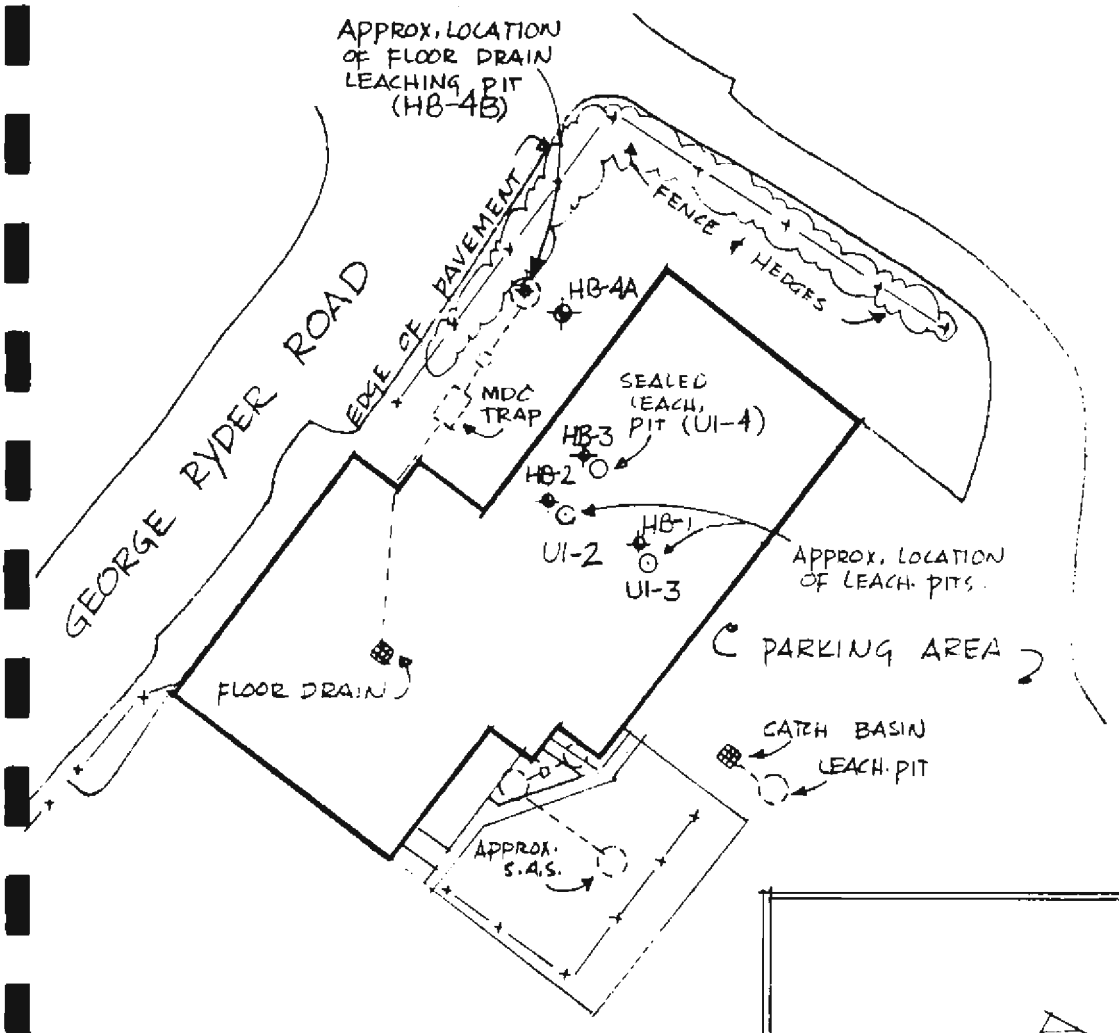
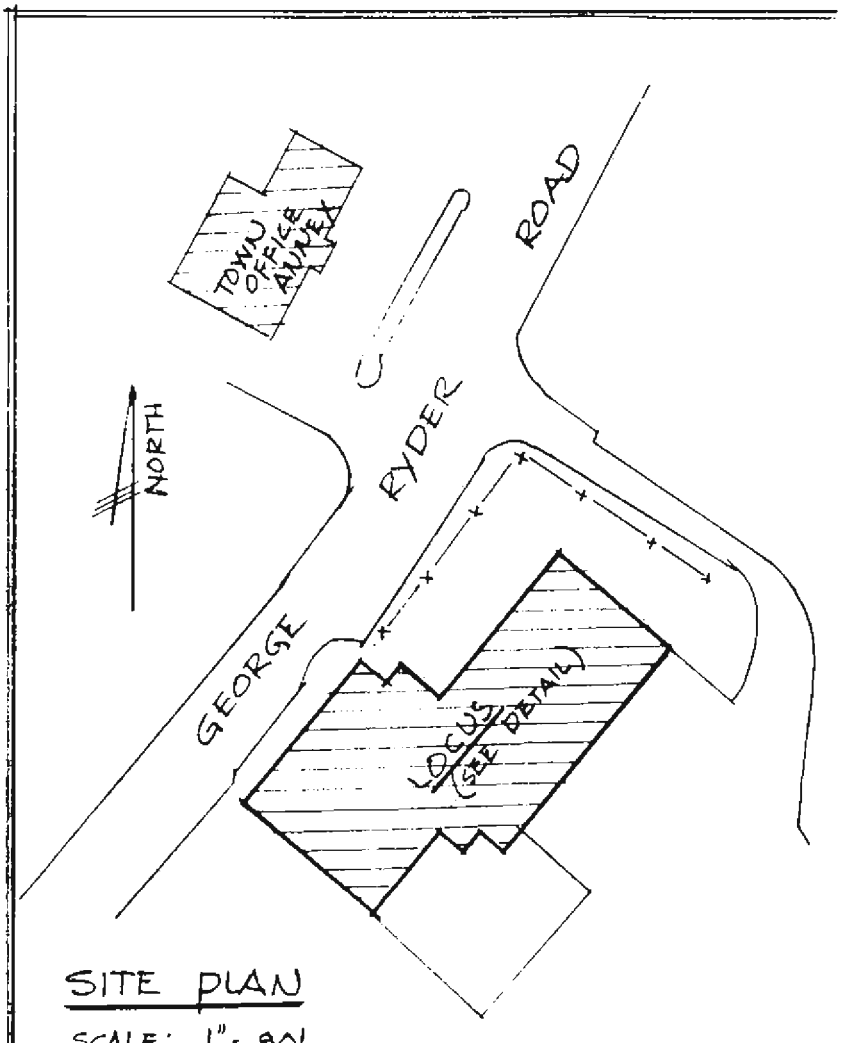


FIGURE 3: MA DEP BWSC Map shows the locus site Chatham Municipal Airport as within the Zone II - Protective Radius fo the Town of Chatham's Wellfield, known as Indian Hill Well, located some 1,000' to the northwest. Based upon its location within the Zone II, the GW-1 groundwater and S-2/GW-1 soil categories apply.



PLAN DETAIL

SCALE: 1" = 50'



SITE PLAN

SCALE: 1" = 80'

SKETCH PLAN OF LAND

CHATHAM MUNICIPAL AIRPORT

240 GEORGE RYDER ROAD
CHATHAM, MA.

PREPARED FOR:

THE TOWN OF CHATHAM

% ROBERT DUNCANSON, DIRECTOR
WATER QUALITY LABORATORY
549 MAIN ST., CHATHAM, MA.

SCALE AS NOTED

JULY 29, 1999

BENNETT & O'REILLY, INC.
1573 MAIN STREET
BREWSTER, MA.

B099-2262

BENNETT & O'REILLY, Inc.

1573 Main Street
PO Box 1667
Brewster, MA 02631

508-896-6630
508-896-4687 Fax

SAND GRAVEL SILT SAND

PEAT CLAY FILL

Job Number: BO99-2262 Date: 4/7/99
Job Name: Chatham Airport
Test Hole Number: HB-1
Witness: Craig Sasse, E.S., Bob Duncanson - Town of Chatham
Drilling Contractor: BENNETT & O'REILLY, INC.
Sampling Method:
3" bucket auger

GEOLOGIC BOREHOLE LOG

Lithology	Depth	Type of Sample	Depth	Standard Penetration Blows per 6" Drive	Standard Penetration % of Recovery	Well Specification & Remarks	Lithology/Sediment Description
		A	0-5	NA	100	PID Response (ppm) WSC 94-400	FILL: No odor, no staining.
		A	5-8	NA	100	0-5 1.0* 5-8 BDL *No odor detected	SAND: Light brown to buff with FE staining, medium to coarse with fines, poorly sorted, statified with gravel.
						SWL: NWE	
						Backfill with clean sand. Patch open hole with concrete to grade.	

5 10 15 20 25 30 35 40 45 50

BENNETT & O'REILLY, Inc.

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SAND GRAVEL SILT SAND

PEAT CLAY FILL

Job Number: BO99-2262 Date: 4/7/99
Job Name: Chatham Airport
Test Hole Number: HB-2
Witness: Craig Sasse, E.S., Bob Duncanson - Town of Chatham
Drilling Contractor: BENNETT & O'REILLY, INC.
Sampling Method: 3" bucket auger

GEOLOGIC BOREHOLE LOG

Lithology	Depth	Type of Sample	Depth	Standard Penetration: Blows per 6" Drive	Standard Penetration: % of Recovery	Well Specification & Remarks	Lithology/Sediment Description
	0	A	0-5	NA	100	PID Response (ppm) WSC-94-400	FILL: No odor, no staining.
	5	A	5-8	NA	100	0-5 1.2* 5-8 BDL	SAND: Light brown with FE staining, medium to coarse with fines, poorly sorted, moderately stratified with gravel.
	10					*No odor detected	
	15						
	20						
	25					SWL: NWE	
	30						
	35					Backfill with clean sand. Patch open hole with cement, flush to grade.	
	40						
	45						
	50						

BENNETT & O'REILLY, Inc.

1573 Main Street
PO Box 1667
Brewster, MA 02631

508-896-6630
508-896-4687 Fax

SAND GRAVEL SILT SAND
PEAT CLAY FILL

Job Number: BO99-2262 Date: 4/7/99
Job Name: Chatham Airport
Test Hole Number: HB-3
Witness: Craig Sasse, E.S., Bob Duncanson, Town of Chatham
Drilling Contractor: BENNETT & O'REILLY, INC.
Sampling Method: 3" bucket auger

GEOLOGIC BOREHOLE LOG

Lithology	Depth	Type of Sample	Depth	Standard Penetration Blows per 6" Drive	Standard Penetration % of Recovery	Well Specification & Remarks	Lithology/Sediment Description
	5	A	0-5	NA	100	PID Response (ppm) WSC-94-400	FILL: No odor, no staining.
	10	A	5-10	NA	100	0-5 BDL 5-8 BDL	SAND: Light brown with FE staining, medium to coarse with fines, poorly sorted, stratified with gravel.
	15						
	20						
	25						
	30					SWL: NWE	
	35					Backfill with clean sand. Patch open hole with cement, flush to grade.	
	40						
	45						
	50						

BENNETT & O'REILLY, Inc.

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508-896-6630
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SAND GRAVEL SILT SAND

PEAT CLAY FILL

Job Number: BO99-2262 Date: 4/7/99
Job Name: Chatham Airport
Test Hole Number: HB-4A, B
Witness: Craig Sasse, E.S., Bob Duncanson - Town of Chatham
Drilling Contractor: BENNETT & O'REILLY, INC.
Sampling Method: 3" bucket auger

GEOLOGIC BOREHOLE LOG

Lithology	Depth	Type of Sample	Depth	Standard Penetration Blows per 6" Drive	Standard Penetration % of Recovery	Well Specification & Remarks	Lithology/Sediment Description
	5	A	0-5	NA	100	PID Response (ppm) WSC-94-400	HB-4A: SAND: Light brown with fines, FE staining, medium with fines and gravel, poorly sorted.
	10	A	5-9	NA	100	0-3 BDL 3-9 BDL 10-15 BDL	
	15	A	10-15	NA	100		SAND: Tan to buff, medium to coarse, well sorted, clean.
	20						HB-4B: SAND: Tan to buff, medium to coarse, well sorted, very clean.
	25					SWL: NWE	
	30						
	35					Conduct HB-4A 6' offset south of leaching pit to 9'. Conduct HB-4B at center of leaching pit from 10'-15'.	
	40						
	45						
	50						

BENNETT & O'REILLY, Inc.

REPORT NUMBER: 1

1573 Main Street
PO Box 1667
Brewster, MA 02631

508-896-6630
508-896-4687 Fax

INSPECTORS DAILY RECORD OF WORK PROGRESS

Job Number: BO99-2262 Date: 7/26/99

Job Name: Chatham Municipal Airport

Feature: UIC Closure

Contractor: BENNETT & O'REILLY, INC., EnviroSafe, Corp., Chatham Water Quality Laboratory

Type of Work: Inspection

Weather Conditions: Partly cloudy Temperature: 80F

Contractor's Work Force (Indicate classification, including Subcontractor personnel)

BENNETT & O'REILLY, INC.: Craig Sasse - ES, EnviroSafe: 1 foreman (Nick Christiani), 3 laborers, Chatham Water Quality Laboratory: Bob Duncanson

Equipment in use or idled (identify which)

Vac-truck

Materials or equipment delivered, quantity or pay items placed

NA

Non-conforming materials or work, field problems, inspections of previously reported deficiencies

Scheduling conflict, no access to hangers

Summary of construction activities

9:00am

BENNETT & O'REILLY, INC., arrives at site. Met by EnviroSafe, Corp., personnel (1 foreman, 3 laborers). Meet with Bob Duncanson. Chatham officials had no notification of work scheduled. No access to interior of hangers. EnviroSafe, Corp., personnel to muck exterior components and fill with flowable fill. Interior work (mucking, drumming, and sealing of floor drains), rescheduled for Wednesday, August 4. BENNETT & O'REILLY, INC., leaves site at 10:00am.

BENNETT & O'REILLY, Inc.

REPORT NUMBER: 2

1573 Main Street
PO Box 1667
Brewster, MA 02631

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INSPECTORS DAILY RECORD OF WORK PROGRESS

Job Number: BO99-2262 Date: 8/4/99

Job Name: Chatham Municipal Airport

Feature: UIC Closure

Contractor: BENNETT & O'REILLY, INC., EnviroSafe Corp., Chatham Water Quality Laboratory

Type of Work: Inspection

Weather Conditions: Sunny, breezy, warm Temperature: 78F

Contractor's Work Force (Indicate classification, including Subcontractor personnel)

BENNETT & O'REILLY, INC.: Kara Shumway - ES, EnviroSafe, Corp.: 1 foreman (Nick Christiani) and two laborers, Chatham Water Quality Laboratory: Bob Duncanson

Equipment in use or idled (identify which)

Compressor, jack hammer

Materials or equipment delivered, quantity or pay items placed

NA

Non-conforming materials or work, field problems, inspections of previously reported deficiencies

NA

Summary of construction activities

9:10am

BENNETT & O'REILLY, INC., personnel arrive at site. EnviroSafe and Duncanson on site. Two leach pits uncovered and cleaned out. Sealed drain broken open - note clean sand within.

9:55am

Gain entrance into maintenance building. Open floor drain and remove approximately 5 gallons of grit. EnviroSafe awaiting arrival of plumber to seal drain. BENNETT & O'REILLY, INC., personnel note all drain/leaching pits clean. Leave site.

Commonwealth of Massachusetts
Executive Office of Environmental Affairs
Department of Environmental Protection

William F. Weld
Governor
Daniel S. Greenbaum
Commissioner

UIC NOTIFICATION FORM

DIVISION OF WATER SUPPLY

The Underground Injection Control (UIC) program protects drinking water by regulating discharges to the ground via injection wells such as dry wells and septic systems. Pursuant to UIC regulations (310 CMR 27.00), the discharge of pollutants via a floor drain to such a well must cease.

This notification form is to be used to report which of the options under I below (per DEP regulations) your facility will follow regarding your floor drain(s). Supply all information and attachments for that option. Supply all information for II and III as noted.

__X__ I. **Option** chosen for floor drain upon closure of injection well:

__X__ A. Plug the floor drain, if applicable (see 248 CMR 2.09).

__X__ 1. Copy of Form WS1: Notice of Plumbing Inspector Approval to Seal Floor Drain (where applicable), and Plumbing Permit Number: # 3854

__X__ 2. Date of plugging: 8 / 4 / 99

___ B. Connect floor drain to a holding tank/containment basin that meets all appropriate DEP regulations and policies.

___ 1. Floor plan with tank location

___ 2. Type of tank: _____

___ 3. DEP Permit #, where applicable _____

___ 4. Containment Basin Notification & required attachments, where applicable

___ 5. Date of connection: ____/____/____

___ C. Connect floor drain to municipal sewer (only allowed per DEP regulation 314 CMR 7.00 re. sewer discharge permits).

___ 1. DEP sewer discharge permit & permit/transmittal number: #_____

___ 2. Waste Water Treatment Plant permit & permit number: #_____

___ 3. Date of hookup: ____/____/____

___ D. Close and remove entire service bay.

SEE REVERSE SIDE

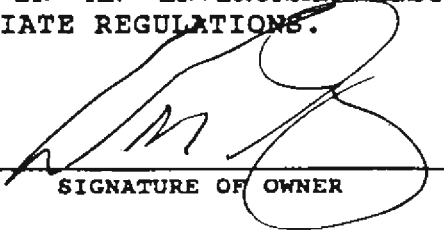
____II. **Waste Management Plan** (methods to be used to properly collect, store, and dispose of all potentially hazardous wastes) must be supplied by all facilities generating, managing, or disposing of hazardous materials and/or wastes.

__X__III. **Sampling Results**, where required, must be supplied with this form. Any abandoned separator must be pumped empty and cleaned.

Name of Business: Town of Chatham Municipal Airport
Mailing Address: c/o Robert Duncanson, Water Quality Lab., 283 George Ryder
Location: 240 George Ryder Road, Chatham, MA Road, Chatham, MA 02633
Facility Owner: Town of Chatham Phone: (508) 945- 5188
Nature of Business: Transportation
EPA Hazardous Waste Generator ID Number:
Number of Floor Drains at facility: before closure: 3 after: 0
Previous Final Point of Discharge of Floor Drain: Two drains discharged directly below into leaching area, one drain discharged into a MDC trap and into a leaching pit.

I HEREBY CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED IN THIS DOCUMENT AND ALL ATTACHMENTS AND THAT, BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THAT THE INFORMATION IS TRUE, ACCURATE, AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING POSSIBLE FINES AND IMPRISONMENT.

I UNDERSTAND THAT I MUST HANDLE, STORE, AND DISPOSE OF ALL HAZARDOUS WASTES IN AN ENVIRONMENTALLY SOUND MANNER IN ACCORDANCE WITH ALL APPROPRIATE REGULATIONS.



SIGNATURE OF OWNER

4/24/99
DATE

Any questions may be directed to the UIC Program at (617)292-5770. Submit this form and all required attachments for I (only the attachments for the option chosen), II, and III to the following address:

Underground Injection Control Program
DEP/Division of Water Supply
One Winter Street, 9th floor
Boston, MA 02108

Send duplicate copies of all forms to: Local Board of Health
Local Plumbing Inspector

Commonwealth of Massachusetts
Executive Office of Environmental Affairs

Department of Environmental Protection

William F. Weld
Governor
Trudy Coxe
Secretary, EOEA
David B. Struhs
Commissioner

FORM WS1

Notice of Plumbing Inspector Approval to Seal Floor Drain

April 1992

Note: This Application Does Not Apply To Any Facility Whose Floor Drain Is Connected To A Municipal Sewer System.

To: Plumbing Inspector for the City/Town of Chatham

Company Name: Town of Chatham Municipal Airport
Nature of Business: Transportation
Mailing Address: c/o Robert Duncanson, Water Quality Lab., 283 George Ryder Road, Chatham, MA 02633
Location: 240 George Ryder Road
Phone Number: (508) 945 -- 5188
Facility Owner: Town of Chatham,
requests to seal 3 floor drains.
# of drains

Any additions or alterations to the system are not permissible without the approval of the local plumbing inspector. All seals must be in compliance with 248 CMR. This form must show both signatures before copy may be filed with DEP.

Upon approval, a completed copy of this notice shall be filed immediately with the DEP Underground Injection Control Program (@617/556-1165) at the address below. Upon completion of all work, the applicant shall file the DEP UIC Notification Form to the same address.

Signature of Facility Owner — Date: 6/24/99

Approval Signature of Local Plumbing Inspector — Date: 8/4/99 — Plumbing Permit #: 3854

Owner shall send a completed copy of this form to:

DEP/Division of Water Supply
Underground Injection Control Program
One Winter Street, 9th floor
Boston, MA 02108

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF HAZARDOUS MATERIALS
One Winter Street
Boston, Massachusetts 02108

FOR IN-STATE WASTE OIL ONLY OR IN-STATE VSQG HW/WO

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator US EPA ID No. MP 3 0 8 9 4 5 5 1 8 8 — Manifest Document No. 0 0 0 1

2. Page 1 of 1 — Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
Chatham Municipal Airport
240 George Ryder Road
Chatham, MA 02633

4. Generator's Phone (508 945-5188

A. State Manifest Document Number: MA K836560

B. State Gen. ID: SAME

5. Transporter 1 Company Name: Enviro-Safe Corporation

6. US EPA ID Number: M A D 9 8 5 2 5 9 3 2 3

C. State Trans. ID: M A C O M P 7 5 6 8 9

7. Transporter 2 Company Name

8. US EPA ID Number

D. Transporter's Phone (508 888-5478

E. State Trans. ID

9. Designated Facility Name and Site Address
Olson's Greenhouses
590 South Street East
Raynham, MA 02767

10. US EPA ID Number: M A D 0 5 9 7 3 3 3 7 8

F. Transporter's Phone ( )

G. State Facility's ID: Not Required

H. Facility's Phone (508 822-1151

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. Waste Petroleum Oil, N.O.S. (not DOT regulated)	0 0 1	T T	0072	G	M A 9 9
b.					
c.			X		
d.					

J. Additional Descriptions for Materials Listed Above (include physical state and hazard code.)
a. c.
b. d.

K. Handling Codes for Wastes Listed Above
a. c.
b. d.

15. Special Handling Instructions and Additional Information
Material tested being marketed as MA99
Emergency Contact:
Heather Atwood 508-888-5478

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

GENERATOR

Printed/Typed Name	Signature	Date (Month Day Year)
Robert A. Duncanson	Robert A. Duncanson	07 26 99

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date (Month Day Year)
Steve Dennison	Stephen Rennison	07 26 99

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date (Month Day Year)

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name	Signature	Date (Month Day Year)
Robert Wellington	Robert Wellington	07 26 99

In case of emergency or spill, immediately call the National Response Center (800) 424-8802.

Form Approved OMB No. 2050-0039
EPA Form 8700-22 (Rev. 9-94) Previous editions are obsolete

COPY>3: TRANSPORTER RETAINS

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF HAZARDOUS MATERIALS
One Winter Street
Boston, Massachusetts 02108

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator US EPA ID No. MP 508945518B Manifest Document No. 00001 | 2. Page 1 of 1 | Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
Chatham Municipal Airport
240 George Ryder Road Chatham, MA 02633
Generator's Phone (508) 945-5188

A. State Manifest Document Number MA K087636
B. State Gen. ID Same

5. Transporter 1 Company Name: Enviro-Safe Corporation — US EPA ID Number: MAD985269323
C. State Trans. ID MACOMM861960
D. Transporter's Phone 508 888-5478

7. Transporter 2 Company Name: General Chemical Corp — US EPA ID Number: MAD019371079
E. State Trans. ID MA-43069
F. Transporter's Phone

9. Designated Facility Name and Site Address:
General Chemical Corp
133 Leland Street
Framingham, MA 01701
US EPA ID Number: MAD019371079
G. State Facility's ID: Not Required
H. Facility's Phone: 508 872-5000

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. State Regulated Oily Solids (not regulated per 40CFR; per 49CFR)	5	DM	3100	P	MA01
b.					
c.			X		
d.					

J. Additional Descriptions for Materials Listed Above — K. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

Emergency Phone #508-888-5478 Contact: Heather Atwood

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

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Printed/Typed Name	Signature	Date (Month Day Year)
Robert A. Duncanson	[signature]	07 26 99

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date (Month Day Year)
Steve Donovan	[signature]	07 26 99

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date (Month Day Year)
Brian Woods	[signature]	07 27 99

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name	Signature	Date (Month Day Year)

In case of emergency or spill, immediately call the National Response Center

EPA Form 8700-22 (Rev. 9-88) Previous editions are obsolete

COPY>5: TRANSPORTER 1 RETAINS

MA K087636 COPY>5: TRANSPORTER 1 RETAINS

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF HAZARDOUS MATERIALS
One Winter Street
Boston, Massachusetts 02108

RECEIVED AUG 1 1 1999

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator US EPA ID No. MP5089455188 Manifest Document No. 000001
2. Page 1 of 1 — Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address: CHATHAM MUNICIPAL AIRPORT
240 GEORGE RYDER RD.
CHATHAM 02633
4. Generator's Phone (508) 945-5788

A. State Manifest Document Number: MA K091326
B. State Gen. ID: SAME

5. Transporter 1 Company Name: Enviro-Safe Corp.
6. US EPA ID Number: MAD985269323
C. State Trans. ID: MA8619600

7. Transporter 2 Company Name
8. US EPA ID Number
D. Transporter's Phone (508) 888-5478
E. State Trans. ID

9. Designated Facility Name and Site Address: General Chemical Corp
133 Leland Street
Framingham, MA 01701
10. US EPA ID Number: MAD019371079
F. Transporter's Phone ( )
G. State Facility's ID: Not Required
H. Facility's Phone (508) 872-5000

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. State reg. oily solids not reg. per 40 CFR; per 49	001	DM	00100	P	MA01
b.					
c.					
d.					

J. Additional Descriptions for Materials Listed Above (include physical state and hazard code.)
a. c.
b. d.

K. Handling Codes for Wastes Listed Above
a. c.
b. d.

15. Special Handling Instructions and Additional Information
24 HR. EMERGENCY CONTACT # (508) 888-5478
USE EMERGENCY RESPONSE GUIDE 27

16. GENERATOR'S CERTIFICATION. I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

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GENERATOR — Printed/Typed Name: L.K. PICKET — Signature — Date: Month 08 Day 04 Year 99

TRANSPORTER
17. Transporter 1 Acknowledgement of Receipt of Materials — Printed/Typed Name: N.P. CHRISTIANI — Signature — Date: Month 08 Day 04 Year 99
18. Transporter 2 Acknowledgement of Receipt of Materials — Printed/Typed Name — Signature — Date: Month Day Year

FACILITY
19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.
Printed/Typed Name — Signature — Date: Month Day Year

In case of emergency or spill, immediately call the National Response Center (800) 424-8802.

Form Approved OMB No 2050-0039
EPA Form 8700-22 (Rev. 9-94) Previous editions are obsolete

COPY>1: FACILITY MAILS TO DESTINATION STATE

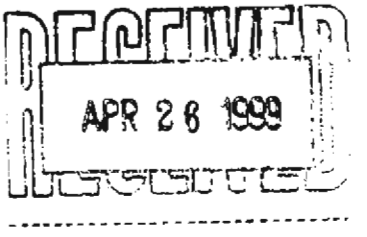
11A KU91326 COPY>1: FACILITY MAILS TO DESTINATION STATE

GROUNDWATER ANALYTICAL

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

Telephone (508) 759-4441
FAX (508) 759-4475

April 23, 1999



Mr. David Bennett
Bennett & O'Reilly, Inc.
P.O. Box 1667
Brewster, MA 02631

Project: **Chatham Municipal Airport/BO99-2262**
Lab ID: **26181**
Sampled: **04-07-99**

Dear Dave:

Enclosed are the Volatile Organics, Metals and Hydrocarbon Fingerprint Analyses performed for the above referenced project. This project was processed for Standard Two Week turnaround.

This letter authorizes the release of the analytical results, and should be considered a part of this report. This report contains a project narrative indicating project changes and non-conformances, a brief description of the Quality Assurance/Quality Control procedures employed by our laboratory, and a statement of our state certifications.

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,

Jonathan R. Sanford
President

JRS/awc
Enclosures

GROUNDWATER ANALYTICAL

EPA Method 8260B
Volatile Organics by GC/MS

Field ID:	**HB-1:0-5**	Laboratory ID:	**26181-01**
Project:	**Chatham Municipal Airport/BO99-2262**	QC Batch ID:	**VM4-1084-S**
Client:	**Bennett & O'Reilly**	Sampled:	**04-07-99**
Container:	**40mL Glass**	Received:	**04-08-99**
Preservation:	**NaHSO4 / Cool**	Analyzed:	**04-21-99**
Matrix:	**Soil**	Dilution Factor:	**1**
% Moisture:	**4**	Page:	**1 of 2**

CAS Number	Analyte	Concentration	Units	Reporting Limit
75-71-8	Dichlorodifluoromethane	BRL	ug/Kg	12
74-87-3	Chloromethane	BRL	ug/Kg	12
75-01-4	Vinyl Chloride	BRL	ug/Kg	12
74-83-9	Bromomethane	BRL	ug/Kg	12
75-00-3	Chloroethane	BRL	ug/Kg	12
75-69-4	Trichlorofluoromethane	BRL	ug/Kg	12
60-29-7	Diethyl Ether	BRL	ug/Kg	12
75-35-4	1,1-Dichloroethene	BRL	ug/Kg	6
67-64-1	Acetone	BRL	ug/Kg	120
75-15-0	Carbon Disulfide	BRL	ug/Kg	62
75-09-2	Methylene Chloride	BRL	ug/Kg	12
156-60-5	*trans*-1,2-Dichloroethene	BRL	ug/Kg	6
1634-04-4	Methyl *tert*-butyl Ether (MTBE)	BRL	ug/Kg	6
75-34-3	1,1-Dichloroethane	BRL	ug/Kg	6
590-20-7	2,2-Dichloropropane	BRL	ug/Kg	6
156-59-2	*cis*-1,2-Dichloroethene	BRL	ug/Kg	6
78-93-3	2-Butanone (MEK)	BRL	ug/Kg	62
74-97-5	Bromochloromethane	BRL	ug/Kg	6
109-99-9	Tetrahydrofuran (THF)	BRL	ug/Kg	62
67-66-3	Chloroform	BRL	ug/Kg	6
71-55-6	1,1,1-Trichloroethane	BRL	ug/Kg	6
56-23-5	Carbon Tetrachloride	BRL	ug/Kg	6
563-58-6	1,1-Dichloropropene	BRL	ug/Kg	6
71-43-2	Benzene	BRL	ug/Kg	6
107-06-2	1,2-Dichloroethane	BRL	ug/Kg	6
79-01-6	Trichloroethene	BRL	ug/Kg	6
78-87-5	1,2-Dichloropropane	BRL	ug/Kg	6
74-95-3	Dibromomethane	BRL	ug/Kg	6
75-27-4	Bromodichloromethane	BRL	ug/Kg	6
10061-01-5	*cis*-1,3-Dichloropropene	BRL	ug/Kg	6
108-10-1	4-Methyl-2-Pentanone (MIBK)	BRL	ug/Kg	62
108-88-3	Toluene	BRL	ug/Kg	6
10061-02-6	*trans*-1,3-Dichloropropene	BRL	ug/Kg	6
79-00-5	1,1,2-Trichloroethane	BRL	ug/Kg	6
127-18-4	Tetrachloroethene	16	ug/Kg	6
142-28-9	1,3-Dichloropropane	BRL	ug/Kg	6
591-78-6	2-Hexanone	BRL	ug/Kg	62
124-48-1	Dibromochloromethane	BRL	ug/Kg	6
106-93-4	1,2-Dibromoethane (EDB)	BRL	ug/Kg	6
108-90-7	Chlorobenzene	BRL	ug/Kg	6
630-20-6	1,1,1,2-Tetrachloroethane	BRL	ug/Kg	6
100-41-4	Ethylbenzene	BRL	ug/Kg	6

RCS-1
S-1/GW-1
500ug/Kg
(0.5ug/g

GROUNDWATER ANALYTICAL

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

Field ID:	**HB-1:0-5**	Laboratory ID:	**26181-01**
Project:	**Chatham Municipal Airport/BO99-2262**	QC Batch ID:	**VM4-1084-S**
Client:	**Bennett & O'Reilly**	Sampled:	**04-07-99**
Container:	**40mL Glass**	Received:	**04-08-99**
Preservation:	**NaHSO4 / Cool**	Analyzed:	**04-21-99**
Matrix:	**Soil**	Dilution Factor:	**1**
% Moisture:	**4**	Page:	**2 of 2**

CAS Number	Analyte	Concentration	Units	Reporting Limit
108-38-3/106-42-3	*meta*-Xylene and *para*-Xylene	BRL	ug/Kg	6
95-47-6	*ortho*-Xylene	BRL	ug/Kg	6
100-42-5	Styrene	BRL	ug/Kg	6
75-25-2	Bromoform	BRL	ug/Kg	6
98-82-8	Isopropylbenzene	BRL	ug/Kg	6
108-86-1	Bromobenzene	BRL	ug/Kg	6
79-34-5	1,1,2,2-Tetrachloroethane	BRL	ug/Kg	6
96-18-4	1,2,3-Trichloropropane	BRL	ug/Kg	6
103-65-1	*n*-Propylbenzene	BRL	ug/Kg	6
95-49-8	2-Chlorotoluene	BRL	ug/Kg	6
108-67-8	1,3,5-Trimethylbenzene	BRL	ug/Kg	6
106-43-4	4-Chlorotoluene	BRL	ug/Kg	6
98-06-6	*tert*-Butylbenzene	BRL	ug/Kg	6
95-63-6	1,2,4-Trimethylbenzene	BRL	ug/Kg	6
135-98-8	*sec*-Butylbenzene	BRL	ug/Kg	6
541-73-1	1,3-Dichlorobenzene	BRL	ug/Kg	6
99-87-6	4-Isopropyltoluene	BRL	ug/Kg	6
106-46-7	1,4-Dichlorobenzene	BRL	ug/Kg	6
95-50-1	1,2-Dichlorobenzene	BRL	ug/Kg	6
104-51-8	*n*-Butylbenzene	BRL	ug/Kg	6
96-12-8	1,2-Dibromo-3-chloropropane	BRL	ug/Kg	6
120-82-1	1,2,4-Trichlorobenzene	BRL	ug/Kg	6
87-68-3	Hexachlorobutadiene	BRL	ug/Kg	6
91-20-3	Naphthalene	BRL	ug/Kg	6
87-61-6	1,2,3-Trichlorobenzene	BRL	ug/Kg	6

QC Surrogate Compounds	Recovery	QC Limits
Dibromofluoromethane	101 %	80 - 120 %
1,2-Dichloroethane-d_4	101 %	80 - 120 %
Toluene-d_8	99 %	81 - 117 %
4-Bromofluorobenzene	111 %	74 - 121 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Analyte list as specified in Tables 6 and 7 of the method, and additional analytes as specified by MA DEP Method 1 Standards (310 C.M.R. 40.0973) and recommended by NH DES for initial waste site investigations, effective 12/1/97. Results are reported on a dry weight basis.

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 dilution, percent moisture and sample size.

GROUNDWATER ANALYTICAL

EPA Method 8260B
Volatile Organics by GC/MS

Field ID:	**HB-1:5-8**	Laboratory ID:	**26181-02**
Project:	**Chatham Municipal Airport/BO99-2262**	QC Batch ID:	**VM4-1084-S**
Client:	**Bennett & O'Reilly**	Sampled:	**04-07-99**
Container:	**40mL Glass**	Received:	**04-08-99**
Preservation:	**NaHSO4 / Cool**	Analyzed:	**04-21-99**
Matrix:	**Soil**	Dilution Factor:	**1**
% Moisture:	**4**	Page:	**1 of 2**

CAS Number	Analyte	Concentration	Units	Reporting Limit
75-71-8	Dichlorodifluoromethane	BRL	ug/Kg	13
74-87-3	Chloromethane	BRL	ug/Kg	13
75-01-4	Vinyl Chloride	BRL	ug/Kg	13
74-83-9	Bromomethane	BRL	ug/Kg	13
75-00-3	Chloroethane	BRL	ug/Kg	13
75-69-4	Trichlorofluoromethane	BRL	ug/Kg	13
60-29-7	Diethyl Ether	BRL	ug/Kg	13
75-35-4	1,1-Dichloroethene	BRL	ug/Kg	6
67-64-1	Acetone	BRL	ug/Kg	120
75-15-0	Carbon Disulfide	BRL	ug/Kg	64
75-09-2	Methylene Chloride	BRL	ug/Kg	13
156-60-5	*trans*-1,2-Dichloroethene	BRL	ug/Kg	6
1634-04-4	Methyl *tert*-butyl Ether (MTBE)	BRL	ug/Kg	6
75-34-3	1,1-Dichloroethane	BRL	ug/Kg	6
590-20-7	2,2-Dichloropropane	BRL	ug/Kg	6
156-59-2	*cis*-1,2-Dichloroethene	BRL	ug/Kg	6
78-93-3	2-Butanone (MEK)	BRL	ug/Kg	64
74-97-5	Bromochloromethane	BRL	ug/Kg	6
109-99-9	Tetrahydrofuran (THF)	BRL	ug/Kg	64
67-66-3	Chloroform	BRL	ug/Kg	6
71-55-6	1,1,1-Trichloroethane	BRL	ug/Kg	6
56-23-5	Carbon Tetrachloride	BRL	ug/Kg	6
563-58-6	1,1-Dichloropropene	BRL	ug/Kg	6
71-43-2	Benzene	BRL	ug/Kg	6
107-06-2	1,2-Dichloroethane	BRL	ug/Kg	6
79-01-6	Trichloroethene	BRL	ug/Kg	6
78-87-5	1,2-Dichloropropane	BRL	ug/Kg	6
74-95-3	Dibromomethane	BRL	ug/Kg	6
75-27-4	Bromodichloromethane	BRL	ug/Kg	6
10061-01-5	*cis*-1,3-Dichloropropene	BRL	ug/Kg	6
108-10-1	4-Methyl-2-Pentanone (MIBK)	BRL	ug/Kg	64
108-88-3	Toluene	BRL	ug/Kg	6
10061-02-6	*trans*-1,3-Dichloropropene	BRL	ug/Kg	6
79-00-5	1,1,2-Trichloroethane	BRL	ug/Kg	6
127-18-4	Tetrachloroethene	BRL	ug/Kg	6
142-28-9	1,3-Dichloropropane	BRL	ug/Kg	6
591-78-6	2-Hexanone	BRL	ug/Kg	64
124-48-1	Dibromochloromethane	BRL	ug/Kg	6
106-93-4	1,2-Dibromoethane (EDB)	BRL	ug/Kg	6
108-90-7	Chlorobenzene	BRL	ug/Kg	6
630-20-6	1,1,1,2-Tetrachloroethane	BRL	ug/Kg	6
100-41-4	Ethylbenzene	BRL	ug/Kg	6

GROUNDWATER ANALYTICAL

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

Field ID:	**HB-1:5-8**	Laboratory ID:	**26181-02**
Project:	**Chatham Municipal Airport/BO99-2262**	QC Batch ID:	**VM4-1084-S**
Client:	**Bennett & O'Reilly**	Sampled:	**04-07-99**
Container:	**40mL Glass**	Received:	**04-08-99**
Preservation:	**NaHSO4 / Cool**	Analyzed:	**04-21-99**
Matrix:	**Soil**	Dilution Factor:	**1**
% Moisture:	**4**	Page:	**2 of 2**

CAS Number	Analyte	Concentration	Units	Reporting Limit
108-38-3/106-42-3	*meta*-Xylene and *para*-Xylene	BRL	ug/Kg	6
95-47-6	*ortho*-Xylene	BRL	ug/Kg	6
100-42-5	Styrene	BRL	ug/Kg	6
75-25-2	Bromoform	BRL	ug/Kg	6
98-82-8	Isopropylbenzene	BRL	ug/Kg	6
108-86-1	Bromobenzene	BRL	ug/Kg	6
79-34-5	1,1,2,2-Tetrachloroethane	BRL	ug/Kg	6
96-18-4	1,2,3-Trichloropropane	BRL	ug/Kg	6
103-65-1	*n*-Propylbenzene	BRL	ug/Kg	6
95-49-8	2-Chlorotoluene	BRL	ug/Kg	6
108-67-8	1,3,5-Trimethylbenzene	BRL	ug/Kg	6
106-43-4	4-Chlorotoluene	BRL	ug/Kg	6
98-06-6	*tert*-Butylbenzene	BRL	ug/Kg	6
95-63-6	1,2,4-Trimethylbenzene	BRL	ug/Kg	6
135-98-8	*sec*-Butylbenzene	BRL	ug/Kg	6
541-73-1	1,3-Dichlorobenzene	BRL	ug/Kg	6
99-87-6	4-Isopropyltoluene	BRL	ug/Kg	6
106-46-7	1,4-Dichlorobenzene	BRL	ug/Kg	6
95-50-1	1,2-Dichlorobenzene	BRL	ug/Kg	6
104-51-8	*n*-Butylbenzene	BRL	ug/Kg	6
96-12-8	1,2-Dibromo-3-chloropropane	BRL	ug/Kg	6
120-82-1	1,2,4-Trichlorobenzene	BRL	ug/Kg	6
87-68-3	Hexachlorobutadiene	BRL	ug/Kg	6
91-20-3	Naphthalene	BRL	ug/Kg	6
87-61-6	1,2,3-Trichlorobenzene	BRL	ug/Kg	6

QC Surrogate Compounds	Recovery	QC Limits
Dibromofluoromethane	101 %	80 - 120 %
1,2-Dichloroethane-d_4	99 %	80 - 120 %
Toluene-d_8	101 %	81 - 117 %
4-Bromofluorobenzene	110 %	74 - 121 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Analyte list as specified in Tables 6 and 7 of the method, and additional analytes as specified by MA DEP Method 1 Standards (310 C.M.R. 40.0973) and recommended by NH DES for initial waste site investigations, effective 12/1/97. Results are reported on a dry weight basis.

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 dilution, percent moisture and sample size.

GROUNDWATER ANALYTICAL

EPA Method 8260B
Volatile Organics by GC/MS

Field ID:	**HB-2:0-5**	Laboratory ID:	**26181-03**
Project:	**Chatham Municipal Airport/BO99-2262**	QC Batch ID:	**VM4-1084-S**
Client:	**Bennett & O'Reilly**	Sampled:	**04-07-99**
Container:	**40mL Glass**	Received:	**04-08-99**
Preservation:	**NaHSO4 / Cool**	Analyzed:	**04-21-99**
Matrix:	**Soil**	Dilution Factor:	**1**
% Moisture:	7	Page:	**1 of 2**

CAS Number	Analyte	Concentration	Units	Reporting Limit
75-71-8	Dichlorodifluoromethane	BRL	ug/Kg	10
74-87-3	Chloromethane	BRL	ug/Kg	10
75-01-4	Vinyl Chloride	BRL	ug/Kg	10
74-83-9	Bromomethane	BRL	ug/Kg	10
75-00-3	Chloroethane	BRL	ug/Kg	10
75-69-4	Trichlorofluoromethane	BRL	ug/Kg	10
60-29-7	Diethyl Ether	BRL	ug/Kg	10
75-35-4	1,1-Dichloroethene	BRL	ug/Kg	5
67-64-1	Acetone	BRL	ug/Kg	100
75-15-0	Carbon Disulfide	BRL	ug/Kg	52
75-09-2	Methylene Chloride	BRL	ug/Kg	10
156-60-5	*trans*-1,2-Dichloroethene	BRL	ug/Kg	5
1634-04-4	Methyl *tert*-butyl Ether (MTBE)	BRL	ug/Kg	5
75-34-3	1,1-Dichloroethane	BRL	ug/Kg	5
590-20-7	2,2-Dichloropropane	BRL	ug/Kg	5
156-59-2	*cis*-1,2-Dichloroethene	BRL	ug/Kg	5
78-93-3	2-Butanone (MEK)	BRL	ug/Kg	52
74-97-5	Bromochloromethane	BRL	ug/Kg	5
109-99-9	Tetrahydrofuran (THF)	BRL	ug/Kg	52
67-66-3	Chloroform	BRL	ug/Kg	5
71-55-6	1,1,1-Trichloroethane	BRL	ug/Kg	5
56-23-5	Carbon Tetrachloride	BRL	ug/Kg	5
563-58-6	1,1-Dichloropropene	BRL	ug/Kg	5
71-43-2	Benzene	BRL	ug/Kg	5
107-06-2	1,2-Dichloroethane	BRL	ug/Kg	5
79-01-6	Trichloroethene	BRL	ug/Kg	5
78-87-5	1,2-Dichloropropane	BRL	ug/Kg	5
74-95-3	Dibromomethane	BRL	ug/Kg	5
75-27-4	Bromodichloromethane	BRL	ug/Kg	5
10061-01-5	*cis*-1,3-Dichloropropene	BRL	ug/Kg	5
108-10-1	4-Methyl-2-Pentanone (MIBK)	BRL	ug/Kg	52
108-88-3	Toluene	BRL	ug/Kg	5
10061-02-6	*trans*-1,3-Dichloropropene	BRL	ug/Kg	5
79-00-5	1,1,2-Trichloroethane	BRL	ug/Kg	5
127-18-4	Tetrachloroethene	5	ug/Kg	5
142-28-9	1,3-Dichloropropane	BRL	ug/Kg	5
591-78-6	2-Hexanone	BRL	ug/Kg	52
124-48-1	Dibromochloromethane	BRL	ug/Kg	5
106-93-4	1,2-Dibromoethane (EDB)	BRL	ug/Kg	5
108-90-7	Chlorobenzene	BRL	ug/Kg	5
630-20-6	1,1,1,2-Tetrachloroethane	BRL	ug/Kg	5
100-41-4	Ethylbenzene	BRL	ug/Kg	5

RCS-1
S-1/GW-1
500 ug/K
(0.5ug/g

GROUNDWATER ANALYTICAL

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

Field ID:	**HB-2:0-5**	Laboratory ID:	**26181-03**
Project:	**Chatham Municipal Airport/BO99-2262**	QC Batch ID:	**VM4-1084-S**
Client:	**Bennett & O'Reilly**	Sampled:	**04-07-99**
Container:	**40mL Glass**	Received:	**04-08-99**
Preservation:	**NaHSO4 / Cool**	Analyzed:	**04-21-99**
Matrix:	**Soil**	Dilution Factor:	1
% Moisture:	7	Page:	2 of 2

CAS Number	Analyte	Concentration	Units	Reporting Limit
108-38-3/106-42-3	*meta*-Xylene and *para*-Xylene	BRL	ug/Kg	5
95-47-6	*ortho*-Xylene	BRL	ug/Kg	5
100-42-5	Styrene	BRL	ug/Kg	5
75-25-2	Bromoform	BRL	ug/Kg	5
98-82-8	Isopropylbenzene	BRL	ug/Kg	5
108-86-1	Bromobenzene	BRL	ug/Kg	5
79-34-5	1,1,2,2-Tetrachloroethane	BRL	ug/Kg	5
96-18-4	1,2,3-Trichloropropane	BRL	ug/Kg	5
103-65-1	*n*-Propylbenzene	BRL	ug/Kg	5
95-49-8	2-Chlorotoluene	BRL	ug/Kg	5
108-67-8	1,3,5-Trimethylbenzene	BRL	ug/Kg	5
106-43-4	4-Chlorotoluene	BRL	ug/Kg	5
98-06-6	*tert*-Butylbenzene	BRL	ug/Kg	5
95-63-6	1,2,4-Trimethylbenzene	BRL	ug/Kg	5
135-98-8	*sec*-Butylbenzene	BRL	ug/Kg	5
541-73-1	1,3-Dichlorobenzene	BRL	ug/Kg	5
99-87-6	4-Isopropyltoluene	BRL	ug/Kg	5
106-46-7	1,4-Dichlorobenzene	BRL	ug/Kg	5
95-50-1	1,2-Dichlorobenzene	BRL	ug/Kg	5
104-51-8	*n*-Butylbenzene	BRL	ug/Kg	5
96-12-8	1,2-Dibromo-3-chloropropane	BRL	ug/Kg	5
120-82-1	1,2,4-Trichlorobenzene	BRL	ug/Kg	5
87-68-3	Hexachlorobutadiene	BRL	ug/Kg	5
91-20-3	Naphthalene	BRL	ug/Kg	5
87-61-6	1,2,3-Trichlorobenzene	BRL	ug/Kg	5

QC Surrogate Compounds	Recovery	QC Limits
Dibromofluoromethane	**100 %**	80 - 120 %
1,2-Dichloroethane-d_4	**105 %**	80 - 120 %
Toluene-d_8	**100 %**	81 - 117 %
4-Bromofluorobenzene	**117 %**	74 - 121 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Analyte list as specified in Tables 6 and 7 of the method, and additional analytes as specified by MA DEP Method 1 Standards (310 C.M.R. 40.0973) and recommended by NH DES for initial waste site investigations, effective 12/1/97. Results are reported on a dry weight basis.

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 dilution, percent moisture and sample size.

GROUNDWATER ANALYTICAL

EPA Method 8260B
Volatile Organics by GC/MS

Field ID:	**HB-2:5-8**	Laboratory ID:	**26181-04**
Project:	**Chatham Municipal Airport/BO99-2262**	QC Batch ID:	**VM4-1084-S**
Client:	**Bennett & O'Reilly**	Sampled:	**04-07-99**
Container:	**40mL Glass**	Received:	**04-08-99**
Preservation:	**NaHSO4 / Cool**	Analyzed:	**04-21-99**
Matrix:	**Soil**	Dilution Factor:	**1**
% Moisture:	**4**	Page:	**1 of 2**

CAS Number	Analyte	Concentration	Units	Reporting Limit
75-71-8	Dichlorodifluoromethane	BRL	ug/Kg	12
74-87-3	Chloromethane	BRL	ug/Kg	12
75-01-4	Vinyl Chloride	BRL	ug/Kg	12
74-83-9	Bromomethane	BRL	ug/Kg	12
75-00-3	Chloroethane	BRL	ug/Kg	12
75-69-4	Trichlorofluoromethane	BRL	ug/Kg	12
60-29-7	Diethyl Ether	BRL	ug/Kg	12
75-35-4	1,1-Dichloroethene	BRL	ug/Kg	6
67-64-1	Acetone	BRL	ug/Kg	120
75-15-0	Carbon Disulfide	BRL	ug/Kg	60
75-09-2	Methylene Chloride	BRL	ug/Kg	12
156-60-5	*trans*-1,2-Dichloroethene	BRL	ug/Kg	6
1634-04-4	Methyl *tert*-butyl Ether (MTBE)	BRL	ug/Kg	6
75-34-3	1,1-Dichloroethane	BRL	ug/Kg	6
590-20-7	2,2-Dichloropropane	BRL	ug/Kg	6
156-59-2	*cis*-1,2-Dichloroethene	BRL	ug/Kg	6
78-93-3	2-Butanone (MEK)	BRL	ug/Kg	60
74-97-5	Bromochloromethane	BRL	ug/Kg	6
109-99-9	Tetrahydrofuran (THF)	BRL	ug/Kg	60
67-66-3	Chloroform	BRL	ug/Kg	6
71-55-6	1,1,1-Trichloroethane	BRL	ug/Kg	6
56-23-5	Carbon Tetrachloride	BRL	ug/Kg	6
563-58-6	1,1-Dichloropropene	BRL	ug/Kg	6
71-43-2	Benzene	BRL	ug/Kg	6
107-06-2	1,2-Dichloroethane	BRL	ug/Kg	6
79-01-6	Trichloroethene	BRL	ug/Kg	6
78-87-5	1,2-Dichloropropane	BRL	ug/Kg	6
74-95-3	Dibromomethane	BRL	ug/Kg	6
75-27-4	Bromodichloromethane	BRL	ug/Kg	6
10061-01-5	*cis*-1,3-Dichloropropene	BRL	ug/Kg	6
108-10-1	4-Methyl-2-Pentanone (MIBK)	BRL	ug/Kg	60
108-88-3	Toluene	BRL	ug/Kg	6
10061-02-6	*trans*-1,3-Dichloropropene	BRL	ug/Kg	6
79-00-5	1,1,2-Trichloroethane	BRL	ug/Kg	6
127-18-4	Tetrachloroethene	BRL	ug/Kg	6
142-28-9	1,3-Dichloropropane	BRL	ug/Kg	6
591-78-6	2-Hexanone	BRL	ug/Kg	60
124-48-1	Dibromochloromethane	BRL	ug/Kg	6
106-93-4	1,2-Dibromoethane (EDB)	BRL	ug/Kg	6
108-90-7	Chlorobenzene	BRL	ug/Kg	6
630-20-6	1,1,1,2-Tetrachloroethane	BRL	ug/Kg	6
100-41-4	Ethylbenzene	BRL	ug/Kg	6

GROUNDWATER ANALYTICAL

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

Field ID:	**HB-2:5-8**	Laboratory ID:	**26181-04**
Project:	**Chatham Municipal Airport/BO99-2262**	QC Batch ID:	**VM4-1084-S**
Client:	**Bennett & O'Reilly**	Sampled:	**04-07-99**
Container:	**40mL Glass**	Received:	**04-08-99**
Preservation:	**NaHSO4 / Cool**	Analyzed:	**04-21-99**
Matrix:	**Soil**	Dilution Factor:	**1**
% Moisture:	**4**	Page:	**2 of 2**

CAS Number	Analyte	Concentration	Units	Reporting Limit
108-38-3/106-42-3	*meta*-Xylene and *para*-Xylene	BRL	ug/Kg	6
95-47-6	*ortho*-Xylene	BRL	ug/Kg	6
100-42-5	Styrene	BRL	ug/Kg	6
75-25-2	Bromoform	BRL	ug/Kg	6
98-82-8	Isopropylbenzene	BRL	ug/Kg	6
108-86-1	Bromobenzene	BRL	ug/Kg	6
79-34-5	1,1,2,2-Tetrachloroethane	BRL	ug/Kg	6
96-18-4	1,2,3-Trichloropropane	BRL	ug/Kg	6
103-65-1	*n*-Propylbenzene	BRL	ug/Kg	6
95-49-8	2-Chlorotoluene	BRL	ug/Kg	6
108-67-8	1,3,5-Trimethylbenzene	BRL	ug/Kg	6
106-43-4	4-Chlorotoluene	BRL	ug/Kg	6
98-06-6	*tert*-Butylbenzene	BRL	ug/Kg	6
95-63-6	1,2,4-Trimethylbenzene	BRL	ug/Kg	6
135-98-8	*sec*-Butylbenzene	BRL	ug/Kg	6
541-73-1	1,3-Dichlorobenzene	BRL	ug/Kg	6
99-87-6	4-Isopropyltoluene	BRL	ug/Kg	6
106-46-7	1,4-Dichlorobenzene	BRL	ug/Kg	6
95-50-1	1,2-Dichlorobenzene	BRL	ug/Kg	6
104-51-8	*n*-Butylbenzene	BRL	ug/Kg	6
96-12-8	1,2-Dibromo-3-chloropropane	BRL	ug/Kg	6
120-82-1	1,2,4-Trichlorobenzene	BRL	ug/Kg	6
87-68-3	Hexachlorobutadiene	BRL	ug/Kg	6
91-20-3	Naphthalene	BRL	ug/Kg	6
87-61-6	1,2,3-Trichlorobenzene	BRL	ug/Kg	6

QC Surrogate Compounds	Recovery	QC Limits
Dibromofluoromethane	**100** %	80 - 120 %
1,2-Dichloroethane-d_4	**104** %	80 - 120 %
Toluene-d_8	**99** %	81 - 117 %
4-Bromofluorobenzene	**105** %	74 - 121 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Analyte list as specified in Tables 6 and 7 of the method, and additional analytes as specified by MA DEP Method 1 Standards (310 C.M.R. 40.0973) and recommended by NH DES for initial waste site investigations, effective 12/1/97. Results are reported on a dry weight basis.

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 dilution, percent moisture and sample size.

GROUNDWATER ANALYTICAL

EPA Method 8260B
Volatile Organics by GC/MS

Field ID:	**HB-3:0-5**	Laboratory ID:	**26181-05**
Project:	**Chatham Municipal Airport/BO99-2262**	QC Batch ID:	**VM4-1084-S**
Client:	**Bennett & O'Reilly**	Sampled:	**04-07-99**
Container:	**40mL Glass**	Received:	**04-08-99**
Preservation:	**NaHSO4 / Cool**	Analyzed:	**04-21-99**
Matrix:	**Soil**	Dilution Factor:	**1**
% Moisture:	**4**	Page:	**1 of 2**

CAS Number	Analyte	Concentration	Units	Reporting Limit
75-71-8	Dichlorodifluoromethane	BRL	ug/Kg	12
74-87-3	Chloromethane	BRL	ug/Kg	12
75-01-4	Vinyl Chloride	BRL	ug/Kg	12
74-83-9	Bromomethane	BRL	ug/Kg	12
75-00-3	Chloroethane	BRL	ug/Kg	12
75-69-4	Trichlorofluoromethane	BRL	ug/Kg	12
60-29-7	Diethyl Ether	BRL	ug/Kg	12
75-35-4	1,1-Dichloroethene	BRL	ug/Kg	6
67-64-1	Acetone	BRL	ug/Kg	120
75-15-0	Carbon Disulfide	BRL	ug/Kg	58
75-09-2	Methylene Chloride	BRL	ug/Kg	12
156-60-5	*trans*-1,2-Dichloroethene	BRL	ug/Kg	6
1634-04-4	Methyl *tert*-butyl Ether (MTBE)	BRL	ug/Kg	6
75-34-3	1,1-Dichloroethane	BRL	ug/Kg	6
590-20-7	2,2-Dichloropropane	BRL	ug/Kg	6
156-59-2	*cis*-1,2-Dichloroethene	BRL	ug/Kg	6
78-93-3	2-Butanone (MEK)	BRL	ug/Kg	58
74-97-5	Bromochloromethane	BRL	ug/Kg	6
109-99-9	Tetrahydrofuran (THF)	BRL	ug/Kg	58
67-66-3	Chloroform	BRL	ug/Kg	6
71-55-6	1,1,1-Trichloroethane	BRL	ug/Kg	6
56-23-5	Carbon Tetrachloride	BRL	ug/Kg	6
563-58-6	1,1-Dichloropropene	BRL	ug/Kg	6
71-43-2	Benzene	BRL	ug/Kg	6
107-06-2	1,2-Dichloroethane	BRL	ug/Kg	6
79-01-6	Trichloroethene	BRL	ug/Kg	6
78-87-5	1,2-Dichloropropane	BRL	ug/Kg	6
74-95-3	Dibromomethane	BRL	ug/Kg	6
75-27-4	Bromodichloromethane	BRL	ug/Kg	6
10061-01-5	*cis*-1,3-Dichloropropene	BRL	ug/Kg	6
108-10-1	4-Methyl-2-Pentanone (MIBK)	BRL	ug/Kg	58
108-88-3	Toluene	BRL	ug/Kg	6
10061-02-6	*trans*-1,3-Dichloropropene	BRL	ug/Kg	6
79-00-5	1,1,2-Trichloroethane	BRL	ug/Kg	6
127-18-4	Tetrachloroethene	BRL	ug/Kg	6
142-28-9	1,3-Dichloropropane	BRL	ug/Kg	6
591-78-6	2-Hexanone	BRL	ug/Kg	58
124-48-1	Dibromochloromethane	BRL	ug/Kg	6
106-93-4	1,2-Dibromoethane (EDB)	BRL	ug/Kg	6
108-90-7	Chlorobenzene	BRL	ug/Kg	6
630-20-6	1,1,1,2-Tetrachloroethane	BRL	ug/Kg	6
100-41-4	Ethylbenzene	BRL	ug/Kg	6

GROUNDWATER ANALYTICAL

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

Field ID:	**HB-3:0-5**	Laboratory ID:	**26181-05**
Project:	**Chatham Municipal Airport/BO99-2262**	QC Batch ID:	**VM4-1084-S**
Client:	**Bennett & O'Reilly**	Sampled:	**04-07-99**
Container:	**40mL Glass**	Received:	**04-08-99**
Preservation:	**NaHSO4 / Cool**	Analyzed:	**04-21-99**
Matrix:	**Soil**	Dilution Factor:	**1**
% Moisture:	**4**	Page:	**2 of 2**

CAS Number	Analyte	Concentration	Units	Reporting Limit
108-38-3/106-42-3	*meta*-Xylene and *para*-Xylene	BRL	ug/Kg	6
95-47-6	*ortho*-Xylene	BRL	ug/Kg	6
100-42-5	Styrene	BRL	ug/Kg	6
75-25-2	Bromoform	BRL	ug/Kg	6
98-82-8	Isopropylbenzene	BRL	ug/Kg	6
108-86-1	Bromobenzene	BRL	ug/Kg	6
79-34-5	1,1,2,2-Tetrachloroethane	BRL	ug/Kg	6
96-18-4	1,2,3-Trichloropropane	BRL	ug/Kg	6
103-65-1	*n*-Propylbenzene	BRL	ug/Kg	6
95-49-8	2-Chlorotoluene	BRL	ug/Kg	6
108-67-8	1,3,5-Trimethylbenzene	BRL	ug/Kg	6
106-43-4	4-Chlorotoluene	BRL	ug/Kg	6
98-06-6	*tert*-Butylbenzene	BRL	ug/Kg	6
95-63-6	1,2,4-Trimethylbenzene	BRL	ug/Kg	6
135-98-8	*sec*-Butylbenzene	BRL	ug/Kg	6
541-73-1	1,3-Dichlorobenzene	BRL	ug/Kg	6
99-87-6	4-Isopropyltoluene	BRL	ug/Kg	6
106-46-7	1,4-Dichlorobenzene	BRL	ug/Kg	6
95-50-1	1,2-Dichlorobenzene	BRL	ug/Kg	6
104-51-8	*n*-Butylbenzene	BRL	ug/Kg	6
96-12-8	1,2-Dibromo-3-chloropropane	BRL	ug/Kg	6
120-82-1	1,2,4-Trichlorobenzene	BRL	ug/Kg	6
87-68-3	Hexachlorobutadiene	BRL	ug/Kg	6
91-20-3	Naphthalene	BRL	ug/Kg	6
87-61-6	1,2,3-Trichlorobenzene	BRL	ug/Kg	6

QC Surrogate Compounds	Recovery	QC Limits
Dibromofluoromethane	**101** %	80 - 120 %
1,2-Dichloroethane-d_4	**105** %	80 - 120 %
Toluene-d_8	**100** %	81 - 117 %
4-Bromofluorobenzene	**111** %	74 - 121 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Analyte list as specified in Tables 6 and 7 of the method, and additional analytes as specified by MA DEP Method 1 Standards (310 C.M.R. 40.0973) and recommended by NH DES for initial waste site investigations, effective 12/1/97. Results are reported on a dry weight basis.

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 dilution, percent moisture and sample size.

GROUNDWATER ANALYTICAL

EPA Method 8260B
Volatile Organics by GC/MS

Field ID:	**HB-3:5-8**	Laboratory ID:	**26181-06**
Project:	**Chatham Municipal Airport/BO99-2262**	QC Batch ID:	**VM4-1084-S**
Client:	**Bennett & O'Reilly**	Sampled:	**04-07-99**
Container:	**40mL Glass**	Received:	**04-08-99**
Preservation:	**NaHSO4 / Cool**	Analyzed:	**04-21-99**
Matrix:	**Soil**	Dilution Factor:	**1**
% Moisture:	**2**	Page:	**1 of 2**

CAS Number	Analyte	Concentration	Units	Reporting Limit
75-71-8	Dichlorodifluoromethane	BRL	ug/Kg	14
74-87-3	Chloromethane	BRL	ug/Kg	14
75-01-4	Vinyl Chloride	BRL	ug/Kg	14
74-83-9	Bromomethane	BRL	ug/Kg	14
75-00-3	Chloroethane	BRL	ug/Kg	14
75-69-4	Trichlorofluoromethane	BRL	ug/Kg	14
60-29-7	Diethyl Ether	BRL	ug/Kg	14
75-35-4	1,1-Dichloroethene	BRL	ug/Kg	7
67-64-1	Acetone	BRL	ug/Kg	140
75-15-0	Carbon Disulfide	BRL	ug/Kg	69
75-09-2	Methylene Chloride	BRL	ug/Kg	14
156-60-5	*trans*-1,2-Dichloroethene	BRL	ug/Kg	7
1634-04-4	Methyl *tert*-butyl Ether (MTBE)	BRL	ug/Kg	7
75-34-3	1,1-Dichloroethane	BRL	ug/Kg	7
590-20-7	2,2-Dichloropropane	BRL	ug/Kg	7
156-59-2	*cis*-1,2-Dichloroethene	BRL	ug/Kg	7
78-93-3	2-Butanone (MEK)	BRL	ug/Kg	69
74-97-5	Bromochloromethane	BRL	ug/Kg	7
109-99-9	Tetrahydrofuran (THF)	BRL	ug/Kg	69
67-66-3	Chloroform	BRL	ug/Kg	7
71-55-6	1,1,1-Trichloroethane	BRL	ug/Kg	7
56-23-5	Carbon Tetrachloride	BRL	ug/Kg	7
563-58-6	1,1-Dichloropropene	BRL	ug/Kg	7
71-43-2	Benzene	BRL	ug/Kg	7
107-06-2	1,2-Dichloroethane	BRL	ug/Kg	7
79-01-6	Trichloroethene	BRL	ug/Kg	7
78-87-5	1,2-Dichloropropane	BRL	ug/Kg	7
74-95-3	Dibromomethane	BRL	ug/Kg	7
75-27-4	Bromodichloromethane	BRL	ug/Kg	7
10061-01-5	*cis*-1,3-Dichloropropene	BRL	ug/Kg	7
108-10-1	4-Methyl-2-Pentanone (MIBK)	BRL	ug/Kg	69
108-88-3	Toluene	BRL	ug/Kg	7
10061-02-6	*trans*-1,3-Dichloropropene	BRL	ug/Kg	7
79-00-5	1,1,2-Trichloroethane	BRL	ug/Kg	7
127-18-4	Tetrachloroethene	BRL	ug/Kg	7
142-28-9	1,3-Dichloropropane	BRL	ug/Kg	7
591-78-6	2-Hexanone	BRL	ug/Kg	69
124-48-1	Dibromochloromethane	BRL	ug/Kg	7
106-93-4	1,2-Dibromoethane (EDB)	BRL	ug/Kg	7
108-90-7	Chlorobenzene	BRL	ug/Kg	7
630-20-6	1,1,1,2-Tetrachloroethane	BRL	ug/Kg	7
100-41-4	Ethylbenzene	BRL	ug/Kg	7

GROUNDWATER ANALYTICAL

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

Field ID:	**HB-3:5-8**	Laboratory ID:	**26181-06**
Project:	**Chatham Municipal Airport/BO99-2262**	QC Batch ID:	**VM4-1084-S**
Client:	**Bennett & O'Reilly**	Sampled:	**04-07-99**
Container:	**40mL Glass**	Received:	**04-08-99**
Preservation:	**NaHSO4 / Cool**	Analyzed:	**04-21-99**
Matrix:	**Soil**	Dilution Factor:	1
% Moisture:	**2**	Page:	**2 of 2**

CAS Number	Analyte	Concentration	Units	Reporting Limit
108-38-3/106-42-3	*meta*-Xylene and *para*-Xylene	BRL	ug/Kg	7
95-47-6	*ortho*-Xylene	BRL	ug/Kg	7
100-42-5	Styrene	BRL	ug/Kg	7
75-25-2	Bromoform	BRL	ug/Kg	7
98-82-8	Isopropylbenzene	BRL	ug/Kg	7
108-86-1	Bromobenzene	BRL	ug/Kg	7
79-34-5	1,1,2,2-Tetrachloroethane	BRL	ug/Kg	7
96-18-4	1,2,3-Trichloropropane	BRL	ug/Kg	7
103-65-1	*n*-Propylbenzene	BRL	ug/Kg	7
95-49-8	2-Chlorotoluene	BRL	ug/Kg	7
108-67-8	1,3,5-Trimethylbenzene	BRL	ug/Kg	7
106-43-4	4-Chlorotoluene	BRL	ug/Kg	7
98-06-6	*tert*-Butylbenzene	BRL	ug/Kg	7
95-63-6	1,2,4-Trimethylbenzene	BRL	ug/Kg	7
135-98-8	*sec*-Butylbenzene	BRL	ug/Kg	7
541-73-1	1,3-Dichlorobenzene	BRL	ug/Kg	7
99-87-6	4-Isopropyltoluene	BRL	ug/Kg	7
106-46-7	1,4-Dichlorobenzene	BRL	ug/Kg	7
95-50-1	1,2-Dichlorobenzene	BRL	ug/Kg	7
104-51-8	*n*-Butylbenzene	BRL	ug/Kg	7
96-12-8	1,2-Dibromo-3-chloropropane	BRL	ug/Kg	7
120-82-1	1,2,4-Trichlorobenzene	BRL	ug/Kg	7
87-68-3	Hexachlorobutadiene	BRL	ug/Kg	7
91-20-3	Naphthalene	BRL	ug/Kg	7
87-61-6	1,2,3-Trichlorobenzene	BRL	ug/Kg	7

QC Surrogate Compounds	Recovery	QC Limits
Dibromofluoromethane	**102 %**	80 - 120 %
1,2-Dichloroethane-d_4	**103 %**	80 - 120 %
Toluene-d_8	**100 %**	81 - 117 %
4-Bromofluorobenzene	**109 %**	74 - 121 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Analyte list as specified in Tables 6 and 7 of the method, and additional analytes as specified by MA DEP Method 1 Standards (310 C.M.R. 40.0973) and recommended by NH DES for initial waste site investigations, effective 12/1/97. Results are reported on a dry weight basis.

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 dilution, percent moisture and sample size.

GROUNDWATER ANALYTICAL

EPA Method 8260B
Volatile Organics by GC/MS

Field ID:	**HB-4A:6-9**	Laboratory ID:	**26181-07**
Project:	**Chatham Municipal Airport/BO99-2262**	QC Batch ID:	**VM4-1084-S**
Client:	**Bennett & O'Reilly**	Sampled:	**04-07-99**
Container:	**40mL Glass**	Received:	**04-08-99**
Preservation:	**NaHSO4 / Cool**	Analyzed:	**04-21-99**
Matrix:	**Soil**	Dilution Factor:	**1**
% Moisture:	**2**	Page:	**1 of 2**

CAS Number	Analyte	Concentration	Units	Reporting Limit
75-71-8	Dichlorodifluoromethane	BRL	ug/Kg	12
74-87-3	Chloromethane	BRL	ug/Kg	12
75-01-4	Vinyl Chloride	BRL	ug/Kg	12
74-83-9	Bromomethane	BRL	ug/Kg	12
75-00-3	Chloroethane	BRL	ug/Kg	12
75-69-4	Trichlorofluoromethane	BRL	ug/Kg	12
60-29-7	Diethyl Ether	BRL	ug/Kg	12
75-35-4	1,1-Dichloroethene	BRL	ug/Kg	6
67-64-1	Acetone	BRL	ug/Kg	120
75-15-0	Carbon Disulfide	BRL	ug/Kg	59
75-09-2	Methylene Chloride	BRL	ug/Kg	12
156-60-5	*trans*-1,2-Dichloroethene	BRL	ug/Kg	6
1634-04-4	Methyl *tert*-butyl Ether (MTBE)	BRL	ug/Kg	6
75-34-3	1,1-Dichloroethane	BRL	ug/Kg	6
590-20-7	2,2-Dichloropropane	BRL	ug/Kg	6
156-59-2	*cis*-1,2-Dichloroethene	BRL	ug/Kg	6
78-93-3	2-Butanone (MEK)	BRL	ug/Kg	59
74-97-5	Bromochloromethane	BRL	ug/Kg	6
109-99-9	Tetrahydrofuran (THF)	BRL	ug/Kg	59
67-66-3	Chloroform	BRL	ug/Kg	6
71-55-6	1,1,1-Trichloroethane	BRL	ug/Kg	6
56-23-5	Carbon Tetrachloride	BRL	ug/Kg	6
563-58-6	1,1-Dichloropropene	BRL	ug/Kg	6
71-43-2	Benzene	BRL	ug/Kg	6
107-06-2	1,2-Dichloroethane	BRL	ug/Kg	6
79-01-6	Trichloroethene	BRL	ug/Kg	6
78-87-5	1,2-Dichloropropane	BRL	ug/Kg	6
74-95-3	Dibromomethane	BRL	ug/Kg	6
75-27-4	Bromodichloromethane	BRL	ug/Kg	6
10061-01-5	*cis*-1,3-Dichloropropene	BRL	ug/Kg	6
108-10-1	4-Methyl-2-Pentanone (MIBK)	BRL	ug/Kg	59
108-88-3	Toluene	BRL	ug/Kg	6
10061-02-6	*trans*-1,3-Dichloropropene	BRL	ug/Kg	6
79-00-5	1,1,2-Trichloroethane	BRL	ug/Kg	6
127-18-4	Tetrachloroethene	BRL	ug/Kg	6
142-28-9	1,3-Dichloropropane	BRL	ug/Kg	6
591-78-6	2-Hexanone	BRL	ug/Kg	59
124-48-1	Dibromochloromethane	BRL	ug/Kg	6
106-93-4	1,2-Dibromoethane (EDB)	BRL	ug/Kg	6
108-90-7	Chlorobenzene	BRL	ug/Kg	6
630-20-6	1,1,1,2-Tetrachloroethane	BRL	ug/Kg	6
100-41-4	Ethylbenzene	BRL	ug/Kg	6

GROUNDWATER ANALYTICAL

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

Field ID:	**HB-4A:6-9**	Laboratory ID:	**26181-07**
Project:	**Chatham Municipal Airport/BO99-2262**	QC Batch ID:	**VM4-1084-S**
Client:	**Bennett & O'Reilly**	Sampled:	**04-07-99**
Container:	**40mL Glass**	Received:	**04-08-99**
Preservation:	**NaHSO4 / Cool**	Analyzed:	**04-21-99**
Matrix:	**Soil**	Dilution Factor:	**1**
% Moisture:	**2**	Page:	**2 of 2**

CAS Number	Analyte	Concentration	Units	Reporting Limit
108-38-3/106-42-3	*meta*-Xylene and *para*-Xylene	BRL	ug/Kg	6
95-47-6	*ortho*-Xylene	BRL	ug/Kg	6
100-42-5	Styrene	BRL	ug/Kg	6
75-25-2	Bromoform	BRL	ug/Kg	6
98-82-8	Isopropylbenzene	BRL	ug/Kg	6
108-86-1	Bromobenzene	BRL	ug/Kg	6
79-34-5	1,1,2,2-Tetrachloroethane	BRL	ug/Kg	6
96-18-4	1,2,3-Trichloropropane	BRL	ug/Kg	6
103-65-1	*n*-Propylbenzene	BRL	ug/Kg	6
95-49-8	2-Chlorotoluene	BRL	ug/Kg	6
108-67-8	1,3,5-Trimethylbenzene	BRL	ug/Kg	6
106-43-4	4-Chlorotoluene	BRL	ug/Kg	6
98-06-6	*tert*-Butylbenzene	BRL	ug/Kg	6
95-63-6	1,2,4-Trimethylbenzene	BRL	ug/Kg	6
135-98-8	*sec*-Butylbenzene	BRL	ug/Kg	6
541-73-1	1,3-Dichlorobenzene	BRL	ug/Kg	6
99-87-6	4-Isopropyltoluene	BRL	ug/Kg	6
106-46-7	1,4-Dichlorobenzene	BRL	ug/Kg	6
95-50-1	1,2-Dichlorobenzene	BRL	ug/Kg	6
104-51-8	*n*-Butylbenzene	BRL	ug/Kg	6
96-12-8	1,2-Dibromo-3-chloropropane	BRL	ug/Kg	6
120-82-1	1,2,4-Trichlorobenzene	BRL	ug/Kg	6
87-68-3	Hexachlorobutadiene	BRL	ug/Kg	6
91-20-3	Naphthalene	BRL	ug/Kg	6
87-61-6	1,2,3-Trichlorobenzene	BRL	ug/Kg	6

QC Surrogate Compounds	Recovery	QC Limits
Dibromofluoromethane	**102 %**	80 - 120 %
1,2-Dichloroethane-d_4	**106 %**	80 - 120 %
Toluene-d_8	**100 %**	81 - 117 %
4-Bromofluorobenzene	**106 %**	74 - 121 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Analyte list as specified in Tables 6 and 7 of the method, and additional analytes as specified by MA DEP Method 1 Standards (310 C.M.R. 40.0973) and recommended by NH DES for initial waste site investigations, effective 12/1/97. Results are reported on a dry weight basis.

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 dilution, percent moisture and sample size.

GROUNDWATER ANALYTICAL

EPA Method 8260B
Volatile Organics by GC/MS

Field ID:	**HB-4B:10-15**	Laboratory ID:	**26181-08**
Project:	**Chatham Municipal Airport/BO99-2262**	QC Batch ID:	**VM4-1084-S**
Client:	**Bennett & O'Reilly**	Sampled:	**04-07-99**
Container:	**40mL Glass**	Received:	**04-08-99**
Preservation:	**NaHSO4 / Cool**	Analyzed:	**04-21-99**
Matrix:	**Soil**	Dilution Factor:	**1**
% Moisture:	**3**	Page:	**1 of 2**

CAS Number	Analyte	Concentration	Units	Reporting Limit
75-71-8	Dichlorodifluoromethane	BRL	ug/Kg	13
74-87-3	Chloromethane	BRL	ug/Kg	13
75-01-4	Vinyl Chloride	BRL	ug/Kg	13
74-83-9	Bromomethane	BRL	ug/Kg	13
75-00-3	Chloroethane	BRL	ug/Kg	13
75-69-4	Trichlorofluoromethane	BRL	ug/Kg	13
60-29-7	Diethyl Ether	BRL	ug/Kg	13
75-35-4	1,1-Dichloroethene	BRL	ug/Kg	6
67-64-1	Acetone	BRL	ug/Kg	130
75-15-0	Carbon Disulfide	BRL	ug/Kg	64
75-09-2	Methylene Chloride	BRL	ug/Kg	13
156-60-5	*trans*-1,2-Dichloroethene	BRL	ug/Kg	6
1634-04-4	Methyl *tert*-butyl Ether (MTBE)	BRL	ug/Kg	6
75-34-3	1,1-Dichloroethane	BRL	ug/Kg	6
590-20-7	2,2-Dichloropropane	BRL	ug/Kg	6
156-59-2	*cis*-1,2-Dichloroethene	BRL	ug/Kg	6
78-93-3	2-Butanone (MEK)	BRL	ug/Kg	64
74-97-5	Bromochloromethane	BRL	ug/Kg	6
109-99-9	Tetrahydrofuran (THF)	BRL	ug/Kg	64
67-66-3	Chloroform	BRL	ug/Kg	6
71-55-6	1,1,1-Trichloroethane	BRL	ug/Kg	6
56-23-5	Carbon Tetrachloride	BRL	ug/Kg	6
563-58-6	1,1-Dichloropropene	BRL	ug/Kg	6
71-43-2	Benzene	BRL	ug/Kg	6
107-06-2	1,2-Dichloroethane	BRL	ug/Kg	6
79-01-6	Trichloroethene	BRL	ug/Kg	6
78-87-5	1,2-Dichloropropane	BRL	ug/Kg	6
74-95-3	Dibromomethane	BRL	ug/Kg	6
75-27-4	Bromodichloromethane	BRL	ug/Kg	6
10061-01-5	*cis*-1,3-Dichloropropene	BRL	ug/Kg	6
108-10-1	4-Methyl-2-Pentanone (MIBK)	BRL	ug/Kg	64
108-88-3	Toluene	BRL	ug/Kg	6
10061-02-6	*trans*-1,3-Dichloropropene	BRL	ug/Kg	6
79-00-5	1,1,2-Trichloroethane	BRL	ug/Kg	6
127-18-4	Tetrachloroethene	BRL	ug/Kg	6
142-28-9	1,3-Dichloropropane	BRL	ug/Kg	6
591-78-6	2-Hexanone	BRL	ug/Kg	64
124-48-1	Dibromochloromethane	BRL	ug/Kg	6
106-93-4	1,2-Dibromoethane (EDB)	BRL	ug/Kg	6
108-90-7	Chlorobenzene	BRL	ug/Kg	6
630-20-6	1,1,1,2-Tetrachloroethane	BRL	ug/Kg	6
100-41-4	Ethylbenzene	BRL	ug/Kg	6

GROUNDWATER ANALYTICAL

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

Field ID:	**HB-4B:10-15**	Laboratory ID:	**26181-08**
Project:	**Chatham Municipal Airport/BO99-2262**	QC Batch ID:	**VM4-1084-S**
Client:	**Bennett & O'Reilly**	Sampled:	**04-07-99**
Container:	**40mL Glass**	Received:	**04-08-99**
Preservation:	**NaHSO4 / Cool**	Analyzed:	**04-21-99**
Matrix:	**Soil**	Dilution Factor:	**1**
% Moisture:	**3**	Page:	**2 of 2**

CAS Number	Analyte	Concentration	Units	Reporting Limit
108-38-3/106-42-3	*meta*-Xylene and *para*-Xylene	BRL	ug/Kg	6
95-47-6	*ortho*-Xylene	BRL	ug/Kg	6
100-42-5	Styrene	BRL	ug/Kg	6
75-25-2	Bromoform	BRL	ug/Kg	6
98-82-8	Isopropylbenzene	BRL	ug/Kg	6
108-86-1	Bromobenzene	BRL	ug/Kg	6
79-34-5	1,1,2,2-Tetrachloroethane	BRL	ug/Kg	6
96-18-4	1,2,3-Trichloropropane	BRL	ug/Kg	6
103-65-1	*n*-Propylbenzene	BRL	ug/Kg	6
95-49-8	2-Chlorotoluene	BRL	ug/Kg	6
108-67-8	1,3,5-Trimethylbenzene	BRL	ug/Kg	6
106-43-4	4-Chlorotoluene	BRL	ug/Kg	6
98-06-6	*tert*-Butylbenzene	BRL	ug/Kg	6
95-63-6	1,2,4-Trimethylbenzene	BRL	ug/Kg	6
135-98-8	sec-Butylbenzene	BRL	ug/Kg	6
541-73-1	1,3-Dichlorobenzene	BRL	ug/Kg	6
99-87-6	4-Isopropyltoluene	BRL	ug/Kg	6
106-46-7	1,4-Dichlorobenzene	BRL	ug/Kg	6
95-50-1	1,2-Dichlorobenzene	BRL	ug/Kg	6
104-51-8	*n*-Butylbenzene	BRL	ug/Kg	6
96-12-8	1,2-Dibromo-3-chloropropane	BRL	ug/Kg	6
120-82-1	1,2,4-Trichlorobenzene	BRL	ug/Kg	6
87-68-3	Hexachlorobutadiene	BRL	ug/Kg	6
91-20-3	Naphthalene	BRL	ug/Kg	6
87-61-6	1,2,3-Trichlorobenzene	BRL	ug/Kg	6

QC Surrogate Compounds	Recovery	QC Limits
Dibromofluoromethane	**102 %**	80 - 120 %
1,2-Dichloroethane-d_4	**106 %**	80 - 120 %
Toluene-d_8	**99 %**	81 - 117 %
4-Bromofluorobenzene	**105 %**	74 - 121 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Analyte list as specified in Tables 6 and 7 of the method, and additional analytes as specified by MA DEP Method 1 Standards (310 C.M.R. 40.0973) and recommended by NH DES for initial waste site investigations, effective 12/1/97. Results are reported on a dry weight basis.

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 dilution, percent moisture and sample size.

GROUNDWATER ANALYTICAL

Trace Metals by ICP-AES and CVAA

Field ID: **HB-1:0-5**
Project: **Chatham Municipal Airport/BO99-2262**
Client: **Bennett & O'Reilly**
Container: **120mL Glass**
Preservation: **Cool**
Matrix: **Soil**

Laboratory ID: **26181-09**
Sampled: **04-07-99**
Received: **04-08-99**
% Solids **96**

CAS Number	Analyte	Concentration	Units	Reporting Limit	Analyzed	QC Batch	Method	
7440-38-2	Arsenic, Total	**1.3**	mg/Kg	1.0	04-15-99	MM-0765-S	6010B	RCS-1 S-1/GW-1 30
7440-39-3	Barium, Total	BRL	mg/Kg	20	04-15-99	MM-0765-S	6010B	
7440-43-9	Cadmium, Total	BRL	mg/Kg	0.51	04-15-99	MM-0765-S	6010B	
7440-47-3	Chromium, Total	**3.4**	mg/Kg	1.0	04-15-99	MM-0765-S	6010B	RCS-1 S-1/GW-1 1,000
7439-92-1	Lead, Total	BRL	mg/Kg	10	04-15-99	MM-0765-S	6010B	
7439-97-6	Mercury, Total	BRL	mg/Kg	0.055	04-16-99	MP-0598-S	7471A	
7782-49-2	Selenium, Total	BRL	mg/Kg	0.51	04-15-99	MM-0765-S	6010B	
7440-22-4	Silver, Total	BRL	mg/Kg	5.1	04-15-99	MM-0765-S	6010B	

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Results are reported on a dry weight basis.

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 dilution and sample size.

GROUNDWATER ANALYTICAL

Trace Metals by ICP-AES and CVAA

Field ID: **HB-1:5-8**
Project: **Chatham Municipal Airport/BO99-2262**
Client: **Bennett & O'Reilly**
Container: **120mL Glass**
Preservation: **Cool**
Matrix: **Soil**

Laboratory ID: **26181-10**
Sampled: **04-07-99**
Received: **04-08-99**
% Solids **96**

CAS Number	Analyte	Concentration	Units	Reporting Limit	Analyzed	QC Batch	Method
7440-38-2	Arsenic, Total	BRL	mg/Kg	1.1	04-15-99	MM-0765-S	6010B
7440-39-3	Barium, Total	BRL	mg/Kg	21	04-15-99	MM-0765-S	6010B
7440-43-9	Cadmium, Total	BRL	mg/Kg	0.53	04-15-99	MM-0765-S	6010B
7440-47-3	Chromium, Total	**1.1**	mg/Kg	1.1	04-15-99	MM-0765-S	6010B
7439-92-1	Lead, Total	BRL	mg/Kg	11	04-15-99	MM-0765-S	6010B
7439-97-6	Mercury, Total	BRL	mg/Kg	0.055	04-16-99	MP-0598-S	7471A
7782-49-2	Selenium, Total	BRL	mg/Kg	0.53	04-15-99	MM-0765-S	6010B
7440-22-4	Silver, Total	BRL	mg/Kg	5.3	04-15-99	MM-0765-S	6010B

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Results are reported on a dry weight basis.

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 dilution and sample size.

GROUNDWATER ANALYTICAL

Trace Metals by ICP-AES and CVAA

Field ID: **HB-2:0-5**
Project: **Chatham Municipal Airport/BO99-2262**
Client: **Bennett & O'Reilly**
Container: **120mL Glass**
Preservation: **Cool**
Matrix: **Soil**

Laboratory ID: **26181-11**
Sampled: **04-07-99**
Received: **04-08-99**
% Solids **93**

CAS Number	Analyte	Concentration	Units	Reporting Limit	Analyzed	QC Batch	Method	RCS-1 S-1/GW-1
7440-38-2	Arsenic, Total	1.7	mg/Kg	1.0	04-15-99	MM-0765-S	6010B	30
7440-39-3	Barium, Total	BRL	mg/Kg	21	04-15-99	MM-0765-S	6010B	
7440-43-9	Cadmium, Total	0.82	mg/Kg	0.52	04-15-99	MM-0765-S	6010B	30
7440-47-3	Chromium, Total	5.9	mg/Kg	1.0	04-15-99	MM-0765-S	6010B	1000
7439-92-1	Lead, Total	12	mg/Kg	10	04-15-99	MM-0765-S	6010B	300
7439-97-6	Mercury, Total	BRL	mg/Kg	0.053	04-16-99	MP-0598-S	7471A	
7782-49-2	Selenium, Total	BRL	mg/Kg	0.52	04-15-99	MM-0765-S	6010B	
7440-22-4	Silver, Total	BRL	mg/Kg	5.2	04-15-99	MM-0765-S	6010B	

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Results are reported on a dry weight basis.

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 dilution and sample size.

GROUNDWATER ANALYTICAL

Trace Metals by ICP-AES and CVAA

Field ID: **HB-2:5-8**
Project: **Chatham Municipal Airport/BO99-2262**
Client: **Bennett & O'Reilly**
Container: **120mL Glass**
Preservation: **Cool**
Matrix: **Soil**

Laboratory ID: **26181-12**
Sampled: **04-07-99**
Received: **04-08-99**
% Solids **96**

CAS Number	Analyte	Concentration	Units	Reporting Limit	Analyzed	QC Batch	Method
7440-38-2	Arsenic, Total	**1.6**	mg/Kg	1.0	04-15-99	MM-0765-S	6010B
7440-39-3	Barium, Total	BRL	mg/Kg	21	04-15-99	MM-0765-S	6010B
7440-43-9	Cadmium, Total	BRL	mg/Kg	0.52	04-15-99	MM-0765-S	6010B
7440-47-3	Chromium, Total	**2.6**	mg/Kg	1.0	04-15-99	MM-0765-S	6010B
7439-92-1	Lead, Total	BRL	mg/Kg	10	04-15-99	MM-0765-S	6010B
7439-97-6	Mercury, Total	BRL	mg/Kg	0.050	04-16-99	MP-0598-S	7471A
7782-49-2	Selenium, Total	BRL	mg/Kg	0.52	04-15-99	MM-0765-S	6010B
7440-22-4	Silver, Total	BRL	mg/Kg	5.2	04-15-99	MM-0765-S	6010B

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Results are reported on a dry weight basis.

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 dilution and sample size.

GROUNDWATER ANALYTICAL

Trace Metals by ICP-AES and CVAA

Field ID: **HB-3:0-5**
Project: **Chatham Municipal Airport/BO99-2262**
Client: **Bennett & O'Reilly**
Container: **120mL Glass**
Preservation: **Cool**
Matrix: **Soil**

Laboratory ID: **26181-13**
Sampled: **04-07-99**
Received: **04-08-99**
% Solids **96**

CAS Number	Analyte	Concentration	Units	Reporting Limit	Analyzed	QC Batch	Method
7440-38-2	Arsenic, Total	**1.3**	mg/Kg	1.0	04-15-99	MM-0765-S	6010B
7440-39-3	Barium, Total	BRL	mg/Kg	20	04-15-99	MM-0765-S	6010B
7440-43-9	Cadmium, Total	BRL	mg/Kg	0.51	04-15-99	MM-0765-S	6010B
7440-47-3	Chromium, Total	**4.9**	mg/Kg	1.0	04-15-99	MM-0765-S	6010B
7439-92-1	Lead, Total	BRL	mg/Kg	10	04-15-99	MM-0765-S	6010B
7439-97-6	Mercury, Total	BRL	mg/Kg	0.051	04-16-99	MP-0598-S	7471A
7782-49-2	Selenium, Total	BRL	mg/Kg	0.51	04-15-99	MM-0765-S	6010B
7440-22-4	Silver, Total	BRL	mg/Kg	5.1	04-15-99	MM-0765-S	6010B

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Results are reported on a dry weight basis.

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 dilution and sample size.

GROUNDWATER ANALYTICAL

Trace Metals by ICP-AES and CVAA

Field ID: **HB-3:5-8**
Project: **Chatham Municipal Airport/BO99-2262**
Client: **Bennett & O'Reilly**
Container: **120mL Glass**
Preservation: **Cool**
Matrix: **Soil**

Laboratory ID: **26181-14**
Sampled: **04-07-99**
Received: **04-08-99**
% Solids **98**

CAS Number	Analyte	Concentration	Units	Reporting Limit	Analyzed	QC Batch	Method
7440-38-2	Arsenic, Total	BRL	mg/Kg	1.0	04-15-99	MM-0765-S	6010B
7440-39-3	Barium, Total	BRL	mg/Kg	20	04-15-99	MM-0765-S	6010B
7440-43-9	Cadmium, Total	BRL	mg/Kg	0.50	04-15-99	MM-0765-S	6010B
7440-47-3	Chromium, Total	**3.1**	mg/Kg	1.0	04-15-99	MM-0765-S	6010B
7439-92-1	Lead, Total	BRL	mg/Kg	10	04-15-99	MM-0765-S	6010B
7439-97-6	Mercury, Total	BRL	mg/Kg	0.050	04-16-99	MP-0598-S	7471A
7782-49-2	Selenium, Total	BRL	mg/Kg	0.5	04-15-99	MM-0765-S	6010B
7440-22-4	Silver, Total	BRL	mg/Kg	5	04-15-99	MM-0765-S	6010B

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Results are reported on a dry weight basis.

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 dilution and sample size.

GROUNDWATER ANALYTICAL

Trace Metals by ICP-AES and CVAA

Field ID:	**HB-4A:6-9**	Laboratory ID:	**26181-15**
Project:	**Chatham Municipal Airport/BO99-2262**	Sampled:	**04-07-99**
Client:	**Bennett & O'Reilly**	Received:	**04-08-99**
Container:	**120mL Glass**	% Solids	**98**
Preservation:	**Cool**		
Matrix:	**Soil**		

CAS Number	Analyte	Concentration	Units	Reporting Limit	Analyzed	QC Batch	Method
7440-38-2	Arsenic, Total	**1.5**	mg/Kg	1.1	04-15-99	MM-0765-S	6010B
7440-39-3	Barium, Total	BRL	mg/Kg	21	04-15-99	MM-0765-S	6010B
7440-43-9	Cadmium, Total	BRL	mg/Kg	0.53	04-15-99	MM-0765-S	6010B
7440-47-3	Chromium, Total	**1.3**	mg/Kg	1.1	04-15-99	MM-0765-S	6010B
7439-92-1	Lead, Total	BRL	mg/Kg	11	04-15-99	MM-0765-S	6010B
7439-97-6	Mercury, Total	BRL	mg/Kg	0.057	04-16-99	MP-0598-S	7471A
7782-49-2	Selenium, Total	BRL	mg/Kg	0.53	04-15-99	MM-0765-S	6010B
7440-22-4	Silver, Total	BRL	mg/Kg	5.3	04-15-99	MM-0765-S	6010B

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Results are reported on a dry weight basis.

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 dilution and sample size.

GROUNDWATER ANALYTICAL

Trace Metals by ICP-AES and CVAA

Field ID:	**HB-4B:10-15**	Laboratory ID:	**26181-16**
Project:	**Chatham Municipal Airport/BO99-2262**	Sampled:	**04-07-99**
Client:	**Bennett & O'Reilly**	Received:	**04-08-99**
Container:	**120mL Glass**	% Solids	**97**
Preservation:	**Cool**		
Matrix:	**Soil**		

CAS Number	Analyte	Concentration	Units	Reporting Limit	Analyzed	QC Batch	Method
7440-38-2	Arsenic, Total	BRL	mg/Kg	1.0	04-15-99	MM-0765-S	6010B
7440-39-3	Barium, Total	BRL	mg/Kg	20	04-15-99	MM-0765-S	6010B
7440-43-9	Cadmium, Total	BRL	mg/Kg	0.50	04-15-99	MM-0765-S	6010B
7440-47-3	Chromium, Total	1.6	mg/Kg	1.0	04-15-99	MM-0765-S	6010B
7439-92-1	Lead, Total	BRL	mg/Kg	10	04-15-99	MM-0765-S	6010B
7439-97-6	Mercury, Total	BRL	mg/Kg	0.058	04-16-99	MP-0598-S	7471A
7782-49-2	Selenium, Total	BRL	mg/Kg	0.50	04-15-99	MM-0765-S	6010B
7440-22-4	Silver, Total	BRL	mg/Kg	5.0	04-15-99	MM-0765-S	6010B

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Results are reported on a dry weight basis.

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 dilution and sample size.

GROUNDWATER ANALYTICAL

ASTM Method D3328-90 (Modified)
Hydrocarbon Fingerprinting by GC/FID

Field ID:	**HB-1:0-5**	Laboratory ID:	**26181-09**
Project:	**Chatham Municipal Airport/BO99-2262**	QC Batch ID:	**HF-1143-M**
Client:	**Bennett & O'Reilly**	Sampled:	**04-07-99**
Container:	**120mL Glass**	Received:	**04-08-99**
Preservation:	**Cool**	Extracted:	**04-12-99**
Matrix:	**Soil**	Analyzed:	**04-13-99**
% Moisture:	**4**	Dilution Factor:	**1**

Qualitative Identification

This sample has GC/FID characteristics that are similar to:

1. Petroleum products in the Fuel Oil range.
2. Petroleum products in the Lubricating Oil (n-C20 to n-C36) range.

Analyte	Concentration	Units	Reporting Limit
Total Petroleum Hydrocarbons	120	mg/Kg	61

QC Surrogate Compound	Recovery	QC Limits
ortho-Terphenyl	62 %	60 - 140 %

RCS-1
S-1/GW-1
200

Method Reference: Comparison of Waterborne Petroleum Oils by Gas Chromatography, Volume 11.02, Water, American Society for Testing and Materials (1990). Analytical protocol modified by use of an internal standard. Results are quantified on the basis of 5α-androstane. Sample preparation protocol modified by use of microwave accelerated solvent extraction. Results are reported on a dry weight basis.

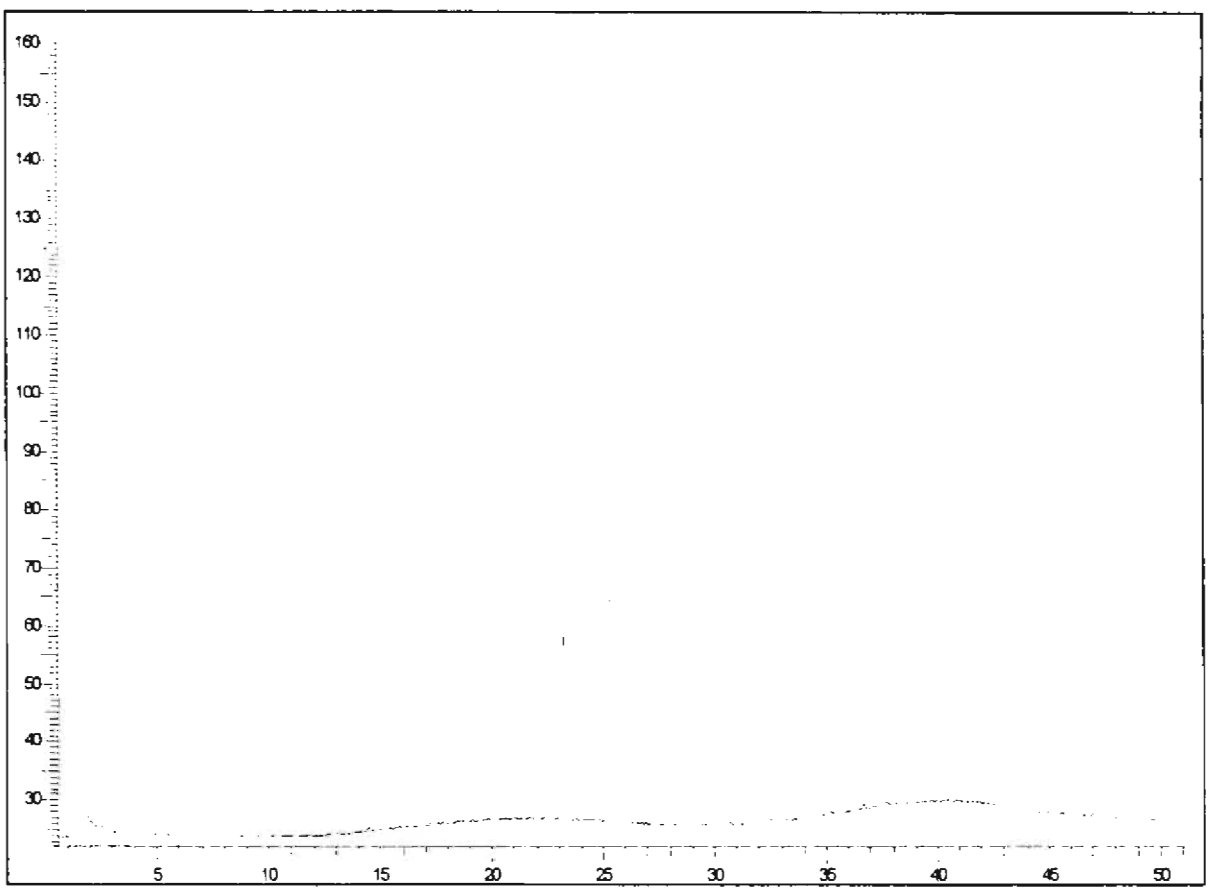
Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample dilution and sample size.

GROUNDWATER ANALYTICAL

ASTM METHOD D3328-90 (Modified)
Hydrocarbon Fingerprinting (GC/FID)

Lab ID: 26181-09

HYDROCARBONS LABORATORY



Retention time (minutes)

GROUNDWATER ANALYTICAL

ASTM Method D3328-90 (Modified)
Hydrocarbon Fingerprinting by GC/FID

Field ID:	**HB-1:5-8**	Laboratory ID:	**26181-10**
Project:	**Chatham Municipal Airport/BO99-2262**	QC Batch ID:	**HF-1143-M**
Client:	**Bennett & O'Reilly**	Sampled:	**04-07-99**
Container:	**120mL Glass**	Received:	**04-08-99**
Preservation:	**Cool**	Extracted:	**04-12-99**
Matrix:	**Soil**	Analyzed:	**04-13-99**
% Moisture:	**4**	Dilution Factor:	**1**

Qualitative Identification

No petroleum product was identified for this sample.

Analyte	Concentration	Units	Reporting Limit
Total Petroleum Hydrocarbons	BRL	mg/Kg	60

QC Surrogate Compound	Recovery	QC Limits
ortho-Terphenyl	**82** %	60 - 140 %

Method Reference: Comparison of Waterborne Petroleum Oils by Gas Chromatography, Volume 11.02, Water, American Society for Testing and Materials (1990). Analytical protocol modified by use of an internal standard. Results are quantified on the basis of 5α-androstane. Sample preparation protocol modified by use of microwave accelerated solvent extraction. Results are reported on a dry weight basis.

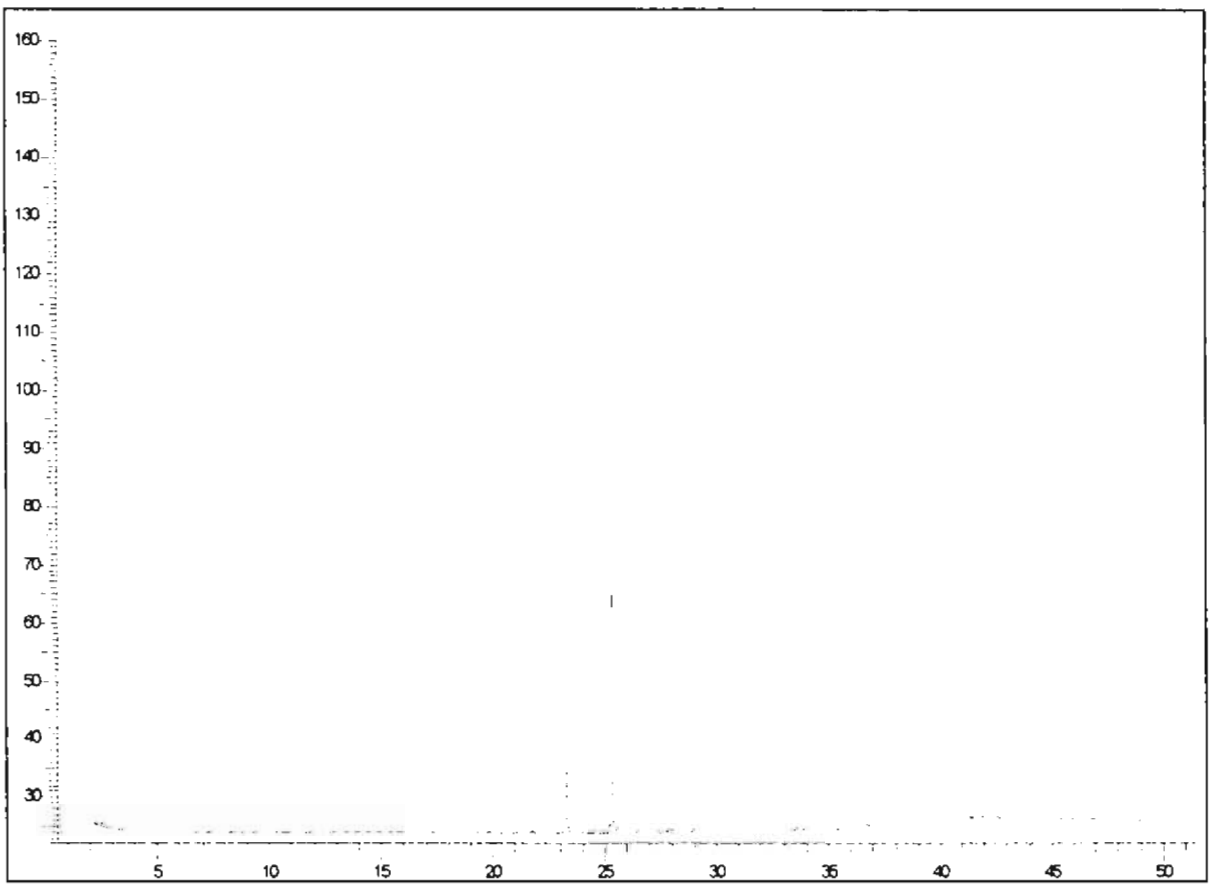
Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample dilution and sample size.

GROUNDWATER ANALYTICAL

ASTM METHOD D3328-90 (Modified)
Hydrocarbon Fingerprinting (GC/FID)

Lab ID: 26181-10

HYDROCARBONS LABORATORY



Retention time (minutes)

GROUNDWATER ANALYTICAL

ASTM Method D3328-90 (Modified)
Hydrocarbon Fingerprinting by GC/FID

Field ID:	**HB-2:0-5**	Laboratory ID:	**26181-11**
Project:	**Chatham Municipal Airport/BO99-2262**	QC Batch ID:	**HF-1143-M**
Client:	**Bennett & O'Reilly**	Sampled:	**04-07-99**
Container:	**120mL Glass**	Received:	**04-08-99**
Preservation:	**Cool**	Extracted:	**04-12-99**
Matrix:	**Soil**	Analyzed:	**04-14-99**
% Moisture:	7	Dilution Factor:	**1**

Qualitative Identification

This sample has GC/FID characteristics that are similar to:

1. Petroleum products in the Lubricating Oil (n-C20 to n-C36) range.

Analyte	Concentration	Units	Reporting Limit
Total Petroleum Hydrocarbons	77	mg/Kg	62

QC Surrogate Compound	Recovery	QC Limits
ortho-Terphenyl	75 %	60 - 140 %

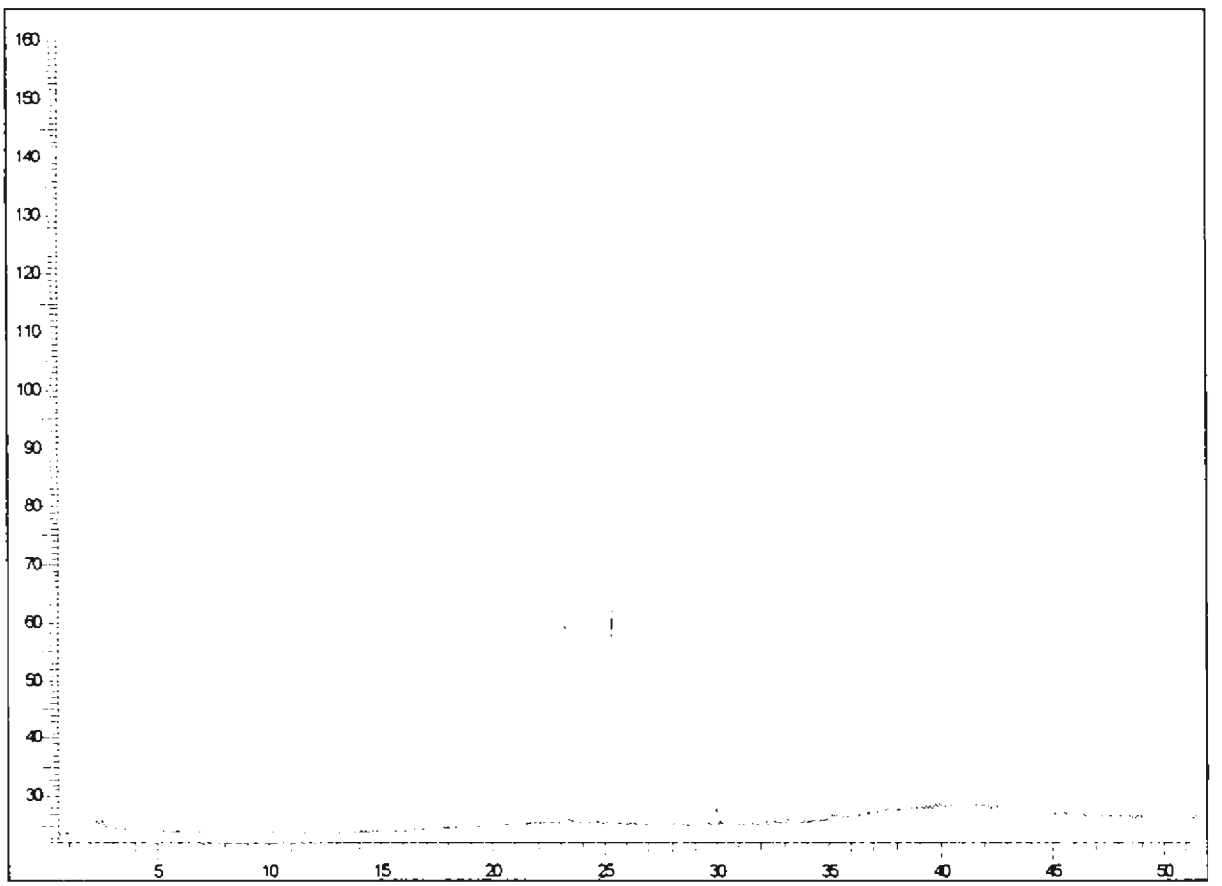
Method Reference: Comparison of Waterborne Petroleum Oils by Gas Chromatography, Volume 11.02, Water, American Society for Testing and Materials (1990). Analytical protocol modified by use of an internal standard. Results are quantified on the basis of 5α-androstane. Sample preparation protocol modified by use of microwave accelerated solvent extraction. Results are reported on a dry weight basis.

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 dilution and sample size.

GROUNDWATER ANALYTICAL

ASTM METHOD D3328-90 (Modified)
Hydrocarbon Fingerprinting (GC/FID)

Lab ID: 26181-11 **HYDROCARBONS LABORATORY**



Retention time (minutes)

GROUNDWATER ANALYTICAL

ASTM Method D3328-90 (Modified)
Hydrocarbon Fingerprinting by GC/FID

Field ID:	**HB-2: 5-8**	Laboratory ID:	**26181-12**
Project:	**Chatham Municipal Airport/BO99-2262**	QC Batch ID:	**HF-1143-M**
Client:	**Bennett & O'Reilly**	Sampled:	**04-07-99**
Container:	**120mL Glass**	Received:	**04-08-99**
Preservation:	**Cool**	Extracted:	**04-12-99**
Matrix:	**Soil**	Analyzed:	**04-14-99**
% Moisture:	**4**	Dilution Factor:	**1**

Qualitative Identification

No petroleum product was identified for this sample.

Analyte	Concentration	Units	Reporting Limit
Total Petroleum Hydrocarbons	BRL	mg/Kg	60

QC Surrogate Compound	Recovery	QC Limits
ortho-Terphenyl	**85** %	60 - 140 %

Method Reference: Comparison of Waterborne Petroleum Oils by Gas Chromatography, Volume 11.02, Water, American Society for Testing and Materials (1990). Analytical protocol modified by use of an internal standard. Results are quantified on the basis of 5α–androstane. Sample preparation protocol modified by use of microwave accelerated solvent extraction. Results are reported on a dry weight basis.

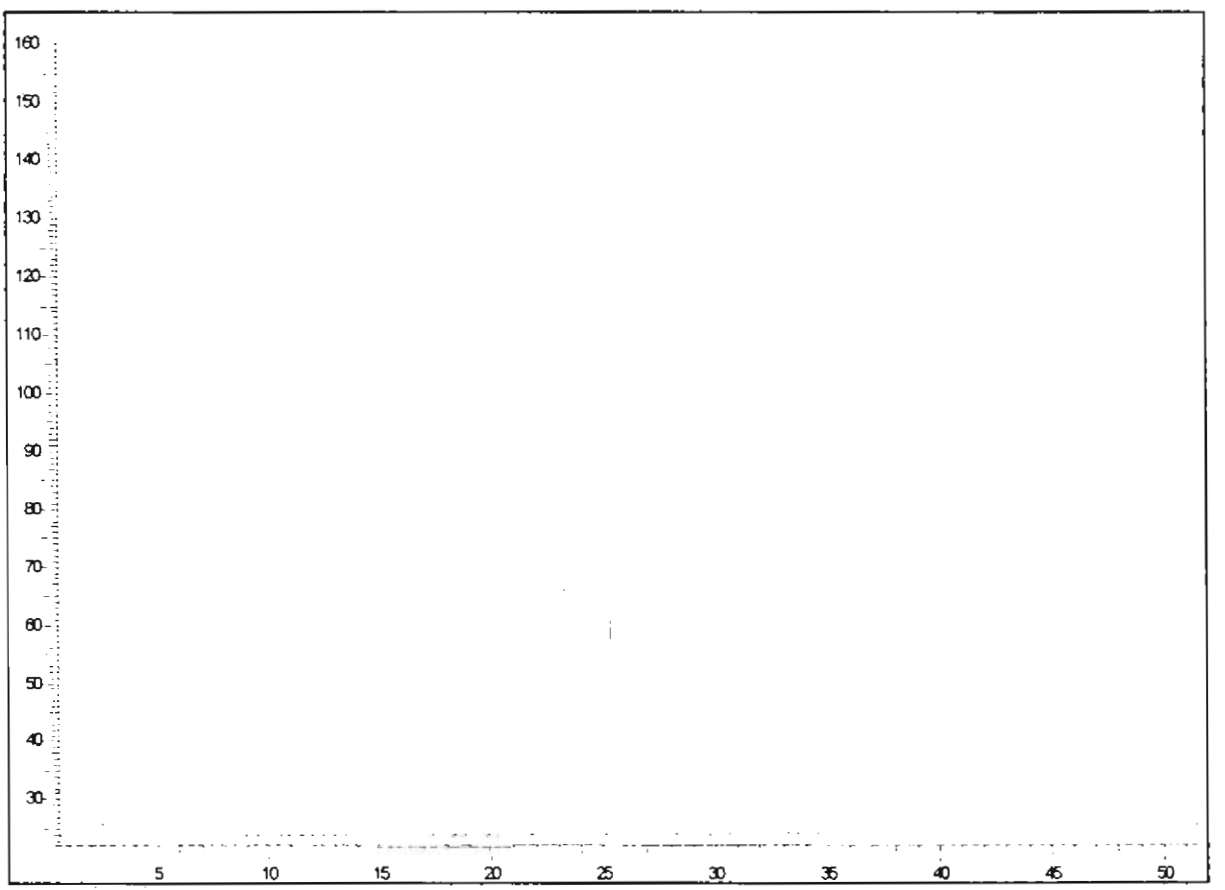
Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample dilution and sample size.

GROUNDWATER ANALYTICAL

ASTM METHOD D3328-90 (Modified)
Hydrocarbon Fingerprinting (GC/FID)

Lab ID: 26181-12

HYDROCARBONS LABORATORY



GROUNDWATER ANALYTICAL

ASTM Method D3328-90 (Modified)
Hydrocarbon Fingerprinting by GC/FID

Field ID:	**HB-3:0-5**	Laboratory ID:	**26181-13**
Project:	**Chatham Municipal Airport/BO99-2262**	QC Batch ID:	**HF-1143-M**
Client:	**Bennett & O'Reilly**	Sampled:	**04-07-99**
Container:	**120mL Glass**	Received:	**04-08-99**
Preservation:	**Cool**	Extracted:	**04-12-99**
Matrix:	**Soil**	Analyzed:	**04-14-99**
% Moisture:	**4**	Dilution Factor:	**1**

Qualitative Identification

No petroleum product was identified for this sample.

Analyte	Concentration	Units	Reporting Limit
Total Petroleum Hydrocarbons	BRL	mg/Kg	60

QC Surrogate Compound	Recovery	QC Limits
ortho-Terphenyl	**81** %	60 - 140 %

Method Reference: Comparison of Waterborne Petroleum Oils by Gas Chromatography, Volume 11.02, Water, American Society for Testing and Materials (1990). Analytical protocol modified by use of an internal standard. Results are quantified on the basis of 5α-androstane. Sample preparation protocol modified by use of microwave accelerated solvent extraction. Results are reported on a dry weight basis.

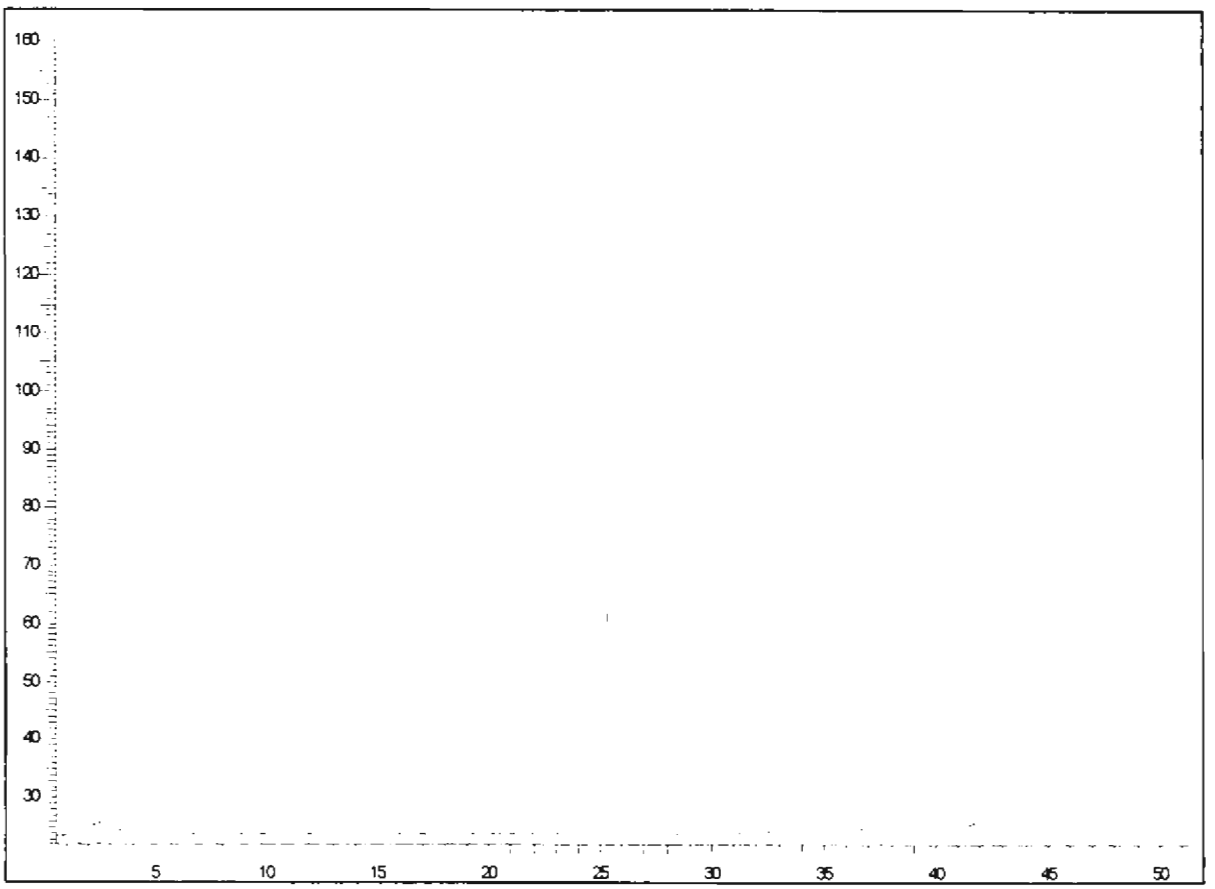
Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample dilution and sample size.

GROUNDWATER ANALYTICAL

ASTM METHOD D3328-90 (Modified)
Hydrocarbon Fingerprinting (GC/FID)

Lab ID: 26181-13

HYDROCARBONS LABORATORY



Retention time (minutes)

GROUNDWATER ANALYTICAL

ASTM Method D3328-90 (Modified)
Hydrocarbon Fingerprinting by GC/FID

Field ID:	**HB-3:5-8**	Laboratory ID:	**26181-14**
Project:	**Chatham Municipal Airport/BO99-2262**	QC Batch ID:	**HF-1143-M**
Client:	**Bennett & O'Reilly**	Sampled:	**04-07-99**
Container:	**120mL Glass**	Received:	**04-08-99**
Preservation:	**Cool**	Extracted:	**04-12-99**
Matrix:	**Soil**	Analyzed:	**04-14-99**
% Moisture:	**2**	Dilution Factor:	**1**

Qualitative Identification

No petroleum product was identified for this sample.

Analyte	Concentration	Units	Reporting Limit
Total Petroleum Hydrocarbons	BRL	mg/Kg	61

QC Surrogate Compound	Recovery	QC Limits
ortho-Terphenyl	75 %	60 - 140 %

Method Reference: Comparison of Waterborne Petroleum Oils by Gas Chromatography, Volume 11.02, Water, American Society for Testing and Materials (1990). Analytical protocol modified by use of an internal standard. Results are quantified on the basis of 5α-androstane. Sample preparation protocol modified by use of microwave accelerated solvent extraction. Results are reported on a dry weight basis.

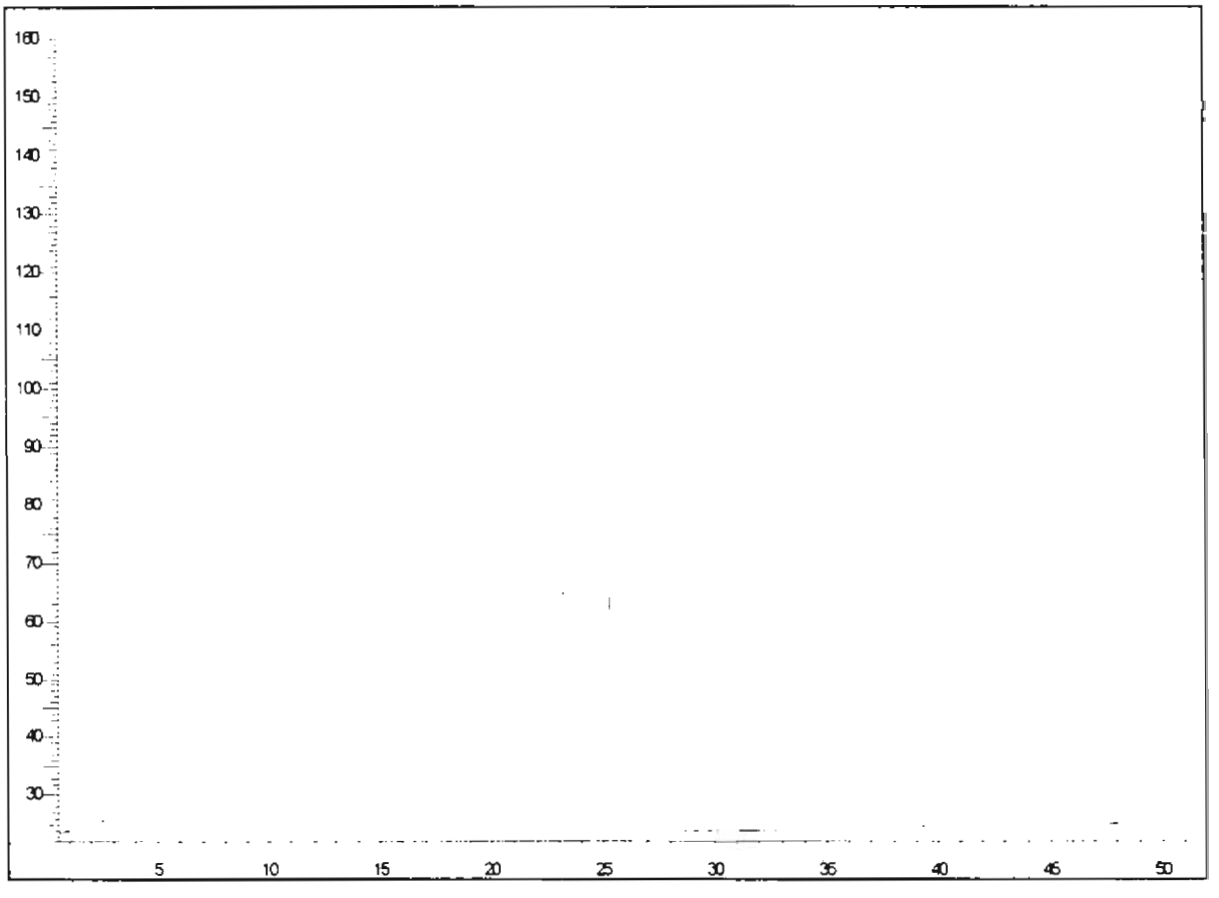
Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample dilution and sample size.

GROUNDWATER ANALYTICAL

ASTM METHOD D3328-90 (Modified)
Hydrocarbon Fingerprinting (GC/FID)

Lab ID: 26181-14

HYDROCARBONS LABORATORY



Retention time (minutes)

GROUNDWATER ANALYTICAL

ASTM Method D3328-90 (Modified)
Hydrocarbon Fingerprinting by GC/FID

Field ID:	**HB-4A:6-9**	Laboratory ID:	**26181-15**
Project:	**Chatham Municipal Airport/BO99-2262**	QC Batch ID:	**HF-1143-M**
Client:	**Bennett & O'Reilly**	Sampled:	**04-07-99**
Container:	**120mL Glass**	Received:	**04-08-99**
Preservation:	**Cool**	Extracted:	**04-12-99**
Matrix:	**Soil**	Analyzed:	**04-14-99**
% Moisture:	**2**	Dilution Factor:	**1**

Qualitative Identification

No petroleum product was identified for this sample.

Analyte	Concentration	Units	Reporting Limit
Total Petroleum Hydrocarbons	BRL	mg/Kg	60

QC Surrogate Compound	Recovery	QC Limits
ortho-Terphenyl	**80** %	60 - 140 %

Method Reference: Comparison of Waterborne Petroleum Oils by Gas Chromatography, Volume 11.02, Water, American Society for Testing and Materials (1990). Analytical protocol modified by use of an internal standard. Results are quantified on the basis of 5α-androstane. Sample preparation protocol modified by use of microwave accelerated solvent extraction. Results are reported on a dry weight basis.

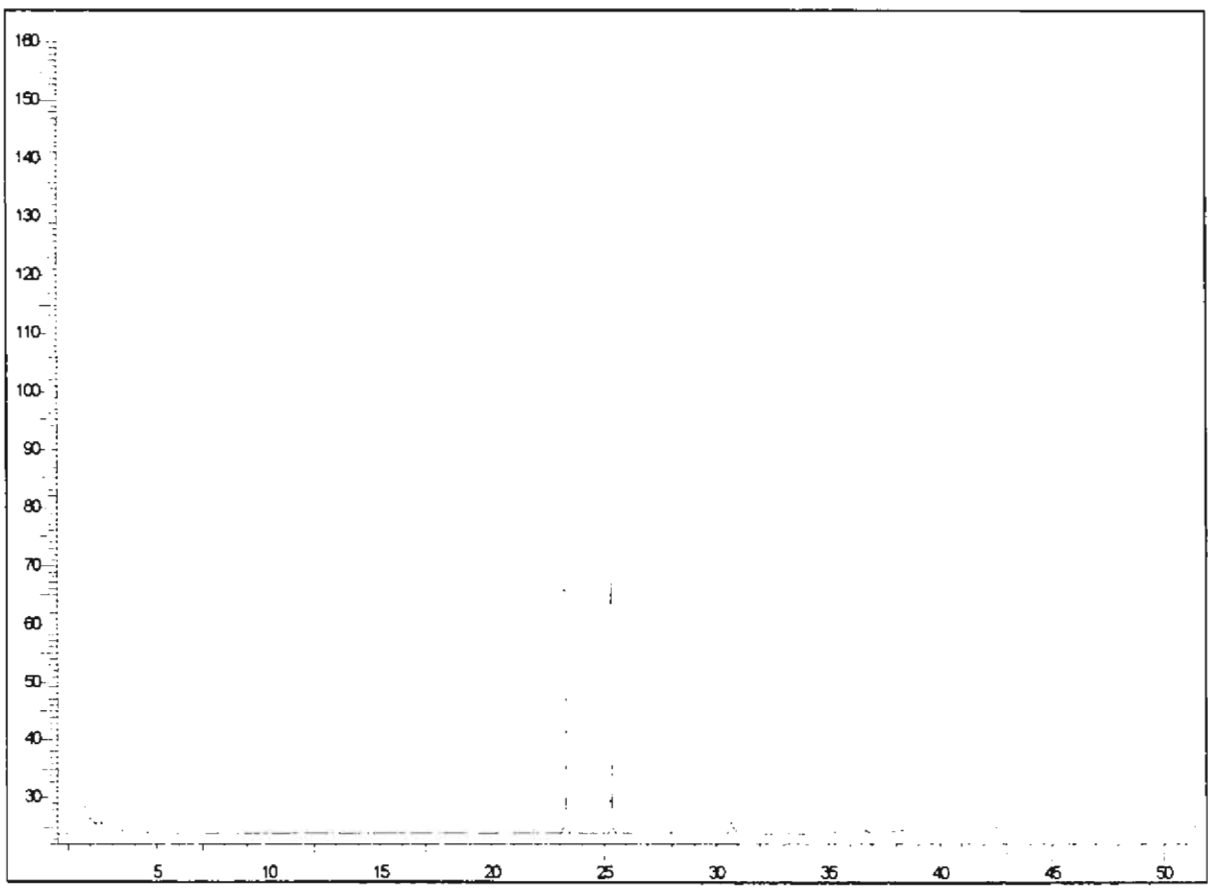
Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample dilution and sample size.

GROUNDWATER ANALYTICAL

ASTM METHOD D3328-90 (Modified)
Hydrocarbon Fingerprinting (GC/FID)

Lab ID: 26181-15

HYDROCARBONS LABORATORY



Retention time (minutes)

GROUNDWATER ANALYTICAL

ASTM Method D3328-90 (Modified)
Hydrocarbon Fingerprinting by GC/FID

Field ID:	**HB-4B:10-15**	Laboratory ID:	**26181-16**
Project:	**Chatham Municipal Airport/BO99-2262**	QC Batch ID:	**HF-1143-M**
Client:	**Bennett & O'Reilly**	Sampled:	**04-07-99**
Container:	**120mL Glass**	Received:	**04-08-99**
Preservation:	**Cool**	Extracted:	**04-12-99**
Matrix:	**Soil**	Analyzed:	**04-14-99**
% Moisture:	**3**	Dilution Factor:	**1**

Qualitative Identification

No petroleum product was identified for this sample.

Analyte	Concentration	Units	Reporting Limit
Total Petroleum Hydrocarbons	BRL	mg/Kg	61

QC Surrogate Compound	Recovery	QC Limits
ortho-Terphenyl	**78** %	60 - 140 %

Method Reference: Comparison of Waterborne Petroleum Oils by Gas Chromatography, Volume 11.02, Water, American Society for Testing and Materials (1990). Analytical protocol modified by use of an internal standard. Results are quantified on the basis of 5α-androstane. Sample preparation protocol modified by use of microwave accelerated solvent extraction. Results are reported on a dry weight basis.

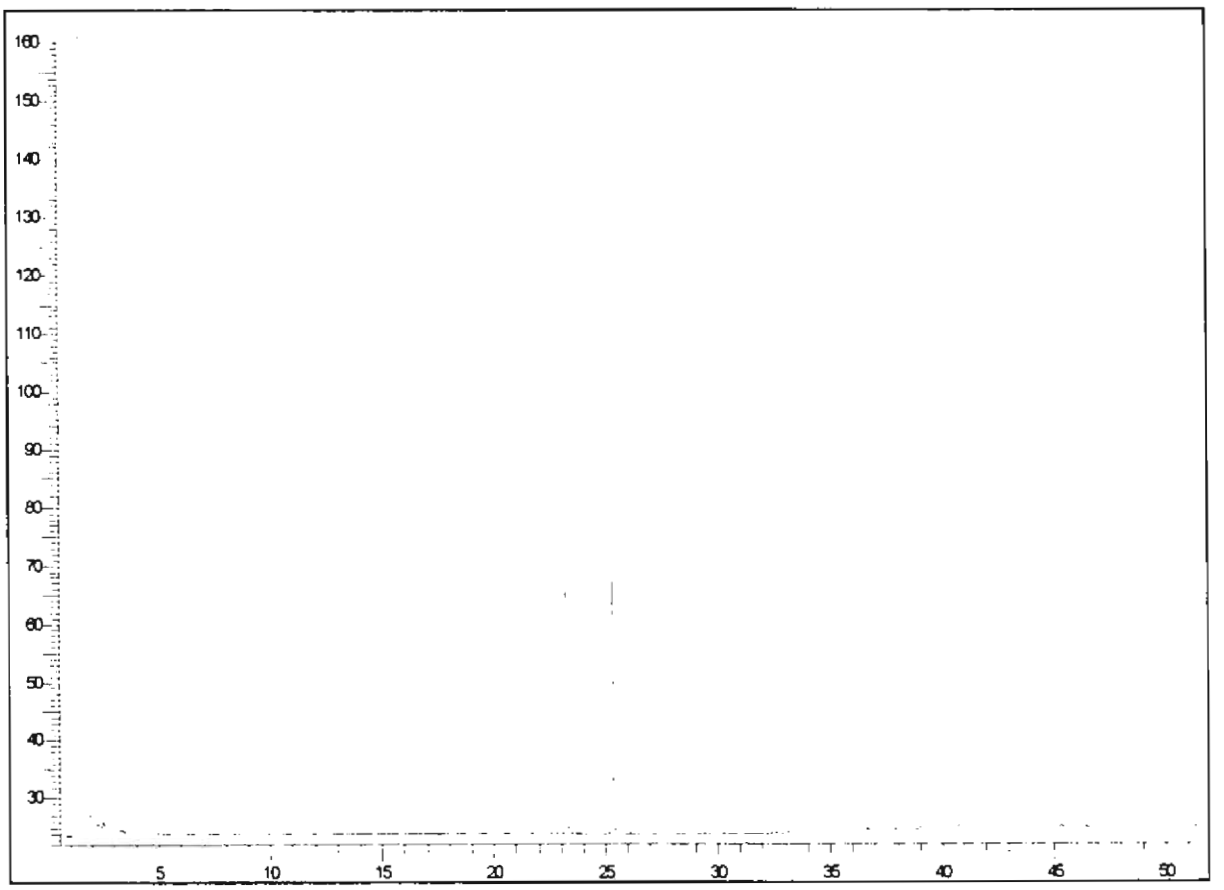
Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample dilution and sample size.

GROUNDWATER ANALYTICAL

ASTM METHOD D3328-90 (Modified)
Hydrocarbon Fingerprinting (GC/FID)

Lab ID: 26181-16

HYDROCARBONS LABORATORY



Retention time (minutes)

GROUNDWATER ANALYTICAL

Project Narrative

Project: **Chatham Municipal Airport/BO99-2262**
Client: **Bennett & O'Reilly**

Lab ID: **26181**
Received: **04-08-99**

A. Physical Condition of Sample(s)

This project was received by the laboratory in satisfactory condition. The sample(s) were received undamaged in appropriate containers with the correct preservation.

B. Project Documentation

This project was accompanied by satisfactory Chain of Custody documentation. The sample container label(s) agreed with the Chain of Custody.

C. Analysis of Sample(s)

No analytical anomalies or non-conformances were noted by the laboratory during the processing of these sample(s). All data contained within this report are released without qualification.

GROUNDWATER ANALYTICAL

228 Main Street
Buzzards Bay, MA 02532
Telephone (508) 759-4441
FAX (508) 759-4475

CHAIN-OF-CUSTODY RECORD AND WORK ORDER

№ 33578

Project Name: Chatham Municipal Airport
Firm: BENNETT & O'REILLY, INC.
Project Number: BC99-2262
Address: PO Box 1667
Sampler Name: Craig Sussc/Robert Duncanson
City / State / Zip: Brewster, MA 02631
Project Manager: David Bennett
Telephone: 508 896 6630

INSTRUCTIONS: Use separate line for each container (except replicates).

TURNAROUND

- [X] STANDARD (10 Business Days)
- [ ] PRIORITY (5 Business Days)
- [ ] RUSH (RAN- ______) (Rush requires Rush Authorization Number)

Please FAX [X] YES [ ] NO
FAX Number: 896 4517

BILLING

Purchase Order No.: BC99-2262
GWA Reference No.:

ANALYSIS REQUEST

Date	Time	Sample Identification	Matrix: Soil	Type: Grab	Number	40mL VOA Vial	120mL Sterile	Preservation: HCl	Preservation: HNO₃	Ice	Filtered: No	Laboratory Number (Lab Use Only) 26181	8260/TCL	8 RCRA Metals	Hydrocarbon Fingerprint (GC/FID by ASTM D3328-90-Mod)
4/7/99	10:40	HB-1:0-5	X	X	5	X	X	X	X	X	X	1 9	X	X	X
	11:10	HB-1:5-8	X	X	5	X	X	X	X	X	X	2 10	X	X	X
	11:40	HB-2:0-5	X	X	5	X	X	X	X	X	X	3 11	X	X	X
	11:55	HB-2:5-8	X	X	5	X	X	X	X	X	X	4 12	X	X	X
	12:25	HB-3:0-5	X	X	|	|	|	|	|	|	|	5 13	|	|	|
	1:05	HB-3:5-8	|	|	|	|	|	|	|	|	|	6 14	|	|	|
	2:10	HB-4A:6-9	|	|	|	|	|	|	|	|	|	7 15	|	|	|
	2:30	HB-4B:10-15	X	X	5	X	X	X	X	X	X	8 16	X	X	X

REMARKS / SPECIAL INSTRUCTIONS

Note: Bill to Town of Chatham
% Bob Duncanson
263 George Ryder Road
Chatham, MA 02633
(508) 945-5188

w/ Bennett & O'Reilly's analysis rates.
CES

DATA QUALITY OBJECTIVES

Regulatory Program

- [ ] Safe Drinking Water Act
- [ ] NPDES/Clean Water Act
- [ ] RCRA/Haz. Waste Char.
- [X] MA MCP (310 CMR 40)

Reportable Concentrations
- [X] RCGW - 1 [X] RCS - 1
- [ ] RCGW - 2 [ ] RCS - 2
- [ ] Other: ______

Project Specific QC

Many regulatory programs and EPA methods require project specific QC. Project specific QC includes Sample Duplicates, Matrix Spikes, and/or Matrix Spike Duplicates. Laboratory QC is not project specific unless prearranged. Project specific QC samples are charged on a per sample basis. For water samples, each MS, MSD and Sample Duplicate requires an additional sample aliquot.

Project Specific QC Required
- [ ] Sample Duplicate
- [ ] Matrix Spike
- [ ] Matrix Spike Duplicate

Selection of QC Sample
- [ ] Selected by laboratory
- [ ] Please use sample: ______

CHAIN-OF-CUSTODY RECORD

NOTE: All samples submitted subject to Standard Terms and Conditions on reverse hereof

Relinquished by	Date	Time	Received by
Sampler: Craig Sussc	4/7/99	3:30	BEO Office
BEO Office	4/8/99	[illegible]	Fred Jensen
Fred Jensen	4/8/99	1245	Laboratory: Bethany Clemmons

Method of Shipment: [ ] GWA Courier [ ] Express Mail [ ] Federal Express [ ] UPS [ ] Hand [ ]

Shipping/Airbill Number: ______
Custody Seal Number: ______
Cooler Serial Number: ______

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

Quality Control Report
Laboratory Control Sample

Category: **EPA Method 8260B**
QC Batch ID: **VM4-1084-SL**
Matrix: **Soil**
Units: **ug/Kg**

CAS Number	Analyte	Spiked	Measured	Recovery	QC Limits
75-35-4	1,1-Dichloroethene	50	42	**85 %**	70 - 130 %
71-43-2	Benzene	50	51	**102 %**	70 - 130 %
79-01-6	Trichloroethene	50	52	**105 %**	70 - 130 %
108-88-3	Toluene	50	53	**106 %**	70 - 130 %
108-90-7	Chlorobenzene	50	51	**102 %**	70 - 130 %

QC Surrogate Compounds	Recovery	QC Limits
Dibromofluoromethane	**99 %**	80 - 120 %
1,2-Dichloroethane-d_4	**101 %**	80 - 120 %
Toluene-d_8	**102 %**	81 - 117 %
4-Bromofluorobenzene	**105 %**	74 - 121 %

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: **EPA Method 8260B**
QC Batch ID: **VM4-1084-SB**
Matrix: **Soil**

CAS Number	Analyte	Concentration	Units	Reporting Limit
75-71-8	Dichlorodifluoromethane	BRL	ug/Kg	10
74-87-3	Chloromethane	BRL	ug/Kg	10
75-01-4	Vinyl Chloride	BRL	ug/Kg	10
74-83-9	Bromomethane	BRL	ug/Kg	10
75-00-3	Chloroethane	BRL	ug/Kg	10
75-69-4	Trichlorofluoromethane	BRL	ug/Kg	10
60-29-7	Diethyl Ether	BRL	ug/Kg	10
75-35-4	1,1-Dichloroethene	BRL	ug/Kg	5
67-64-1	Acetone	BRL	ug/Kg	50
75-15-0	Carbon Disulfide	BRL	ug/Kg	50
75-09-2	Methylene Chloride	BRL	ug/Kg	10
156-60-5	*trans*-1,2-Dichloroethene	BRL	ug/Kg	5
1634-04-4	Methyl *tert*-butyl Ether (MTBE)	BRL	ug/Kg	5
75-34-3	1,1-Dichloroethane	BRL	ug/Kg	5
590-20-7	2,2-Dichloropropane	BRL	ug/Kg	5
156-59-2	*cis*-1,2-Dichloroethene	BRL	ug/Kg	5
78-93-3	2-Butanone (MEK)	BRL	ug/Kg	50
74-97-5	Bromochloromethane	BRL	ug/Kg	5
109-99-9	Tetrahydrofuran (THF)	BRL	ug/Kg	50
67-66-3	Chloroform	BRL	ug/Kg	5
71-55-6	1,1,1-Trichloroethane	BRL	ug/Kg	5
56-23-5	Carbon Tetrachloride	BRL	ug/Kg	5
563-58-6	1,1-Dichloropropene	BRL	ug/Kg	5
71-43-2	Benzene	BRL	ug/Kg	5
107-06-2	1,2-Dichloroethane	BRL	ug/Kg	5
79-01-6	Trichloroethene	BRL	ug/Kg	5
78-87-5	1,2-Dichloropropane	BRL	ug/Kg	5
74-95-3	Dibromomethane	BRL	ug/Kg	5
75-27-4	Bromodichloromethane	BRL	ug/Kg	5
10061-01-5	*cis*-1,3-Dichloropropene	BRL	ug/Kg	5
108-10-1	4-Methyl-2-Pentanone (MIBK)	BRL	ug/Kg	50
108-88-3	Toluene	BRL	ug/Kg	5
10061-02-6	*trans*-1,3-Dichloropropene	BRL	ug/Kg	5
79-00-5	1,1,2-Trichloroethane	BRL	ug/Kg	5
127-18-4	Tetrachloroethene	BRL	ug/Kg	5
142-28-9	1,3-Dichloropropane	BRL	ug/Kg	5
591-78-6	2-Hexanone	BRL	ug/Kg	50
124-48-1	Dibromochloromethane	BRL	ug/Kg	5
106-93-4	1,2-Dibromoethane (EDB)	BRL	ug/Kg	5
108-90-7	Chlorobenzene	BRL	ug/Kg	5
630-20-6	1,1,1,2-Tetrachloroethane	BRL	ug/Kg	5
100-41-4	Ethylbenzene	BRL	ug/Kg	5

GROUNDWATER ANALYTICAL

Quality Control Report
Method Blank

Category: **EPA Method 8260B**
QC Batch ID: **VM4-1084-SB**
Matrix: **Soil**

CAS Number	Analyte	Concentration	Units	Reporting Limit
108-38-3/106-42-3	*meta*-Xylene and *para*-Xylene	BRL	ug/Kg	5
95-47-6	*ortho*-Xylene	BRL	ug/Kg	5
100-42-5	Styrene	BRL	ug/Kg	5
75-25-2	Bromoform	BRL	ug/Kg	5
98-82-8	Isopropylbenzene	BRL	ug/Kg	5
108-86-1	Bromobenzene	BRL	ug/Kg	5
79-34-5	1,1,2,2-Tetrachloroethane	BRL	ug/Kg	5
96-18-4	1,2,3-Trichloropropane	BRL	ug/Kg	5
103-65-1	*n*-Propylbenzene	BRL	ug/Kg	5
95-49-8	2-Chlorotoluene	BRL	ug/Kg	5
108-67-8	1,3,5-Trimethylbenzene	BRL	ug/Kg	5
106-43-4	4-Chlorotoluene	BRL	ug/Kg	5
98-06-6	*tert*-Butylbenzene	BRL	ug/Kg	5
95-63-6	1,2,4-Trimethylbenzene	BRL	ug/Kg	5
135-98-8	*sec*-Butylbenzene	BRL	ug/Kg	5
541-73-1	1,3-Dichlorobenzene	BRL	ug/Kg	5
99-87-6	4-Isopropyltoluene	BRL	ug/Kg	5
106-46-7	1,4-Dichlorobenzene	BRL	ug/Kg	5
95-50-1	1,2-Dichlorobenzene	BRL	ug/Kg	5
104-51-8	*n*-Butylbenzene	BRL	ug/Kg	5
96-12-8	1,2-Dibromo-3-chloropropane	BRL	ug/Kg	5
120-82-1	1,2,4-Trichlorobenzene	BRL	ug/Kg	5
87-68-3	Hexachlorobutadiene	BRL	ug/Kg	5
91-20-3	Naphthalene	BRL	ug/Kg	5
87-61-6	1,2,3-Trichlorobenzene	BRL	ug/Kg	5

QC Surrogate Compounds	Recovery	QC Limits
Dibromofluoromethane	**100 %**	80 - 120 %
1,2-Dichloroethane-d_4	**96 %**	80 - 120 %
Toluene-d_8	**101 %**	81 - 117 %
4-Bromofluorobenzene	**107 %**	74 - 121 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Analyte list as specified in Tables 6 and 7 of the method, and additional analytes as specified by MA DEP Method 1 Standards (310 C.M.R. 40.0973) and recommended by NH DES for initial waste site investigations, effective 12/1/97. Results are reported on a dry weight basis.

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 dilution, percent moisture and sample size.

GROUNDWATER ANALYTICAL

QUALITY ASSURANCE
Laboratory Control Sample Recovery

Category: **Trace Metals**
Matrix: **Soil**
Units: **mg/Kg**

Laboratory Control Sample

ANALYTE	BATCH ID	SPIKE ADDED	SPIKED RESULT	PERCENT RECOVERY	QC LIMITS
Barium	MM-0765-SLI	100	97	97 %	75-125
Cadmium	MM-0765-SLI	100	99	99 %	75-125
Chromium	MM-0765-SLI	100	100	100 %	75-125
Lead	MM-0765-SLI	100	96	96 %	75-125
Arsenic	MM-0765-SLF	5.0	5.1	102 %	75-125
Selenium	MM-0765-SLF	5.0	4.5	90 %	75-125
Silver	MM-0765-SLF	2.5	2.4	96 %	75-125
Mercury	MP-0598-SL	0.250	0.230	92 %	75-125

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 ASSURANCE
Method Blank

Category: **Trace Metals**
Matrix: **Soil**

PARAMETER	CONCENTRATION (mg/Kg)	REPORTING LIMIT (mg/Kg)	BATCH ID	EPA METHOD
Barium	BRL	20	MM-0765-SB	6010
Cadmium	BRL	0.50	MM-0765-SB	6010
Chromium	BRL	1.0	MM-0765-SB	6010
Lead	BRL	10	MM-0765-SB	6010
Arsenic	BRL	1.0	MM-0765-SB	6010
Selenium	BRL	0.50	MM-0765-SB	6010
Silver	BRL	5.0	MM-0765-SB	6010
Mercury	BRL	0.050	MP-0598-SB	7471

BRL = Below Reporting Limit. Method References: Test Methods for Evaluating Solid Waste, US EPA SW-846, Third Edition (1986). Graphite Furnace analyses performed with Zeeman background correction and Lvov platform technique.

GROUNDWATER ANALYTICAL

Quality Control Report
Laboratory Control Sample

Category: **ASTM Method D3328-90 (Modified)**
QC Batch ID: **HF-1143-M**
Matrix: **Soil**
Units: **mg/Kg**

Analyte	Spiked	Measured	Recovery	QC Limits
Fuel Oil No. 2	130	110	**80 %**	60 - 140 %

QC Surrogate Compound	Recovery	QC Limits
ortho-Terphenyl	72 %	60 - 140 %

Method Reference: Comparison of Waterborne Petroleum Oils by Gas Chromatography, Volume 11.02, Water, American Society for Testing and Materials (1990). Analytical protocol modified by use of an internal standard. Results are quantified on the basis of 5α-androstane. Sample preparation protocol modified by use of microwave accelerated solvent extraction. Results are reported on a dry weight basis.

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: **ASTM Method D3328-90 (Modified)**
QC Batch ID: **HF-1143-M**
Matrix: **Soil**

Analyte	Concentration	Units	Reporting Limit
Total Petroleum Hydrocarbons	BRL	mg/Kg	60

QC Surrogate Compound	Recovery	QC Limits
ortho-Terphenyl	87 %	60 - 140 %

Method Reference: Comparison of Waterborne Petroleum Oils by Gas Chromatography, Volume 11.02, Water, American Society for Testing and Materials (1990). Analytical protocol modified by use of an internal standard. Results are quantified on the basis of 5α-androstane. Sample preparation protocol modified by use of microwave accelerated solvent extraction. Results are reported on a dry weight basis. on a dry weight basis.

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 dilution and sample size.

GROUNDWATER ANALYTICAL

Certifications and Approvals

CONNECTICUT, Department of Health Services, PH-0586

Potable Water, Wastewater/Trade Waste, Sewage/Effluent, and Soil

pH, Conductivity, Acidity, Alkalinity, Hardness, Chloride, Fluoride, Ammonia, Kjeldahl Nitrogen, Nitrate, Nitrite, Orthophosphate, Total Dissolved Solids, Cyanide, Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Total Chromium, Hexavalent Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Tin, Titanium, Vanadium, Zinc, Purgeable Halocarbons, Purgeable Aromatics, Pesticides, PCBs, PCBs in Oil, Ethylene Dibromide, Phenols, Oil and Grease.

MAINE, Department of Human Services, MA103

Drinking Water

Reciprocal certification in accordance with Massachusetts certification for drinking water analytes.

Waste Water

Reciprocal certification in accordance with Massachusetts certification for waste water analytes.

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

Potable Water

Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Copper, Lead, Mercury, Nickel, Selenium, Thallium, Nitrate-N, Nitrite-N, Fluoride, Sodium, Sulfate, Cyanide, Turbidity, Residual Free Chlorine, Calcium, Total Alkalinity, Total Dissolved Solids, pH, Trihalomethanes, Volatile Organic Compounds, 1,2-Dibromoethane, 1,2-Dibromo-3-chloropropane, Total Coliform, Fecal Coliform, Heterotrophic Plate Count, E-Coli

Non-Potable Water

Aluminum, Antimony, Arsenic, Beryllium, Cadmium, Chromium, Cobalt, Copper, Iron, Lead, Manganese, Mercury, Molybdenum, Nickel, Selenium, Silver, Strontium, Thallium, Titanium, Vanadium, Zinc, pH, Specific Conductance, Total Dissolved Solids, Total Hardness, Calcium, Magnesium, Sodium, Potassium, Total Alkalinity, Chloride, Fluoride, Sulfate, Ammonia-N, Nitrate-N, Kjeldahl-N, Orthophosphate, Total Phosphorus, Chemical Oxygen Demand, Biochemical Oxygen Demand, Total Cyanide, Non-Filterable Residue, Total Residual Chlorine, Oil and Grease, Total Phenolics, Volatile Halocarbons, Volatile Aromatics, Chlordane, Aldrin, Dieldrin, DDD, DDE, DDT, Heptachlor, Heptachlor Epoxide, Polychlorinated Biphenyls (water), Polychlorinated Biphenyls (oil).

MICHIGAN, Department of Environmental Quality

Drinking Water

Trihalomethanes, Regulated and Unregulated Volatile Organic Compounds by EPA Method 524.2; 1,2-Dibromoethane, 1,2-Dibromo-3-chloropropane by EPA Method 504.1

NEW HAMPSHIRE, Department of Environmental Services, 202798

Drinking Water

Metals by Graphite Furnace, Metals by ICP, Mercury, Nitrite-N, Orthophosphate, Residual Free Chlorine, Turbidity, Total Filterable Residue, Calcium Hardness, pH, Alkalinity, Sodium, Sulfate, Total Cyanide, Insecticides, Herbicides, Base/Neutrals, Trihalomethanes, Volatile Organics, Vinyl Chloride, DBCP, EDB, Nitrate-N.

Wastewater

Metals by Graphite Furnace, Metals by ICP, Mercury, pH, Specific Conductivity, TDS, Total Hardness, Calcium, Magnesium, Sodium, Potassium, Total Alkalinity, Chloride, Fluoride, Sulfate, Ammonia-N, Nitrate-N, Orthophosphate, TKN, Total Phosphorus, COD, BOD, Non-Filterable Residue, Oil & Grease, Total Phenolics, Total Residual Chlorine, PCBs in Water, PCBs in Oil, Pesticides, Volatile Organics, Total Cyanide.

RHODE ISLAND, Department of Health, 54

Surface Water, Air, Wastewater, Potable Water, Sewage

Chemistry: Organic and Inorganic

BENNETT & O'REILLY, Inc.

Engineering, Environmental & Surveying Services

Sanitary
Site Development
Waste Water Treatment
Water Supply

21E/Site Remediation
Hydrogeologic Survey
Water Quality Monitoring
Consulting

Property Line
Subdivision
Land Court
Trial Court Witness

1573 Main Street
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QUALITY ASSURANCE AND QUALITY CONTROL PLAN

Quality Assurance and Quality Control Program
For Soil and Groundwater Remediation Plan

INTRODUCTION

This Quality Assurance and Quality Control (QA/QC) Program outlines the purpose, policies, organization and operations to support sampling work conducted by BENNETT & O'REILLY, INC.
Implementation of this program will help ensure the validity of data used to provide professional engineering and environmental opinions to clients.

The following definitions are used in the QA/QC Program:

> *Quality Assurance* refers to the concepts used in defining a system for verifying and maintaining a desired level of quality in a product or process.
>
> *Quality Control* is a specific, step-by-step description of how the Quality Assurance Program will be carried out.

This QA/QC Program guides field sampling activities. Project-specific QA/QC Programs are adopted when warranted. Modifications to this QA/QC Program may be made only after specific approval by the QA/QC Officer (Project Manager).

The specific objectives of the QA/QC Program are to:

1. specify the level of quality of each field procedure used in collecting samples;

2. identify deficiencies in field procedures which might affect the quality of data; and

3. require sufficient documentation to verify the credibility of the sampling methods employed.

PROGRAM ORGANIZATION AND RESPONSIBILITY

The Project Manager of BENNETT & O'REILLY, INC. is responsible for the quality of work produced. The Project Manager directs the QA/QC Program to document the control of field efforts and resulting data.

In this capacity, the Project Manager is expected to do the following.

1. prepare detailed Quality Control Plans;

2. obtain analytical and sampling procedure reference materials;

3. ensure that all field test and measurement equipment is maintained and calibrated properly;

4. monitor quality assurance activities to ensure conformance with authorized policies, procedures, and sound practices, and recommend improvements as necessary;

5. ensure that all field sampling is conducted in accordance with guidelines contained herein;

6. oversee all field sampling efforts to detect conditions which might directly or indirectly jeopardize the utility of resulting analytical data, such as improper calibration of equipment or cross contamination through improper storage of samples;

7. ensure that sample handling procedures are adequate for the sample types received; and,

8. inspect the quality of purchased sampling materials.

SAMPLE MANAGEMENT, COLLECTION, AND PREPARATION

Introduction

The procedures in this section are designed to ensure collection of samples which truly represent the matrix being sampled by eliminating trace levels of contaminants from external sources. Sample management and stringent documentation are essential for successful quality assurance.

Sample Management

The management of samples, up to the point of delivery to the laboratory for analysis, is under the supervision of the Project Manager, who shall ensure that samples are collected, labeled, preserved, stored, and transported according to the prescribed methods. If significant deviations from the sampling protocol occur, resulting in a suspected compromise of the sample integrity, all samples taken during that sampling effort prior to correction of the procedure will be discarded and fresh samples taken.

In the field sampling effort, control samples (duplicates and blanks) are introduced into the sample set or batch. Random introduction of control samples is typically accomplished during the logging in process without leaving such clues as a sudden perturbation in the sequence of laboratory numbers or the appearance of a cleaned up extract in a round of soil samples.

Sample Collection

Ground water

Monitoring wells will be sampled in accordance with the following sampling procedures:

1. Identify the well and record the well number on the ground water sampling record.

2. Open the well cap and measure organic vapor levels at the wellhead with the use of a portable organic vapor analyzer. Record levels detected.

3. Measure ground water level to the nearest 0.01 foot from the top of the well riser pipe using an electric water level indicator. Record water level on a Monitoring Well Sampling Log (attached). Water level indicators will be decontaminated between wells.

4. The volume of standing water in the well casing will be calculated and recorded on the Monitoring Well Sampling Log. At least three well volumes will be purged by pump, separate pre-cleaned polyethylene tubing will be used in each well.

5. Samples will be collected using a bailer. Samples will be transferred from the bailer and poured into containers, taking care as to minimize agitation of the sample.

6. Sample containers will be properly labeled with tags provided by the laboratory. Samples will be logged in on a sample log sheet and a chain-of-custody form.

7. Samples taken for precipitate metal analysis will be acidified to a pH of less than 2.0 in the field.

When sampling water for volatile compounds, care must be exercised to prevent loss of compound through evaporation. Precautionary measures include:

1. preventing aeration of the sample with the atmosphere or any other gas;

2. filling bottles to capacity with sample and securing cap without entraining air bubbles;

3. placing samples on ice (approximately 4 C) immediately after collection; and.

4. analyzing sample as soon as possible within the specific holding times after collection.

Soils

When collecting and screening soil samples, the procedures to be used are:

1. Prior to sampling surficial locations, surface vegetation, rocks, leaves, and debris will be cleared from the sample point to allow collection of a clean soil sample.

   Surface soil samples, if taken, will be taken with the use of a hand trowel or shovel and spatula. The sampling equipment will be decontaminated as outlined below.

2. Boring samples will be taken by drill rig-operated split spoon procedures. Soil samples collected from excavations or test pits will be collected directly with a hoe (if necessary) from grade to approximately four feet below grade. Samples collected at deeper depths will be obtained directly from the bucket of the backhoe. A stainless steel spatula will be used to remove soil from the backhoe bucket for placement in the appropriate sample containers.

   Soil samples for HNU-101 volatile organic field screening will be placed in glass soil jars with aluminum foil placed under the screw cap. Samples will be allowed to warm to ambient temperature before screening or will be screened in a heated vehicle after warming. The jar will be shaken for fifteen seconds prior to warming and after warming to ensure proper headspace development.

3. Soil samples will be stored and shipped in appropriate sealed containers.

4. Sample containers will be marked to indicate sampling date, time, location, and depth. Samples will be logged in or chain-of-custody forms (copy attached).

5. The stratigraphy of each soil boring and test pit excavation, and the construction of each monitoring well will be recorded by the on-site geologist on the appropriate soil boring/monitoring well installation log or test pit field log (copies attached).

Soil sampling equipment (trowel, shovel, or spatula) will be decontaminated between each sampling location with a potable water rinse, alconox soap wash, potable water rinse, and final potable water rinse.

Drilling and excavating apparatus (augers, rods, casing, core barrels, backhoe bucket, and other equipment coming in contact with the borehole or excavation) will be decontaminated between each boring and excavation via steam cleaning. If necessary, an alconox soap wash followed by a steam cleaning will be included.

SAMPLE PRESERVATION

Procedures

To prevent or retard the degradation/modification of chemicals in water samples during transit and storage, the samples will be preserved by refrigeration at or below 4 C and stored in glass bottles with Teflon-lined lids. Samples containing inorganic compounds will be stored in plastic polyethylene containers. Samples will be delivered to the laboratory by courier or by overnight delivery service.

DATA MANAGEMENT

Logging of Samples

The accountability of a sample begins when the sample is taken from its natural environment. Sample handling (chain-of-custody) records must be completed at the time of sampling (refer to Figure 1). The following chain-of-custody procedure must be implemented by the Field Team Leader to assure sample integrity.

1. The samples are under custody of the Field Team Leader if:
    a. they are in his (or her) possession;
    b. they are in view after being in possession;
    c. they are locked up or sealed securely to prevent tampering; or,
    d. they are in a designated secure area.

2. The "original" of the sample handling form must accompany the samples at all times after collection. A copy of the sample handling form is kept by the Field Team Leader.

3. When samples are transferred in possession, the individuals relinquishing and receiving will sign, date, and note the time on the form.

The Sampling Handling Record will contain information to distinguish each sample from any other sample. This information will include:

1. the project for which sampling is being conducted;

2. the matrix being sampled (air, ground water, soil, etc.);

3. the sampling date and time;

4. field sample identification number and chain-of-custody identification number;

5. the number and type of containers and the type of preservative used (if any); and,

6. signature of the person performing the sampling.

Each sample will be assigned a unique identification number, which will be marked on the sample container. The sample handling record will be forwarded to the laboratory with the samples. As a precaution against this record being lost or altered, the sampling personnel will retain a copy of the sampling handling record documenting all information up until the first change of sample custody. This record will be filed by the Project Manager.

Sample Identification Numbers

Reporting of date to the data management system will require the assignment of a unique identification number to each sample collected (including quality control samples). A record will be maintained by the Project Manager to associate the field sample with the various identification numbers used to analyze the field sample. Specific sample identification procedures are developed for each field sampling effort by the Project Manager.

BENNETT & O'REILLY, Inc.
Engineering and Environmental Services

1573 Main Street, P.O. Box 1667
Brewster, MA 02631
(508) 896-6630

MONITOR WELL SAMPLING LOG

CLIENT _____ **DATE(S)** _____

LOCATION _____ **JOB #** _____

SAMPLER _____ **MEASURING POINT GROUNDSURFACE OR T.O.C.** _____

Well Number	Elev. of reference point (feet)	Total Depth of Well (feet)	Depth to Water (Feet)	Standing Water Height (feet)	Water Table Elevation (feet)	Static Volume (gallons)	Volume Purged (gallons)	HNU PI-101 (ppm)	Comments

NOTES:

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Sieve Analysis Data and Computation Sheet

Job Number: Date:

Job Name:

Sample Number:

Sample Collected By:

Sample Tested By:

Notes :

SIEVE OPENING MILLI-METERS	SIEVE MESH	WEIGHT RETAINED IN GRAMS (Cumulative)	PERCENT RETAINED (Cumulative)	CUMULATIVE PERCENT FINER	PROJECT MANUAL SPECIFICATION
PASSED MESH SIEVE TOTAL					

Sample Weight Wet:

Sample Weight Dry:

Percent Moisture:

Sample Weight Passed Through Sieves:

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☐ SAND ☐ GRAVEL ☐ SILT SAND ☐ PEAT ☐ CLAY	Job Number: Date: Job Name: Test Hole Number: Witness: Drilling Contractor: Sampling Method:

GEOLOGIC BOREHOLE LOG

Lithology	Depth	Type of Sample	Depth	Standard Penetration: Blows per 6" Drive	Standard Penetration: % of Recovery	Well Specification & Remarks	Lithology/Sediment Description
	5 10 15 20 25 30 35 40 45 50					PID Response (ppm) SWL:	

BENNETT & O'REILLY, Inc.

REPORT NUMBER:

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INSPECTORS DAILY RECORD OF WORK PROGRESS

Job Number: Date:

Job Name:

Feature:

Contractor:

Type of Work:

Weather Conditions: Temperature:

Contractor's Work Force (Indicate classification, including Subcontractor personnel)

Equipment in use or idled (identify which)

Materials or equipment delivered, quantity or pay items placed

Non-conforming materials or work, field problems, inspections of previously reported deficiencies

Summary of construction activities

BENNETT & O'REILLY, Inc.

Engineering, Environmental & Surveying Services

Sanitary
Site Development
Waste Water Treatment
Water Supply

21E/Site Remediation
Hydrogeologic Survey
Water Quality Monitoring
Consulting

Property Line
Subdivision
Land Court
Trial Court Witness

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SOIL TEST REPORT

CLIENT:_____ ASSR'S MAP:_____ DATE OF TEST:_____

AGENT: _____ PCL:_____ TYPE OF TEST:

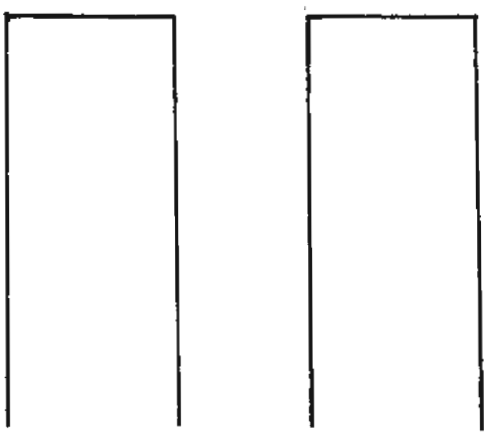
ENGINEER:_____ STREET:_____ DEEP HOLE: _____

HEALTH REP:_____ _____ PERC TEST: _____

EXCAVATOR:_____ TOWN:_____ BORING: _____

SOIL LOGS

TEST _____ TEST _____



SKETCH OF LOT (not to scale)

PROPERTY INFORMATION

DEPTH TO GROUNDWATER: _____

PERCOLATION RATE: _____

TEST RESULTS: _____

WATER SUPPLY: _____

SITE FEATURES:

PURPOSE OF TESTING:

CERTIFICATION:

WE HEREBY CERTIFY THAT THE ABOVE TESTS WERE PERFORMED AND THE RESULTS ARE AS SHOWN ON THIS REPORT.

_____

RECOMMENDED SAMPLE CONTAINERS, PRESERVATION and HOLDING TIMES

Pesticide and Herbicide Analyses

Category	Methods	Minimum Qty.[1]	Recommended Container(s)[2]	Required Preservation	Holding Time[8]
Aqueous Samples					
Carbamate Pesticides (Drinking Water)	531.1	60mL	2 x 125 Glass Bottle w/teflon liner[17]	Cool to 4°C[3] Add Sodium Thiosulfate[25] Adjust pH to 3 with Monochloroacetic Acid Buffer	28 Days
Organochlorine Pesticides & PCBs	608/8080	1 L	2 x 1L Amber Glass Bottle w/teflon liner[17]	Cool to 4°C[3] Check pH; Adjust 5-9[6] Remove Chlorine[7]	7 Days[4]
Organochlorine Pesticides & PCBs (Drinking Water)	508	1 L	2 x 1L Amber Glass Bottle w/teflon liner[17]	Cool to 4°C[3] Add Sodium Thiosulfate[25]	7 Days[21]
Polychlorinated Biphenyls by Perchlorination (Drinking Water)	508A	1 L	2 x 1L Amber Glass Bottle w/teflon liner[17]	Cool to 4°C[3]	14 Days [22]
Organohalide Pesticides & PCBs (Drinking Water)	505	40 mL	3 x 40 mL Glass Vials w/teflon septa caps[17]	Cool to 4°C[3] Add Sodium Thiosulfate[25]	7 Days[20]
Organophosphorus Pesticides	614/8140	1 L	2 x 1L Amber Glass Bottle w/teflon liner[17]	Cool to 4°C[3] Check pH; Adjust 6-8[6] Remove Chlorine[7]	7 Days[9]
Chlorinated Herbicides	615/8150	1 L	2 x 1L Amber Glass Bottle w/teflon liner[17]	Cool to 4°C[3] Remove Chlorine[7]	7 Days[9]
Chlorinated Herbicides (Drinking Water)	515.1	1 L	2 x 1L Amber Glass Bottle w/teflon liner[17]	Cool to 4°C[3] Add Sodium Thiosulfate[26]	14 Days [23]
Glyphosate (Drinking Water)	547	40 mL	2 x 40 mL Glass Vial w/teflon liner	Cool to 4°C[3] Add Sodium Thiosulfate[26]	14 Days
Endothall (Drinking Water)	548.1	100 mL	2 x 125 mL Glass Bottle w/teflon liner[17]	Cool to 4°C[3] HCl to pH <2[4] Add Sodium Thiosulfate[26]	7 Days [21]
Diquat and Paraquat (Drinking Water)	549.1	250 mL	1 x 1L Amber Glass Bottle w/teflon liner[17]	Cool to 4°C[3] H_2SO_4 to pH <2[4] Add Sodium Thiosulfate[26]	7 Days[27]
EDB and DBCP (Drinking Water)	504.1	40 mL	3 x 40 mL Glass Vials w/teflon septa caps [12, 17]	Cool to 4°C[3] Add Sodium Thiosulfate[26]	14 Days
EDB and DBCP	8011	40 mL	3 x 40 mL Glass Vials w/teflon septa caps [12, 17]	Cool to 4°C[3] HCl to pH <2[4] Remove Chlorine[7]	14 Days
Solid Samples					
Organochlorine Pesticides & PCBs	8080	30 g	Glass Jar w/teflon liner[17]	Cool to 4°C[3]	14 Days[10]
Organophosphorus Pesticides	8140	30 g	Glass Jar w/teflon liner[17]	Cool to 4°C[3]	14 Days[10]
Herbicides	8150	30 g	Glass Jar w/teflon liner[17]	Cool to 4°C[3]	14 Days[10]
EDB and DBCP	8260	10 g	1 x 125 mL Glass Vial w/teflon septa cap [12, 17] OR 2 x 40 mL Glass Vials w/teflon septa caps [12, 13, 17]	Cool to 4°C[3]	14 Days