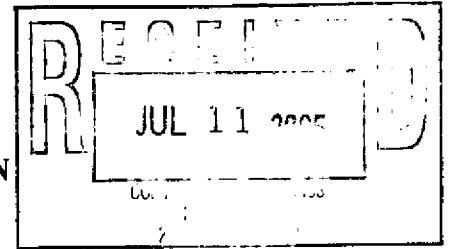
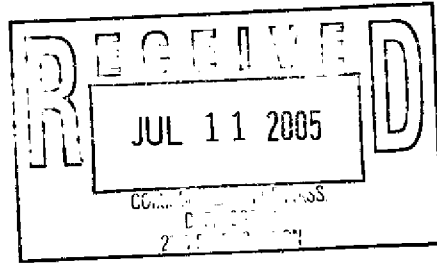


SCANNED

REMEDIATION & ENVIRONMENTAL
MANAGEMENT SERVICES, INC.

REMSERU



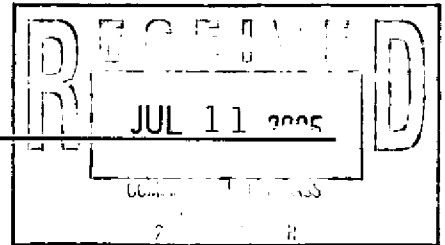
**PHASE III REMEDIAL ACTION PLAN
BOSSI REALTY TRUST
12 SWANTON STREET
WINCHESTER, MA
RTN 3-18598**

SL = N/A-C

PREPARED FOR:
Bossi Realty Trust
12 Swanton Street
Winchester, MA 01890

PREPARED BY:
Remediation & Environmental Management Services, Inc.
35 Winthrop Street
Winchester, MA 01890
781-721-4455

July 11, 2005



Letter of Transmittal

TO: MA DEP NERO-BWSC DATE: 07/11/05
1 Winter Street PROJECT: 12 Swanton St., Winchester
9th Floor RS #: RTN 3-18598
Boston, MA 02108

ATTN: _____

WE TRANSMIT:

- herewith _____
- in accordance with your request _____

FOR YOUR:

- approval
- record
- distribution to parties
- review & comment
- signature and return
- use

THE FOLLOWING:

COPIES	DATE	DESCRIPTION
1	07/05/05	Phase III Remedial Action Plan
1	07/05/05	BWSC-108 with LSP opinion and copy of letter to Winchester Public Officials.

COMMENTS:

COPIES TO:

Bossi Realty Trust



Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BWSC108

KC

**COMPREHENSIVE RESPONSE ACTION TRANSMITTAL
 FORM & PHASE I COMPLETION STATEMENT**

Release Tracking Number

3-18598

Pursuant to 310 CMR 40.0484 (Subpart D) and 40.0800 (Subpart H)

RECEIVED
 JUL 11 2005
 DEP
 NORTHEAST REGIONAL OFFICE

A. SITE LOCATION:

1. Site Name: _____
2. Street Address: 12 Swanton Street
3. City/Town: Winchester 4. ZIP Code: 01890-2015
5. Check here if a Tier Classification Submittal has been provided to DEP for this disposal site.
 - a. Tier IA b. Tier IB c. Tier IC d. Tier II
6. If applicable, provide the Permit Number: _____

B. THIS FORM IS BEING USED TO: (check all that apply)

- 1. Submit a **Phase I Completion Statement**, pursuant to 310 CMR 40.0484.
- 2. Submit a **Revised Phase I Completion Statement**, pursuant to 310 CMR 40.0484.
- 3. Submit a **Phase II Scope of Work**, pursuant to 310 CMR 40.0834.
- 4. Submit an **interim Phase II Report**. This report does not satisfy the response action deadline requirements in 310 CMR 40.0500.
- 5. Submit a **final Phase II Report and Completion Statement**, pursuant to 310 CMR 40.0836.
- 6. Submit a **Revised Phase II Report and Completion Statement**, pursuant to 310 CMR 40.0836.
- 7. Submit a **Phase III Remedial Action Plan and Completion Statement**, pursuant to 310 CMR 40.0862.
- 8. Submit a **Revised Phase III Remedial Action Plan and Completion Statement**, pursuant to 310 CMR 40.0862.
- 9. Submit a **Phase IV Remedy Implementation Plan**, pursuant to 310 CMR 40.0874.
- 10. Submit a **Modified Phase IV Remedy Implementation Plan**, pursuant to 310 CMR 40.0874.
- 11. Submit an **As-Built Construction Report**, pursuant to 310 CMR 40.0875.

RECEIVED
 JUL 11 2005
 DEP
 NORTHEAST REGIONAL OFFICE

(All sections of this transmittal form must be filled out unless otherwise noted above)



Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BWSC108

**COMPREHENSIVE RESPONSE ACTION TRANSMITTAL
 FORM & PHASE I COMPLETION STATEMENT**

Release Tracking Number

3 - **18598**

Pursuant to 310 CMR 40.0484 (Subpart D) and 40.0800 (Subpart H)

B. THIS FORM IS BEING USED TO (cont.): (check all that apply)

12. Submit a **Phase IV Final Inspection Report and Completion Statement**, pursuant to 310 CMR 40.0878 and 40.0879.

Specify the outcome of Phase IV activities: (check one)

- a. Phase V Operation, Maintenance or Monitoring of the Comprehensive Remedial Action is necessary to achieve a Response Action Outcome.
- b. The requirements of a Class A Response Action Outcome have been met. No additional Operation, Maintenance or Monitoring is necessary to ensure the integrity of the Response Action Outcome. A completed Response Action Outcome Statement and Report (BWSC104) will be submitted to DEP.
- c. The requirements of a Class C Response Action Outcome have been met. No additional Operation, Maintenance or Monitoring is necessary to ensure the integrity of the Response Action Outcome. A completed Response Action Outcome Statement and Report (BWSC104) will be submitted to DEP.
- d. The requirements of a Class C Response Action Outcome have been met. Further Operation, Maintenance or Monitoring of the remedial action is necessary to ensure that conditions are maintained and that further progress is made toward a Permanent Solution. A completed Response Action Outcome Statement and Report (BWSC104) will be submitted to DEP.

13. Submit a **Revised Phase IV Final Inspection Report and Completion Statement**, pursuant to 310 CMR 40.0878 and 40.0879.

14. Submit a **periodic Phase V Inspection & Monitoring Report**, pursuant to 310 CMR 40.0892.

15. Submit a **Remedy Operation Status**, pursuant to 310 CMR 40.0893.

16. Submit a **periodic Inspection & Monitoring Report to maintain a Remedy Operation Status**, pursuant to 310 CMR 40.0893(2).

17. Submit a **Termination of a Remedy Operation Status**, pursuant to 310 CMR 40.0893(5).

18. Submit a **final Phase V Inspection & Monitoring Report and Completion Statement**, pursuant to 310 CMR 40.0894.

Specify the outcome of Phase V activities: (check one)

- a. The requirements of a Class A Response Action Outcome have been met. No additional Operation, Maintenance or Monitoring is necessary to ensure the integrity of the Response Action Outcome. A completed Response Action Outcome Statement (BWSC104) will be submitted to DEP.
- b. The requirements of a Class C Response Action Outcome have been met. No additional Operation, Maintenance or Monitoring is necessary to ensure the integrity of the Response Action Outcome. A completed Response Action Outcome Statement and Report (BWSC104) will be submitted to DEP.
- c. The requirements of a Class C Response Action Outcome have been met. Further Operation, Maintenance or Monitoring of the remedial action is necessary to ensure that conditions are maintained and/or that further progress is made toward a Permanent Solution. A completed Response Action Outcome Statement and Report (BWSC104) will be submitted to DEP.

19. Submit a **Revised Phase V Inspection & Monitoring Report and Completion Statement**, pursuant to 310 CMR 40.0894.

20. Submit a **Post-Response Action Outcome Inspection & Monitoring Report**, pursuant to 310 CMR 40.0897.

(All sections of this transmittal form must be filled out unless otherwise noted above)



Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BWSC108

**COMPREHENSIVE RESPONSE ACTION TRANSMITTAL
 FORM & PHASE I COMPLETION STATEMENT**

Release Tracking Number

3 - 18598

Pursuant to 310 CMR 40.0484 (Subpart D) and 40.0800 (Subpart H)

C. LSP SIGNATURE AND STAMP:

I attest under the pains and penalties of perjury that I have personally examined and am familiar with this transmittal form, including any and all documents accompanying this submittal. In my professional opinion and judgment based upon application of (i) the standard of care in 309 CMR 4.02(1), (ii) the applicable provisions of 309 CMR 4.02(2) and (3), and 309 CMR 4.03(2), and (iii) the provisions of 309 CMR 4.03(3), to the best of my knowledge, information and belief,

> if Section B indicates that a **Phase I, Phase II, Phase III, Phase IV or Phase V Completion Statement** is being submitted, the response action(s) that is (are) the subject of this submittal (i) has (have) been developed and implemented in accordance with the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000, (ii) is (are) appropriate and reasonable to accomplish the purposes of such response action(s) as set forth in the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000, and (iii) comply(ies) with the identified provisions of all orders, permits, and approvals identified in this submittal;

> if Section B indicates that a **Phase II Scope of Work or a Phase IV Remedy Implementation Plan** is being submitted, the response action(s) that is (are) the subject of this submittal (i) has (have) been developed in accordance with the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000, (ii) is (are) appropriate and reasonable to accomplish the purposes of such response action(s) as set forth in the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000, and (iii) comply(ies) with the identified provisions of all orders, permits, and approvals identified in this submittal;

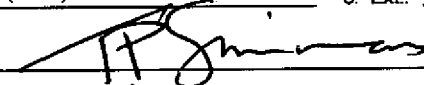
> if Section B indicates that an **As-Built Construction Report, Phase V Inspection and Monitoring Report, or a Remedy Operation Status** is being submitted, the response action(s) that is (are) the subject of this submittal (i) is (are) being implemented in accordance with the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000, (ii) is (are) appropriate and reasonable to accomplish the purposes of such response action(s) as set forth in the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000, and (iii) comply(ies) with the identified provisions of all orders, permits, and approvals identified in this submittal.

I am aware that significant penalties may result, including, but not limited to, possible fines and imprisonment, if I submit information which I know to be false, inaccurate or materially incomplete.

1. LSP #: 1698

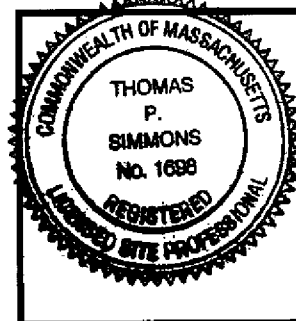
2. First Name: Thomas 3. Last Name: Simmons

4. Telephone: (781) 721-4455 5. Ext.: _____ 6. FAX: (781) 721-4456

7. Signature: 

8. Date: 07/08/05
 (mm/dd/yyyy)

9. LSP Stamp:





Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BWSC108

Release Tracking Number

**COMPREHENSIVE RESPONSE ACTION TRANSMITTAL
 FORM & PHASE I COMPLETION STATEMENT**

3 - **18598**

Pursuant to 310 CMR 40.0484 (Subpart D) and 40.0800 (Subpart H)

D. PERSON UNDERTAKING RESPONSE ACTIONS:

1. Check all that apply: a. change in contact name b. change of address c. change in the person undertaking response actions

2. Name of Organization: Bossi Realty Trust

3. Contact First Name: John 4. Last Name: Bossi

5. Street: 12 Swanton Street 6. Title: Trustee/Not Personally

7. City/Town: Winchester 8. State: MA 9. ZIP Code: 01890-2015

10. Telephone: (781) 721-0162 11. Ext.: _____ 12. FAX: _____

E. RELATIONSHIP TO SITE OF PERSON UNDERTAKING RESPONSE ACTIONS:

1. RP or PRP a. Owner b. Operator c. Generator d. Transporter

e. Other RP or PRP Specify: _____

2. Fiduciary, Secured Lender or Municipality with Exempt Status (as defined by M.G.L. c. 21E, s. 2)

3. Agency or Public Utility on a Right of Way (as defined by M.G.L. c. 21F, s. 5(j))

4. Any Other Person Undertaking Response Actions Specify Relationship: _____

F. REQUIRED ATTACHMENT AND SUBMITTALS:

1. Check here if the Response Action(s) on which this opinion is based, if any, are (were) subject to any order(s), permit(s) and/or approval(s) issued by DEP or EPA. If the box is checked, you MUST attach a statement identifying the applicable provisions thereof.

2. Check here to certify that the Chief Municipal Officer and the Local Board of Health have been notified of the submittal of any Phase Reports to DEP.

3. Check here to certify that the Chief Municipal Officer and the Local Board of Health have been notified of the availability of a Phase III Remedial Action Plan.

4. Check here to certify that the Chief Municipal Officer and the Local Board of Health have been notified of the availability of a Phase IV Remedy Implementation Plan.

5. Check here to certify that the Chief Municipal Officer and the Local Board of Health have been notified of any field work involving the implementation of a Phase IV Remedial Action.

6. Check here if any non-updatable information provided on this form is incorrect, e.g. Site Name. Send corrections to the DEP Regional Office.

7. Check here to certify that the LSP Opinion containing the material facts, data, and other information is attached.



Massachusetts Department of Environmental Protection
 Bureau of Waste Site Cleanup

BWSC108

**COMPREHENSIVE RESPONSE ACTION TRANSMITTAL
 FORM & PHASE I COMPLETION STATEMENT**

Release Tracking Number

3 - **18598**

Pursuant to 310 CMR 40.0484 (Subpart D) and 40.0800 (Subpart H)

G. CERTIFICATION OF PERSON UNDERTAKING RESPONSE ACTIONS:

1. I, John Bossi, attest under the pains and penalties of perjury (i) that I have personally examined and am familiar with the information contained in this submittal, including any and all documents accompanying this transmittal form, (ii) that, based on my inquiry of those individuals immediately responsible for obtaining the information, the material information contained in this submittal is, to the best of my knowledge and belief, true, accurate and complete, and (iii) that I am fully authorized to make this attestation on behalf of the entity legally responsible for this submittal. I/the person or entity on whose behalf this submittal is made am/is aware that there are significant penalties, including, but not limited to, possible fines and imprisonment, for willfully submitting false, inaccurate, or incomplete information.

2. By: John Bossi Signature 3. Title: Trustee/Not Personally

4. For: Bossi Realty Trust 5. Date: 7-1-05
 (Name of person or entity recorded in Section D) (mm/dd/yyyy)

6. Check here if the address of the person providing certification is different from address recorded in Section D.

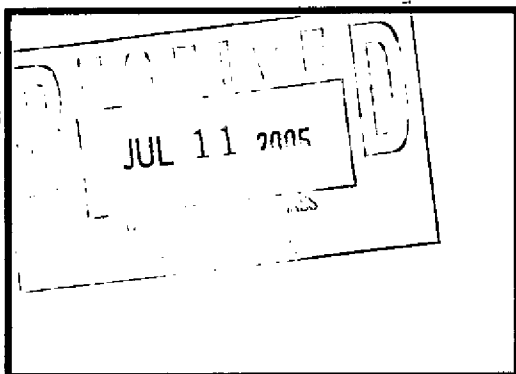
7. Street: _____

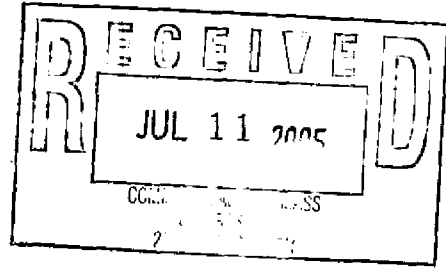
8. City/Town: _____ 9. State: _____ 10. ZIP Code: _____

11. Telephone: _____ 12. Ext.: _____ 13. FAX: _____

YOU ARE SUBJECT TO AN ANNUAL COMPLIANCE ASSURANCE FEE OF UP TO \$10,000 PER BILLABLE YEAR FOR THIS DISPOSAL SITE. YOU MUST LEGIBLY COMPLETE ALL RELEVANT SECTIONS OF THIS FORM OR DEP MAY RETURN THE DOCUMENT AS INCOMPLETE. IF YOU SUBMIT AN INCOMPLETE FORM, YOU MAY BE PENALIZED FOR MISSING A REQUIRED DEADLINE.

Date Stamp (DEP USE ONLY:)





July 11, 2005

Mr. Melvin Kleckner
Town Manager
2nd Floor, Town Hall
71 Mt. Vernon Street
Winchester, MA 01890

Ms. Jennifer Murphy
Director, Board of Health
Lower Level, Town Hall
71 Mt. Vernon Street
Winchester, MA 01890

RE: Notice of Phase III Remedial Action Plan
Bossi Realty Trust
12 Swanton Street
Winchester, MA 01890
RTN 3-18598

Dear Sir and Madam:

The purpose of this letter is to inform you that on July 11, 2005, a Phase III Remedial Action Plan regarding a petroleum release was filed with the MADEP Northeast Regional Office for the above-referenced property. If you have any questions or would like to obtain a copy of the Phase III report, please contact Mr. Thomas P. Simmons, 35 Winthrop Street, Winchester, MA, 01890, 781-721-4455.

Sincerely,
REMSERV, Inc.

A handwritten signature in black ink that reads "TP Simmons".

Thomas P. Simmons

cc: MADEP-NERO



July 11, 2005

MADEP-NERO
Bureau of Waste Site Cleanup
1 Winter Street
Boston, MA 02108

RE: LSP Opinion
Phase III Remedial Action Plan
Bossi Realty Trust
12 Swanton Street
Winchester, MA 01890-2015
RTN 3-18598

To Whom It May Concern:

This letter will serve as the LSP Opinion required under Section F.7. of the MADEP Comprehensive Response Action Transmittal Form & Phase I Completion Statement (form BWSC108) attesting to the veracity of the material facts, data and other information attached.

If you need further information, please call me at 781-721-4455.

Sincerely,
REMSERV, Inc.

A handwritten signature in black ink, appearing to read "Tom Simmons", is written over a horizontal line.

Tom Simmons, LSP



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1.0 Introduction

REMSERV Inc. has conducted a Phase III Feasibility Evaluation and completed a Phase III Remedial Action Plan for the Bossi Realty Trust (Bossi) site in accordance with 310 CMR 40.0850: Phase III - Identification, Evaluation and Selection of Comprehensive Remedial Action Alternatives and 310 CMR 40.0861: Remedial Action Plan. The site has not yet achieved a Response Action Outcome (RAO) because ground water and soil at the site have not met applicable standards due to the presence of gasoline components. The Phase III evaluation includes

- The identification and evaluation of remedial action alternatives that are reasonably likely to achieve a level of No Significant Risk for gasoline contaminated soil and ground water considering the site-specific characteristics;
- An assessment of the likelihood of achieving a permanent solution through the use of a remedial action alternative(s);
- An assessment of whether a Temporary Solution would be more cost-effective and timely than the implementation of a feasible Permanent Solution; and
- The possibility of achieving or approaching background levels for the gasoline components and mixtures dissolved in ground water. The feasibility of approaching background is conducted in accordance with 310 CMR 40.0860 for sites where remedial actions have been taken and background levels are not achieved.

The Phase III evaluation focuses on the screening of remedial action alternatives for their effectiveness, implementability, and cost. The purpose of the screening is to identify the remedial technologies that are reasonably feasible to achieve a level of No Significant Risk for the release tracking number (RTN) 3-18598. At the conclusion of the screening process, a detailed evaluation of the applicable alternatives will be conducted in order to identify the best remedial action alternative for the site. The results of the screening and detailed evaluation are presented in this Phase III Remedial Action Plan (RAP). The Phase III RAP will document the selection process and identification of the proposed remedial action alternative.

2.0 Site Location

The site is located in UTM Zone 19 at coordinates 4702910 mN and 324875 mE (Figure 1). These coordinates denote the approximate center of the property. The site is located in the Mystic River Drainage Basin. Storm water from the site is drained through a series of catch basins along the southern side of Swanton Street that discharge to the Aberjona River, located approximately 2,000 feet west of the site (Figure 1). The Aberjona River drains to the Mystic Lakes, which drain to the Mystic River and ultimately to Boston Harbor. The Mystic River is designated as a Class B Waterway.

The site is not located within 500 feet of an Area of Critical Environmental Concern (ACEC), vernal pools, reservoirs, private wells, a mapped Zone II area, a Zone A of a Class A surface water body, a priority productive aquifer, a sole source aquifer, fish habitats, or habitats of species of Special Concern or Threatened or Endangered Species (5, 8, 9, 15) (Figure 1). Middlesex Fells Reservation is located approximately 1,200 feet east of the site (Figure 1). Three (3) reservoirs located within Middlesex Fells provide drinking water to the town of Winchester (7).

The site is located within 500 feet of a medium yield (100-300 gpm) Non-Potential Drinking Water Source Area (NPDWSA) (Figure 1).

The property is bordered to the north by Swanton Street; the west by a commercial building housing a dry cleaning facility and an Italian restaurant; the south by a commercial parking lot; and the east by a commercial building housing a convenience store, a laundromat, and a photograph developing facility. The land use opposite Swanton Street to the north and the commercial parking lot to the south is residential (Figure 3).



3.0 Physical Site Description

The site is currently known as Bossi's Auto Repair and occupied by an automotive repair and used car sales facility. The property consists of one (1) 1,806-square-foot building on an 0.31-acre lot and is entirely paved with asphalt (11). The site formerly dispensed gasoline and diesel fuel.

The site is located at an elevation of approximately 49 feet above Mean Sea Level (based upon the National Geodetic Vertical Datum of 1929). The topography is relatively flat with a mild grade from east to west. Storm water falling on the property drains to the west and discharges to the Aberjona River and ultimately to Boston Harbor. Regionally, the topography to the east rises sharply in elevation culminating in the Middlesex Fells Reservation located approximately 1,200 feet east of the site. The area to the west slopes gently to the Aberjona River approximately 2,000 feet west of the site (Figure 1).

Six (6) underground storage tanks (USTs) were removed from the site in May 1999 under permits from the Winchester Fire Department, including four (4) gasoline USTs, one (1) 500-gallon waste oil UST and one (1) 500-gallon heating oil UST (13). The site is connected to the Winchester Municipal Water System and does not rely on an on-site water supply well. The site is connected to the Winchester Municipal Sewer System.

4.0 Release History

On May 26 and 27, 1999, six (6) USTs were removed by Craftsman Construction Company from the site under permits provided by the Winchester Fire Department. Both Captain David Dalton and Lieutenant Peter Skerry of the Winchester Fire Department noted in their reports that the soils produced during the UST excavation had a "strong odor." Captain Dalton requested that the soil be stockpiled, sampled, and analyzed for contamination (10). On July 8, 1999, Subsurface Remedial Technologies, Inc. (SRT) collected samples from the soil stockpile. Using the jar headspace method, SRT identified a 72-hour reportable condition when PID readings of up to 275 parts per million (ppm) were obtained from these soils. On September 5, 1999, SRT notified the Massachusetts Department of Environmental Protection (MADEP) of the condition. The MADEP assigned Release Tracking Number (RTN) 3-18598. On November 19, 1999, the MADEP issued a Notice of Responsibility (NOR) to Bossi Realty Trust for a gasoline release associated with the UST system.

Soil samples collected by Web Engineering Associates, Inc. (Web) in October 2000 identified contaminated soils exceeding site applicable standards (S-1, S-2, and S-3) at approximately 15 feet (Table 1). Soil samples collected by REMSERV, Inc. in February 2005 also identified similarly contaminated soils at approximately 15 feet, albeit at contaminant concentrations that had decreased since Web analyzed site soils. Web and REMSERV, Inc. also identified ground water concentrations in excess of site applicable standards (GW-2 and GW-3) in 2000 and 2005, respectively. Again, the REMSERV, Inc. analytical results identified decreasing contaminant concentrations with time since Web samples were analyzed in 2000 (Table 2).

5.0 Previous Remedial Activity

Web has submitted a Release Notification Form and Immediate Response Action Plan, an Immediate Response Action Completion Report, and a Phase I Initial Site Investigation Report and Tier Classification to the MADEP for RTN 3-18598.

Phase III Remedial Action Plan
Bossi Realty Trust
12 Swanton Street
Winchester, MA 01890
RTN 3-18598
ACOP-NE-04-3A027
July 11, 2005
Page 4

REMEDICATION & ENVIRONMENTAL
MANAGEMENT SERVICES, INC.



Release Notification and Immediate Response Action Plan

On December 18, 2000, Web submitted a Release Notification and Immediate Response Action Plan to the MADEP. The IRA Plan proposed sampling and disposing of the approximately 20 cubic yards of stockpiled soil and conducting a subsurface investigation to determine the extent of soil and ground water contamination at the site (12).

Immediate Response Action Completion Report

On April 3, 2001, Web submitted an Immediate Response Action Completion Report to the MADEP. As part of the IRA activities, Web collected a composite sample from the soil stockpile on December 18, 2000 and submitted the sample for laboratory analysis according to the soil disposal parameters of Aggregate Industries (AI) in Stoughton, MA. Based on the laboratory analytical results, the soils were transported for asphalt batch recycling to AI on March 29, 2001 under an MADEP Bill of Lading (13). In order to determine the extent of soil and ground water contamination, Web advanced four (4) soil borings at the site on October 13, 2000. Soil samples were collected at five-foot intervals in all borings. All four (4) soil borings were completed as ground water monitoring wells. One monitoring well was destroyed by a tow truck shortly after installation. The remaining three (3) monitoring wells were sampled on October 24, 2000. The soil and ground water samples were submitted for laboratory analysis. Based on the analytical data, Web concluded that the contamination was limited to the ground water and subsurface soils at the site. Web determined that further response actions were required at the site, but no further IRA work was necessary (13).

Phase I Initial Site Investigation Report and Tier Classification

On April 3, 2001, Web submitted a Phase I Initial Site Investigation Report and Tier Classification to the MADEP. The Phase I Initial Site Investigation was conducted to provide sufficient information to meet the requirements of the Numerical Ranking System and Tier Classification Process as described in 310 CMR 40.0500. The Phase I activities included the installation of ground water monitoring wells, the sampling and analysis of soils and ground water, a visual site inspection, and a MADEP file review. On October 13, 2000, four (4) soil borings were advanced and completed as ground water monitoring wells (one monitoring well was destroyed shortly after installation). Soil samples were collected at five-foot intervals in all borings and screened using the jar headspace method. Readings of more than 1,000 ppm were obtained from the saturated soils (>13 feet below grade) in MW-3 and MW-4. Laboratory analysis indicated "that the contaminant levels in the soils at the site are relatively low." Only total xylenes in MW-4 exceeded the applicable S-3/GW-2 standards. Analysis of ground water samples identified that concentrations of volatile petroleum hydrocarbons (VPH) exceeded the GW-2 standards in all three (3) monitoring wells. GW-2 standards for toluene and total xylenes were also exceeded in monitoring wells MW-3 and MW-4. Web concluded that the release was not recent due to the "relatively low concentrations of MTBE" at the site. Web also concluded that further response actions would be required to achieve a condition of No Significant Risk at the site.

Based on the findings of the Phase I Initial Site Investigation, Web used the Numerical Ranking System (NRS) to classify the site. The site received a score of 138 and did not meet any of the Tier I Inclusionary Criteria. Therefore, the site was classified as a Tier II site.

6.0 Findings of the Phase II Comprehensive Site Assessment

A Phase II Comprehensive Site Assessment was completed at the site in May 2005 in order to assess the nature and extent of site soil and ground water contamination. As part of the Phase II assessment activities,



REMSERV, Inc. observed the advancing of six (6) soil borings at the site. Four (4) of these borings were completed as ground water monitoring wells. Soil and ground water samples were submitted for laboratory analysis. Similar to results obtained during the Phase I activities, analytical results identified soil and ground water contamination in excess of the site applicable standards. However, the 2005 contaminant concentrations are less than those identified in 2000 (Tables 1 and 2).

The Phase II activities included an assessment of the risks to human health, public safety, and the environment by completing a Method 1 Risk Characterization. The Risk Characterization assumed unrestricted uses. The results of the Risk Characterization indicate that a condition of No Significant Risk has not yet been achieved.

7.0 Contaminants to Be Considered During the Phase III

Gasoline is a complex mixture of many petroleum compounds. Therefore, there is no one compound that defines gasoline's behavior characteristics or toxicological properties. Certain target components or analytes have been selected based on their mobility in the environment, the percent composition they represent of gasoline, and the toxicological effects they have for human or environmental exposures. The DEP has developed an analytical procedure to analyze gasoline by separating the mixture into three fractions of hydrocarbons. VPH analyses include benzene, toluene, ethylbenzene, total xylenes, MTBE and naphthalene as the target analytes. These compounds, except for MTBE, are characterized by moderate solubility, moderate vapor pressure (moderate Henry's constants), and a moderate affinity for soil attenuation in soils high in organic content. The VPH contaminants have a moderate to high migration potential as soil vapor and when dissolved in ground water. The bio-attenuation and breakdown of these contaminants occurs primarily under aerobic conditions. The aromatic VPH range gasoline components are more readily biodegraded under aerobic conditions.

With the advent of reformulated gasoline (RFG) in the mid 1990s, an attempt was made to reduce carbon monoxide emissions to the atmosphere by lowering the volatile organic compound (VOC) content and promoting more complete combustion by adding oxygenates such as MTBE. MTBE is more soluble in water than most other components of gasoline and is more volatile than other gasoline components.

8.0 Identification of Remedial Action Alternatives

REMSERV, Inc. has identified applicable in-situ remediation technologies based on the site contaminant types and the physical characteristics. The following technologies have been selected based on their historic success in addressing dissolved gasoline contamination in shallow, coarse-grained water table aquifers. These technologies have been screened to determine their potential feasibility to reduce the toxicity, mobility, and volume of the contaminants at the site and achieve a temporary or permanent solution.

Ex-situ remediation technologies were not considered given the limited area of the disposal site and the proximity to nearby structures.

8.1 Soil Vapor Extraction with Air Sparging

Soil Vapor Extraction (SVE) is applied to soils located above the water table. SVE extracts VOCs from the soil in the vadose zone (the area located above water table) by placing a vacuum on the subsurface with a vacuum blower connected to vertical or horizontal extraction wells. The technology is applicable to contaminants that are absorbed on soil and have a tendency to volatilize or evaporate quickly in the vadose zone. As soil vapor is pulled through the



spaces between the soil grains, the VOCs vaporize and are induced to flow into the extraction wells and are treated above ground.

Air injection wells are often installed to increase the airflow and improve the removal rate of the contaminant vapor. When pressurized air is injected below the water table, contaminants can be stripped from the saturated zone of soil that lies below the water table. This is called air sparging. Air sparging works best with soil in the saturated zone that is loose such as sand, gravel, and coarse-grained soil. When the compressed air passes through permeable pathways in the soil on its way to the extraction wells, contaminants evaporate out of the spaces between the soil particles and are driven by the air toward the water table surface. The soil gas then flows to the extraction wells and is removed.

8.2 Ground Water Pumping and Treatment

A ground water pumping and treatment system is a conventional ground water remediation technology that relies on the withdrawal of ground water from the subsurface for treatment at the surface. A ground water extraction well is installed and screened in the aquifer, and ground water is pumped from the aquifer. The hydraulic pressure is reduced in the area around the extraction well and ground water flows into the extraction well. The flow induces ground water to carry the dissolved and sorbed contaminants into the extraction well. As water is removed from within the soil pore spaces, contaminants sorbed onto soil grains desorb and enter into solution. The contaminated ground water is pumped to the surface; treated; and either re-infiltrated, discharged to a storm sewer, or discharged to a surface water body.

8.3 Bioventing

Bioventing is an in-situ technique to create and stimulate a favorable environment for microorganisms to grow and use contaminants as a food and energy source. Bioventing is a common form of in-situ bioremediation. Bioventing uses wells installed in the contaminated area to permit atmospheric air to recharge and circulate through the ground. This is combined with the injection of a combination of nutrients, electron donors, electron receptors, and in some cases, microbes to stimulate and control the use of the contaminant as a food source.

8.4 Dual Phase Extraction

Also known as multi-phase extraction, this method applies a vacuum gradient to simultaneously remove soil vapor and ground water contaminated with volatile organic compounds. The applied vacuum pressures are sufficient to dewater the soils in the vicinity of the extraction well. The dewatered soils expose a greater thickness of contamination and induce soil vapors to volatilize and migrate to the extraction well. The technology removes various combinations of contaminated ground water, separate-phase petroleum product, and vapors from the subsurface. The system lowers the water table around the well, exposing more of the formation. Contaminants in the newly exposed vadose zone are then accessible to vapor extraction. Once above ground, the extracted vapors or liquid-phase organics and ground water are separated and treated.

8.5 Chemical Oxidation

Chemical oxidation is a process by which an oxidant is added to the subsurface to destroy the contaminant in-situ or without having to extract the contaminated media to the ground surface for treatment. The most common types of oxidants are ozone, peroxide, or permanganate. Both ozone and peroxide reactions are fairly rapid. Permanganate may produce longer oxidative conditions due to second-order reactions. All three oxidants have the potential to produce heat and gas as a reaction byproduct. One or more of the



oxidants may produce colloidal size particles that may reduce the formation permeability, potentially limiting the effectiveness of repeat applications.

Regenesis has recently produced a product that results in oxidation of petroleum products without producing the exothermic conditions common with some of the above oxidants. The product RegenOx® is a sodium percarbonate (2NaCO_3) chemical oxidant in solid powder form designed to degrade source zones for petroleum contaminated soils and ground water. Regenox is designed to be injected using a direct push technology to obtain access to the source zone contaminants. In the case of Bossi, the source zone does not exhibit LNAPL. RegenOx® has been selected based on the manufacturer's claim that it is highly effective for the oxidation of petroleum hydrocarbons and MTBE in soils and ground water. The product has an in-situ reactivity half-life effectiveness of up to one month.

8.6 Monitored Natural Attenuation

Monitored natural attenuation (MNA) is an alternative method of reaching the remediation goals of a temporary or permanent solution within a reasonable time frame. MNA is the reliance on natural processes at work in the subsurface to retard the migration of vapor, soil, and/or dissolved phase contaminants. The MNA approach achieves the remedial goals with an approach that is less active and less intrusive than other in-situ methods. These natural processes include physical, chemical, and/or biological processes that, under unaugmented subsurface conditions, act to reduce the mass, toxicity, mobility, volume, or concentration of contaminants in soil or ground water. These processes include biodegradation; dispersion; dilution; sorption; volatilization; radioactive decay; and chemical or biological stabilization, transformation, or destruction of contaminants.

MNA may be used alone or in consort with other remediation technologies such as a ground water pump and treat system.

9.0 Screening Analysis of the Remedial Action Alternatives

REMSERV, Inc. has established criteria for evaluating the alternative technologies listed in the identification section (Section 8.0) of this Phase III report. The criteria have been developed using the screening evaluation guidance developed by the US EPA and are consistent with the US EPA guidance document for conducting a feasibility analysis under CERCLA (EPA/540/G-89/004). REMSERV, Inc. has identified six (6) technologies that are applicable to the site contaminants and conditions. To screen these technologies in greater detail, REMSERV, Inc. has used five (5) criteria to rank each technology according to their effectiveness, time to complete, implementability, and cost.

The effectiveness evaluation is separated into short-term and long-term effectiveness. The short-term effectiveness is evaluated during the construction and implementation period. The technology is evaluated for its effectiveness for remediating the areas of the site that are contaminated and the potential impacts to the surrounding receptors during the construction and implementation phase. The long-term effectiveness evaluation includes the technology's ability to achieve and maintain the remediation goals after the technology has been implemented.

Implementability is a measure of the technical feasibility of constructing, operating, and maintaining the technology after it has been implemented. Implementability is also a measure of the estimated time for the technology to achieve the desired remediation goals.

Costs include the design costs, costs to construct the system, equipment costs, and operation and maintenance costs. REMSERV, Inc. has developed a cost estimate based on prior estimates for the implementation of the six (6)



technologies based on good judgements of engineering costs, subcontractor costs that include contingencies, and published literature values.

RANKING SYSTEM RESULTS TABLE Screening of Remedial Action Alternatives Phase III Remedial Action Plan						
Remediation Technology	Short-Term Effectiveness	Long-Term Effectiveness	Remediation Time to Complete	Implementability	Cost Evaluation	Total Rating
Soil Venting with Air Sparging	4	4	3	5	2	3.6
Ground Water Pump & Treat	2	3	1	5	1	2.4
Bioventing	2	4	2	5	2	3.0
Dual Phase Extraction	3	3	2	4	2	2.8
Chemical Oxidation	5	5	4	5	3	4.4
Monitored Natural Attenuation	3	5	1	5	5	3.8

9.1 Screening Results

REMSERV, Inc. has developed a ranking system that assigns a rating from one (1) to five (5). A greater score is assigned to each technology for greater effectiveness in the individual categories. For example, a score of "5" under the cost evaluation indicates that the technology is less costly than the alternative technologies that are being screened. Each criterion is given equal weight. The "Total Ranking" score is an arithmetic average of the individual criteria scores. The score for each criterion are based on published values available in the literature and relevant project experience. The screening results are provided in the Ranking System Results Table.

The highest ranking and most desirable alternative is in-situ chemical oxidation of the contaminants. Chemical oxidation relies on the rapid degradation of the contaminants in the source zone in the initial application. Post-application monitoring of ground water contaminant reduction and indicator parameters is used to identify the effectiveness of the oxidation process and aid in the assessment of repeat applications as necessary. The final remediation goals may be achieved through the use of indigenous bacteria that work to reduce the toxicity, mobility, and volume of the contaminants.

Monitoring will consist of dissolved hydrocarbon analyses to identify the plume dimension. Long term monitoring will include sampling the commonly identified electron acceptors such as sulfate, nitrate, and carbon dioxide. Soil



sampling and analysis for petroleum compounds as part of the temporary solution offered for the site will augment the long-term monitoring.

9.1.1 Discussion

Other technologies scored lower than chemical oxidation. The technology with the next highest rank was monitored natural attenuation (MNA). As evident from the discussion above, MNA may provide a cost effective role in achieving the final desired remediation goals for the site. MNA has been occurring at the site as evidenced by the reduction in dissolved VPH fractions in soils and ground water from the analytical results obtained in 2000 to the most recent sampling results in 2005.

The operation of the SVE/AS system is economically infeasible given the mechanical systems costs, the utility consumption, the carbon use byproducts, and the disruption to the day-to-day site operations. As a result, the cost to operate this technology resulted in a lower overall ranking.

Dual phase extraction has similar cost disadvantages to SVE/AS for reductions in concentrations of dissolved contaminants. Dual phase extraction relies on the removal of ground water and soil vapor simultaneously as the soils in the vicinity of the extraction well are periodically dewatered under high vacuum pressures. A technical disadvantage for dual phase extraction in medium to high yield aquifers is the large volume of water that is removed from the subsurface. This technology begins to resemble a pump and treat system performance under these criteria.

Bioventing is best applied to petroleum products that are moderate in weight such as diesel fuels and No. 2 heating oil. Lighter weight petroleum products such as gasoline have a higher vapor pressure and are more suitable to evaporation using SVE/AS technology. Bioventing is applicable for heavier petroleum products such as motor oil at extended remediation time frames.

A ground water pumping and treatment system is most effective when implemented for plume containment. Pump and treat is not appropriate as a stand-alone remediation technology for ground water restoration. Pump and treat is greatly affected by variations in geology and types of contaminants. Contaminants sorbed onto soils desorb slowly as ground water is pumped from the subsurface. The continued presence of dissolved contaminants extends the duration of pump and treat operations and results in increased costs. Once the pump and treat technology has been stopped, the sorbed contaminants will "rebound" and the dissolved contaminant concentrations will increase. Under the screening evaluation, the cost criteria and the time to complete resulted in a low ranking for this technology for the site.

The technologies and the reasons for the ranking are discussed in each category as follows.

Short-Term Effectiveness

Chemical oxidation performs the best in this category is since there is no exposure of contaminated media to potential receptors.

With the exception of MNA, the other technologies involve accessing the contaminated media through drilling and excavation activities. Soil vapor extraction and air sparging, dual phase vacuum extraction and ground water pump and treat may require trenching through contaminated media. All three technologies require drilling which generates soil cuttings that must be managed and disposed of. All three technologies require management of waste streams at above ground treatment systems may require trenching



Long-Term Effectiveness

Chemical oxidation ranks with MNA as the highest scoring technology in this category. Chemical oxidation relies on in-situ destruction of the contaminant as opposed to MNA which relies on intrinsic bioactivity to reduce the contaminant concentrations through the use of naturally occurring process that may be augmented to accelerate the rate of degradation. Chemical oxidation followed by MNA has the capability of sustaining the remediation goals after the regulatory cleanup standards have been met and the destructive phase of the operation is terminated.

With the remaining technologies, heterogeneity in the subsurface geology and contaminant distribution produce a rebound effect. Rebound is when the technology operation and maintenance is terminated and the sorbed contaminants left in place desorb and go into solution. The resultant dissolved concentrations are greater than the concentrations achieved at the point of termination of the remedial system. This is most noticeable in pump and treat technology where desorption of contaminants continues to occur after the recovery system has been shut down.

Remediation Time to Complete

Chemical oxidation is a rapid process of achieving contaminant destruction in-situ. Therefore the approach is aggressive and the destruction occurs rapidly as the injected oxidant front reacts with the contaminants in soils and ground water.

The more aggressive technologies usually achieve more significant contaminant concentration reduction in a shorter time span. The technologies that rely on moderate alteration of the static subsurface conditions require longer operating periods. These include bioventing, MNA, and ground water pump and treat. MNA alone is an effective remediation technology in the long-term but require substantial time to achieve the remediation goals when the initial contaminant concentrations are elevated. Dual phase extraction and soil venting with air sparging rely on altering the subsurface conditions that exist within the shallow subsurface. These accelerate the time to remove volatile and dissolved contaminants. The large pressure gradients produced by applying vacuum to the contaminated subsurface accelerates the processes of volatilization and dissolution. The rates at which these processes take place are greatly accelerated and a rapid reduction in the contaminant concentrations is observed.

Implementability

All of the technologies have been implemented with success on a large number of sites with similar site contaminants and conditions. Dual phase extraction ranks lower in this category because the permeable nature of these soils will produce large volumes of water that will require treatment and management. This will require additional issues to be managed as part of the system construction and operation and maintenance.

Cost Evaluation

Natural Attenuation ranks the highest in this category due to the absence of capital equipment costs and the limited operation and maintenance required. Chemical oxidation ranks second in this category due to the absence of mechanical components, operation and maintenance costs or utility costs associated with continued operation of the equipment. The other technologies have equipment costs that are dependant on the system size, the number and size of the components and the structures in which they are contained. The duration of system operation and maintenance can extend the costs of a remedial system far above the installation and equipment costs. Sole technology applications of pump and treat technology have operation and maintenance costs that have been documented in the millions of dollars.



10.0 Detailed Evaluation of the Remedial Action Alternatives

A detailed evaluation of the remedial action alternatives is not required when the initial screening has identified technologies that have a proven, effective performance remediating gasoline compounds on site with similar conditions (310 CMR 40.0857 (2)(a)).

11.0 Selection of Remedial Action Alternative

Based on the screening of potential remedial action alternatives, REMSERV, Inc. has selected chemical oxidation as the preferred remedial action alternative for this site. As part of the chemical oxidation pilot test, ground water monitoring will be conducted to determine the effectiveness of this remedial action alternative. Based on the pilot test results, a full-scale implementation will be undertaken along with post-application monitoring as part of the Phase IV Remedy Implementation Plan.

12.0 Feasibility of Achieving a Permanent Solution

The overall decreasing trend in dissolved contaminant concentrations at the site indicates a shrinking plume. Chemical oxidation is an accelerated remediation method to reduce the cleanup times associated with MNA as a stand-alone remediation strategy. MNA is considered an effective approach for the contaminants associated with this release after one or more applications of the chemical oxidant. Using this combination of technologies, a permanent solution should be achieved within an accelerated time frame for the contaminated soils and ground water at 12 Swanton Street, Winchester, MA.

13.0 Feasibility of Achieving Background

Ground water monitoring should continue to include sampling and analyses for VPH fractions and target analytes, and natural attenuation parameters including dissolved oxygen, nitrate, sulfate and ferrous and ferric iron. Soil sampling should also be conducted within the plume area to assess the residual soil contaminant levels.

14.0 References

1. USGS Boston North, Massachusetts, 7.5X15 Minute Quadrangle, Scale 1:25,000, 1985.
2. 314 CMR 4.00
3. "Groundwater," Freeze and Cherry, published by Prentice-Hall, Inc., 1979.
4. "Glacial Geology of the Mystic Lakes-Fresh Pond Area Massachusetts", USGS Survey Bulletin 1061-F.
5. Zone II aquifer: Department of Environmental Protection (DEP), 2005.
6. <http://ma.water.usgs.gov>.
7. REMSERV, Inc. personal communication with Ms. Anne Dyrne of the Winchester Public Works Department on April 27, 2005.



8. Potential Drinking Water Source Areas (PDWSA): Department of Environmental Protection (DEP), 2005.
9. Areas of Critical Environmental Concern (ACEC): Department of Conservation and Recreation (DCR), 2002.
10. Winchester Fire Department Incident Report, May 26, 1999.
11. <http://winchester.patriotproperties.com>.
12. "Release Notification and Immediate Response Action Plan," completed by Web Engineering Associates, Inc., December 18, 2000.
13. "Immediate Response Action Completion Report," completed by Web Engineering Associates, Inc., April 3, 2001.
14. "Phase I Initial Site Investigation Report and Tier Classification Submittal," completed by Web Engineering Associates, Inc., April 3, 2001.
15. Estimated Habitats for Rare Wildlife: Natural Heritage & Endangered Species Program (NHESP), 2005. ("NHESP 1999-2001 Estimated Habitats of Rare Wildlife: Use with Wetlands Protection Act")

TABLE 1 - SOIL ANALYTICAL RESULTS

Bossi Realty Trust
12 Swanton Street
Winchester, MA

Sample ID	Sampling Date	Sample Depth (feet)	PID (ppm)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	MTBE (mg/kg)	o-Xylene (mg/kg)	m+p-Xylene (mg/kg)	Total Xylenes (mg/kg)	Naphthalene (by MA VPH) (mg/kg)	Naphthalene (by MA EPH) (mg/kg)	2-methylnaphthalene (mg/kg)	C ₃ -C ₈ Aliphatics (mg/kg)	C ₉ -C ₁₂ Aliphatics (mg/kg)	C ₉ -C ₁₄ Aromatics (mg/kg)	C ₉ -C ₁₁ Aliphatics (mg/kg)	C ₉ -C ₁₆ Aliphatics (mg/kg)	C ₁₁ -C ₂₂ Aromatics (mg/kg)
Method 1 S-1	---	---	---	40	500	500	100	NS	NS	500	100	100	500	100	1,000	100	1,000	2,500	800
Method 1 S-2	---	---	---	50	1,000	1,000	500	NS	NS	1,000	2,500	2,500	1,000	500	2,500	500	2,500	5,000	2,000
Method 1 S-3	---	---	---	200	2,500	2,500	500	NS	NS	2,500	2,500	2,500	2,000	500	5,000	500	5,000	5,000	5,000
*MW-1 (10'-12')	10/13/00	12	110	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	1.9	BDL	BDL	BDL	BDL
*MW-2 (10'-12')	10/13/00	12	0.0	NA	NA	NA	NA	NA	NA	NA	NA	BDL	BDL	NA	NA	NA	BDL	BDL	BDL
*MW-3 (10'-12')	10/13/00	12	828	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	2.0	2.2	1.4	BDL	BDL	BDL
*MW-4 (15'-15.5')	10/13/00	16	>1,000	BDL	470	170	10	NR	NR	840	60	29	26	2,100	BDL	2,400	350	BDL	120
B101 S4 13-15	02/28/05	15	376	BDL	0.14	BDL	BDL	BDL	BDL	BDL	0.332	BDL	0.162	16.4	6.08	8.66	BDL	BDL	BDL
B102 S1B 11.5-12	02/28/05	12	0.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
B103 S1 13-15	02/28/05	15	520	1.75	39.6	24.2	BDL	35.4	92.4	127.8	9.55	3.92	3.99	639	217	280	43.3	BDL	40.6
B104-S1 13-15	02/28/05	14	72.6	BDL	5.99	2.72	BDL	2.62	9.10	11.72	5.82	0.642	1.66	1,130	350	216	129	BDL	57.3
EPC	---	---	---	0.25	73.68	28.13	1.43	---	---	140	10.81	4.20	3.98	555	82.45	415	65.29	---	27.24

LEGEND

- BDL Below Laboratory Detection Limits
 - NS No Standard Published
 - NA Not Analyzed
 - NR Not Reported
 - EPC Soil Exposure Point Concentration
 - * Sample Collected by Web Engineering
- Bolded values indicate concentrations above site applicable standards.**
Note: All concentrations and standards reported in mg/kg.

TABLE 2 - GROUND WATER ANALYTICAL RESULTS

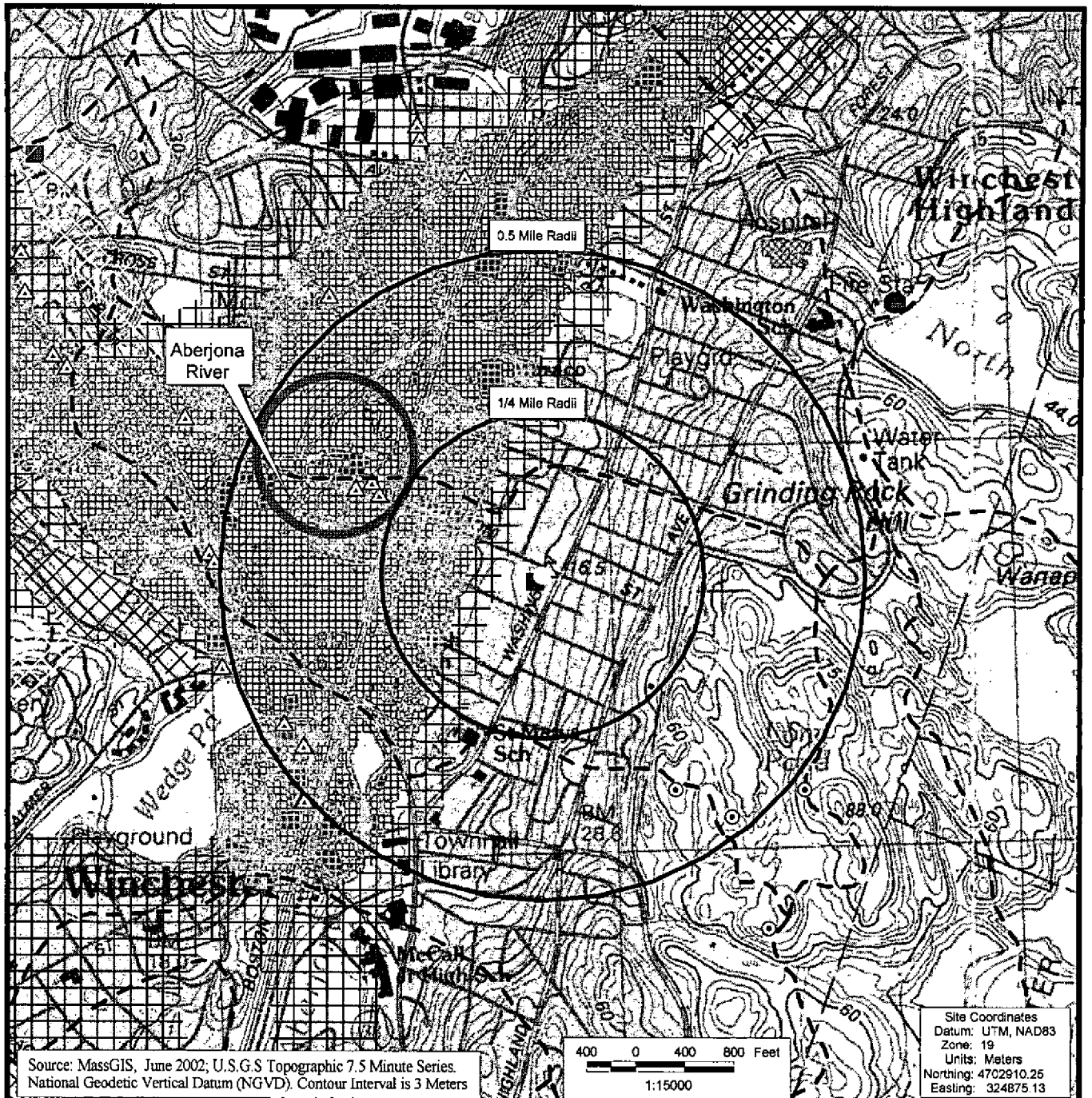
Bossi Realty Trust
12 Swanton Street
Winchester, MA

Sample ID	Sampling Date	PVC Casing Elevation (feet)	Depth to Water (feet)	Groundwater Elevation (feet)	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	m+p-Xylene (ug/L)	o-Xylene (ug/L)	Total Xylenes (ug/L)	MTBE (ug/L)	Naphthalene (by VPH) (ug/L)	Naphthalene (by EPH) (ug/L)	2-Methylnaphthalene (ug/L)	C ₅ -C ₈ Aliphatics (ug/L)	C ₉ -C ₁₂ Aliphatics (ug/L)	C ₉ -C ₁₀ Aromatics (ug/L)	C ₉ -C ₁₈ Aliphatics (ug/L)	C ₁₉ -C ₃₆ Aliphatics (ug/L)	C ₁₁ -C ₂₂ Aromatics (ug/L)
GW-1 Standard	---	---	---	---	5	1,000	700	NS	NS	10,000	70	20	20	10	400	4,000	200	4,000	5,000	200
GW-2 Standard	---	---	---	---	2,000	6,000	30,000	NS	NS	6,000	50,000	6,000	6,000	10,000	1,000	1,000	5,000	1,000	NS	50,000
GW-3 Standard	---	---	---	---	7,000	50,000	4,000	NS	NS	50,000	50,000	6,000	6,000	3,000	4,000	20,000	4,000	20,000	20,000	30,000
*MW-1	10/24/00	NM	13.70	---	11	40	37	NR	NR	138	16	BDL	2.3	1.4	1,400	340	440	BDL	BDL	BDL
	04/01/05	NM	10.87	---	11.4	12.4	26.8	50.8	9.6	60.4	BDL	BDL	BDL	BDL	753	159	300	BDL	BDL	BDL
*MW-3	10/24/00	NM	13.20	---	1,900	23,000	4,500	NR	NR	24,200	BDL	830	170	140	30,000	21,000	17,000	1,500	BDL	630
*MW-4	10/24/00	NM	13.34	---	1,900	41,000	6,200	NR	NR	32,000	3,500	1,100	280	170	47,000	29,000	18,000	1,300	BDL	800
	04/01/05	NM	10.43	---	BDL	1,950	4,480	17,500	7,640	25,140	BDL	1,090	379	108	22,400	5,830	16,200	4,200	BDL	400
B101-MW	04/01/05	100.00	9.99	90.01	BDL	7.2	58.5	212	12.3	224.3	BDL	92.4	44.5	96.3	1,110	1,110	4,230	300	BDL	600
B102B-MW	04/01/05	100.97	11.35	89.62	230	1,600	680	2,560	1,910	4,470	87.4	368	114	30.6	4,620	2,250	6,910	400	BDL	500
B103-MW	04/01/05	101.04	10.39	90.65	168	4,560	1,790	6,090	2,480	8,570	BDL	392	165	105	17,400	2,560	8,950	2,400	BDL	600
B104-MW	04/01/05	101.68	10.77	90.91	36.8	338	843	2,080	780	2,860	38.6	181	88.1	48.3	8,890	1,520	3,750	400	BDL	400

LEGEND

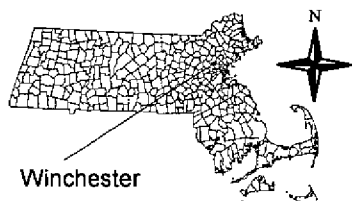
- BDL Below Laboratory Detection Limits
- NS No Standard Published
- NM Not Measured
- NR Not Reported
- * Monitoring well installed by previous consultant

Bolded values indicate concentrations above site applicable standards.
Note: All concentrations and standards reported in ug/L.



Legend

- 12 Swanton Street, Winchester, MA
- DEP Tier Classified Oil or Hazardous Material Sites
- DEP Underground Storage Tank
- Certified Vernal Pools
- NHESP-Estimated Habitats for Rare Wildlife. ("NHESP 1999-2001 Estimated Habitats of Rare Wildlife: Use with Wetlands Protection Act")
- Solid Waste Facility
- DEP Approved Zone IIs
- Interim Wellhead Protection Area
- ACEC
- Public Water Supply Wells
 - Community Groundwater Well
 - Community Surface Water Well
 - Proposed Well
 - Non Community Well
- Non-potential Drinking Water Source Area
 - High Yield (>300 gpm)
 - Medium Yield (100-300 gpm)
 - Low Yield (<50 gpm)
- Potential Drinking Water Source Area
 - High Yield (>300 gpm)
 - Medium Yield (100-300 gpm)
 - Low Yield (<50 gpm)
 - Protected Open Space
 - Major Basin/Subbasin



SITE LOCUS MAP
Phase III Remedial Action Plan
Bossi Realty Trust
12 Swanton Street
Winchester, MA

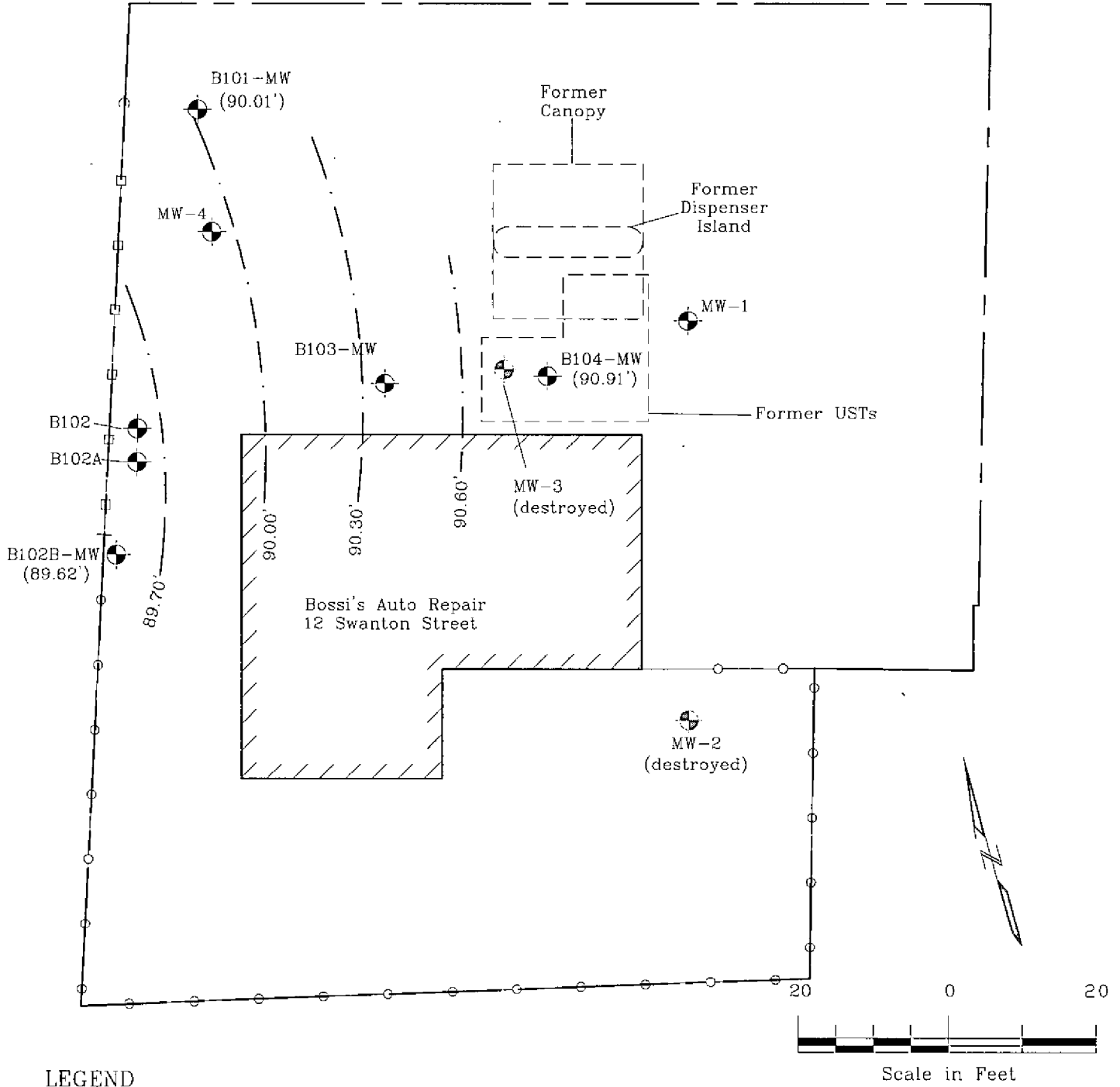
REM SERU Remediation & Environmental Management Services, Inc.
 35 Winthrop Street
 Winchester, MA 01890
 Phone: (781) 721-4455
 Fax: (781) 721-4456

July 2005

Figure 1

E:\MASS-GIS-DATA\Site-locus-maps\Bossi\12swanton_sl.apr

Swanton Street



LEGEND

- B101-MW Monitoring Well
- B102 Soil Boring
- MW-1 Monitoring Well (previously installed)
- Property Boundary
- Fence
- Guard Rail
- (89.62') Groundwater Elevation
- 90.00' Groundwater Contour

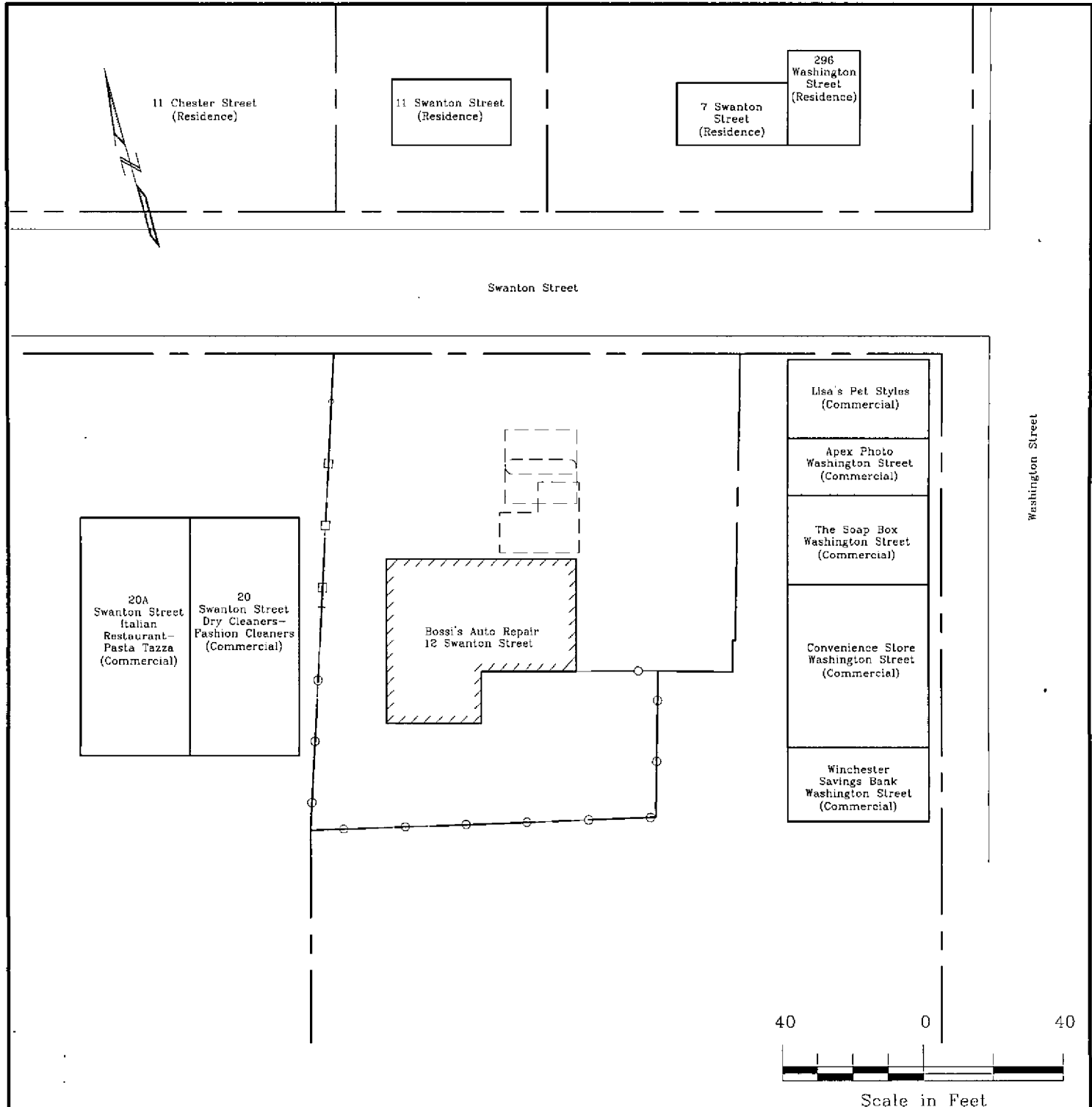
**SITE MAP/
GROUNDWATER CONTOUR MAP**

Phase III Remedial Action Plan
Bossi Realty Trust
12 Swanton Street
Winchester, MA

REM SERU
 REMEDIATION & ENVIRONMENTAL
 MANAGEMENT SERVICES, INC.
 35 WINTHROP STREET
 WINCHESTER, MASSACHUSETTS
 Phone: (781) 721-4455 Fax: (781) 721-4456

Figure 2
Project: 24124-1
Date: July 2005
Scale: 1" = 20'
Approved by: TPS/RL
Designed by: JFD

Source: "Site Plan and Groundwater Contours" Web Engineering Associates, Inc., April 3, 2001.



LEGEND

- Edge of Pavement
- - - Property Boundary
- — ○ Fence
- — □ → Guard Rail

ABUTTERS SITE PLAN

Phase III Remedial Action Plan
 Bossi Realty Trust
 12 Swanton Street
 Winchester, MA

REM SERU
 REMEDIATION & ENVIRONMENTAL
 MANAGEMENT SERVICES, INC.
 35 WINTHROP STREET
 WINCHESTER, MASSACHUSETTS
 Phone: (781) 721-4455 Fax: (781) 721-4458

Figure 3
Project: 24124-1
Date: July 2005
Scale: 1" = 40'
Approved by: TPS/RL
Designed by: JFD

Disclaimer: Property boundaries are approximate, to be used as a general guide only.
 Source: "Assessor's Tax Map 56 and 58" Town of Winchester, 2005

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TEST BORING LOG

SHEET 1

Soil Exploration Corp.

Geotechnical Drilling
Groundwater Monitor Well
148 Pioneer Drive
Leominster, MA 01453
978 840-0391

Web Engineering

Site: **Bossi's Service Center**

12 Swanton Street
Winchester, MA

BORING B-MW-1

PROJECT NO. 00-1028

DATE: October 19, 2000

Ground Elevation:

Date Started: October 13, 2000

Date Finished: October 13, 2000

Driller: TF

Soil Engineer/Geologist:

GROUNDWATER OBSERVATIONS

DATE	DEPTH	CASING	STABILIZATION

Depth Ft.	Casing bl/ft.	Sample				Strata	Visual Identification of Soil and / or Rock Sample
		No.	Pen/Rec	Depth	Blows/6"		
1		1		0'6"-2'6"	22-25-16-19	0'3"	Asphalt - 0'3" Dense, light brown and gray, fine sand, some medium to coarse sand, trace gravel, trace inorganic silt. Fill
5		2		5'0"-7'0"	6-8-25-37	8'0"	
10		3		10'0"-11'4"	37-80-120/9"		Very dense, gray, dry to wet, fine to medium sand, some fine gravel, some inorganic silt, some cobbles.
15		4		15'0"-17'0"	16-15-11-15		
20						19'0"	Refusal at 19'0" with hollow stem auger. Water level at 14'0" upon completion. Set well point at 19'0".
25							
30							
35							

Notes: Hollow Stem Auger Size - 4-1/4"

Cohesionless: 0 - 4 V. Loose, 4 - 10 Loose, 10 - 30 M Dense, 30 - 50 Dense, 50+ V Dense.	Trace 0 to 10% Little 10 to 20%	ID SIZE (IN)	CASING	SAMPLE	CORE TYPE
Cohesive: 0 - 2 V Soft, 2 - 4 Soft, 4 - 8 M Stiff 8 - 15 Stiff, 15 - 30 V. Stiff 30 + Hard.	Some 20 to 35% And 35% to 50%	HAMMER WGT (LB)		140 Lb	
		HAMMER FALL (IN)		30"	

TEST BORING LOG

SHEET 2

Soil Exploration Corp. Geotechnical Drilling Groundwater Monitor Well 148 Pioneer Drive Leominster, MA 01453 978 840-0391	Web Engineering Site: Bossi's Service Center 12 Swanton Street Winchester, MA	BORING B-MW-2 PROJECT NO. 00-1028 DATE: October 19, 2000
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Ground Elevation: Date Started: October 13, 2000 Date Finished: October 13, 2000 Driller: TF Soil Engineer/Geologist:	GROUNDWATER OBSERVATIONS <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;">DATE</th> <th style="width: 15%;">DEPTH</th> <th style="width: 15%;">CASING</th> <th style="width: 15%;">STABILIZATION</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table>	DATE	DEPTH	CASING	STABILIZATION												
DATE	DEPTH	CASING	STABILIZATION														

Depth Ft.	Casing bl/ft	Sample		Strata	Visual Identification of Soil and / or Rock Sample	
		No.	Pen/Rec			
1		1		0'0"-2'0"	Taken from flight 10-3-3-2	Loose, gray, dry, fine to medium sand, some coarse sand, trace inorganic silt.
5						
10						Refusal at 8'6" with hollow stem auger.
15						
20						
25						
30						
35						

Notes: Hollow Stem Auger Size - 4-1/4"

Cohesionless: 0 - 4 V. Loose, 4 - 10 Loose, 10 - 30 M Dense, 30 - 50 Dense, 50+ V Dense.	Trace 0 to 10% Little 10 to 20% Some 20 to 35% And 35% to 50%	CASING ID SIZE (IN) HAMMER WGT (LB) HAMMER FALL (IN)	SAMPLE S/S. 140 Lb 30"	CORE TYPE
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TEST BORING LOG

SHEET 4

Soil Exploration Corp. Geotechnical Drilling Groundwater Monitor Well 148 Pioneer Drive Leominster, MA 01453 978 840-0391	Web Engineering Site: Bossi's Service Center 12 Swanton Street Winchester, MA	BORING B-2-A PROJECT NO. 00-1028 DATE: October 19, 2000
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Ground Elevation: Date Started: October 13, 2000 Date Finished: October 13, 2000 Driller: TF Soil Engineer/Geologist:	GROUNDWATER OBSERVATIONS <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;">DATE</th> <th style="width: 15%;">DEPTH</th> <th style="width: 15%;">CASING</th> <th style="width: 15%;">STABILIZATION</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table>	DATE	DEPTH	CASING	STABILIZATION												
DATE	DEPTH	CASING	STABILIZATION														

Depth Ft	Casing bl/ft	Sample				Strata	Visual Identification of Soil and / or Rock Sample
		No.	Pen/Rec	Depth	Blows/6"		
1							Very dense, gray, fine sand, medium to coarse sand, fine to coarse gravel, cobbles and boulders, glacial till. Refusal at 16'6" with hollow stem auger. Water level at 13'0" upon completion. Set well point at 16'6".
5							
10		1		10'0"-12'0"	70-71-81-96		
15		2		15'0"-16'0"	38-105		
20							
25							
30							
35							

Notes: Hollow Stem Auger Size - 4-1/4"

Cohesionless: 0 - 4 V. Loose, 4 - 10 Loose, 10 - 30 M Dense, 30 - 50 Dense, 50+ V Dense. Cohesive: 0 - 2 V Soft, 2 - 4 Soft, 4 - 8 M Stiff 8 - 15 Stiff, 15 - 30 V. Stiff, 30 + Hard.	Trace 0 to 10% Little 10 to 20% Some 20 to 35% And 35% to 50%	ID SIZE (IN) HAMMER WGT (LB) HAMMER FALL (IN)	CASING SAMPLE CORE TYPE	S/S 140 Lb 30"
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TEST BORING LOG

SHEET 5

Soil Exploration Corp. Geotechnical Drilling Groundwater Monitor Well 148 Pioneer Drive Leominster, MA 01453 978 840-0391	Web Engineering Site: Bossi's Service Center 12 Swanton Street Winchester, MA	BORING B-3 PROJECT NO. 00-1028 DATE: October 19, 2000
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Ground Elevation: Date Started: October 13, 2000 Date Finished: October 13, 2000 Driller: TF Soil Engineer/Geologist:	GROUNDWATER OBSERVATIONS <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;">DATE</th> <th style="width: 15%;">DEPTH</th> <th style="width: 15%;">CASING</th> <th style="width: 15%;">STABILIZATION</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table>	DATE	DEPTH	CASING	STABILIZATION												
DATE	DEPTH	CASING	STABILIZATION														

Depth Ft.	Casing bl/ft	Sample			Blows/6"	Strata	Visual Identification of Soil and / or Rock Sample
		No.	Pen/Rec	Depth			
1		1		0'0"-2'0"	Taken from Flight		Loose, gray, dry, fine sand, some medium to coarse sand, little fine gravel, little inorganic silt. Fill Very dense, gray, glacial till.
5		2		5'0"-7'0"	4-3-3-2	8'0"	
10		3		10'0"-12'0"	35-52-68-85		
15		4		15'0"-16'5"	10-32-120/5"	18'0"	
20							Refusal at 18'0" with hollow stem auger. Water level at 13'6" upon completion. Set well point at 18'0".
25							
30							
35							

Notes: Hollow Stem Auger Size - 4-1/4"

Cohesionless: 0 - 4 V. Loose, 4 - 10 Loose, 10 - 30 M Dense, 30 - 50 Dense, 50+ V Dense Cohesive: 0 - 2 V Soft, 2 - 4 Soft, 4 - 8 M Stiff 8 - 15 Stiff, 15 - 30 V. Stiff, 30 + Hard.	Trace 0 to 10% Little 10 to 20% Some 20 to 35% And 35% to 50%	ID SIZE (IN) HAMMER WGT (LB) HAMMER FALL (IN)	CASING SAMPLE CORE TYPE	S/S 140 Lb 30"
---	--	---	-------------------------------	----------------------

TEST BORING LOG

SHEET 3

Soil Exploration Corp.

Geotechnical Drilling
Groundwater Monitor Well
148 Pioneer Drive
Leominster, MA 01453
978 840-0391

Web Engineering

Site: **Bossi's Service Center**

12 Swanton Street
Winchester, MA

BORING B-MW-# 4

PROJECT NO. 00-1028

DATE: October 19, 2000

Ground Elevation:

Date Started: October 13, 2000

Date Finished: October 13, 2000

Driller: TF

Soil Engineer/Geologist:

GROUNDWATER OBSERVATIONS

DATE	DEPTH	CASING	STABILIZATION

Depth Ft.	Casing bl/ft	Sample				Strata	Visual Identification of Soil and / or Rock Sample
		No.	Pen/Rec	Depth	Blows/6"		
1						0'3"	Asphalt - 0'3"
							Fill
							Glacial till
5						7'0"	Refusal at 7'0" with hollow stem auger.
10							Note: 2 nd attempt refusal at 16'5", then set well. Water level at 13'6" upon completion. Set well point at 16'5"
15							
20							
25							
30							
35							

Notes: Hollow Stem Auger Size - 4-1/4"

Cohesionless: 0 - 4 V. Loose, 4 - 10 Loose, 10 - 30 M Dense, 30 - 50 Dense, 50+ V Dense.	Trace	0 to 10%		CASING	SAMPLE	CORE TYPE
Cohesive: 0 - 2 V Soft, 2 - 4 Soft, 4 - 8 M Stiff 8 - 15 Stiff, 15 - 30 V. Stiff, 30 + Hard.	Little	10 to 20%		ID SIZE (IN)	S/S	
	Some	20 to 35%		HAMMER WGT (LB)	140 Lb	
	And	35% to 50%		HAMMER FALL (IN)	30"	

BORING LOCATION: See Plan
 Ground Elevation (Ft.): _____ Datum: _____
 Ground Water El. (Ft.): _____ Date: _____

Date Start: 2/28/05
 Date Finish: 2/28/05
 Drilled By: S Garside
 Logged By: TPS

TEST BORING LOG

PAGE 1 of 1 B101

DEPTH FT.	SAMPLE				REMARKS	PID Back/Read	SOIL AND ROCK DESCRIPTIONS
	Type & No.	Blows /6 In.	Pen In.	Rec In.			
							- ASPHALT - NO SAMPLES
5	S1	28 ? 48	24	14		0/0	tan medium to fine SAND, little coarse sand, little silt
	S2	? ?	10	18		0/0	same as above
10	S3	37 38 83 33	24	10		0/0.4	auger pasted obstruction dense tan, medium to fine SAND, little gravel, little silt, trace clay
							augered to 13 ft.
15	S4	24 30 35 40	24	15		0/376	dense, gray coarse to fine SAND, some silt, little clay, little gravel (mild petro odor)
	S5	9 14 47 50	18			0/156	15-16' gray coarse to fine SAND, some fine gravel (mild petro odor) 16-16.5' very dense brown fine SAND trace gravel (no petro)
							advance auger to 16.2 ft. - met with refusal Bottom of Exploration at 16.5 ft.
20							
25							
30							

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Blows per 6 In. of a 140 Lb. Hammer falling 30 In. to Drive a 1-3/8 Inch ID Split Spoon Sampler.
 Pen—Length of Sampler or Core Barrel Penetration
 Rec—Length of Recovered Sample
 RQD—Length of Sound Core Sections >4 In./Length Cored %
 S—Split Spoon Sample
 JHS—Jar Headspace Screening for VOCs with PID with 11.7eV Bulb (as benzene)
 ▽ Ground Water

NOTES:
 - Drilling rig is : Mobil B53
 4 1/4 HSA
 1 7/8 Split Spoon
 140 lb Hammer

Bossi's
 12 Swanton Street
 Winchester, MA

REMEDICATION & ENVIRONMENTAL MANAGEMENT SERVICES, INC.
 Project No: 24124-1

BORING LOCATION: <u>See Plan</u>		Date Start: <u>2/28/05</u>	TEST BORING LOG
Ground Elevation (Ft): _____	Datum: _____	Date Finish: <u>2/28/05</u>	
Ground Water El. (Ft.): _____	Date: _____	Drilled By: <u>S. Garside</u>	
		Logged By: <u>TPS</u>	
PAGE 1 of 1		B102	

DEPTH FT.	SAMPLE				REMARKS	PID Back/Read	SOIL AND ROCK DESCRIPTIONS
	Type & No.	Blows /6 In.	Pen In.	Rec In.			
5							- ASPHALT - auger to 3 ft. - met with refusal, moved rig to 5 ft. to the southwest
10							NO SAMPLES TO 10 ft.
15	S1	49 75 78 95	24	22		0/0	very dense fine SAND, little coarse to medium sand, little clay, little gravel 6" denser and exhibit faint petro color. advance auger to 12 ft. and meet with refusal move boring to 10 ft. to the south - advance to 12 ft. with HSA and drill past the cobble and meet with refusal on obstruction at 11.5 ft.
20							Auger Refusal at 11.5 ft. Bottom of Exploration at 12 ft.
25							
30							

Blows per 6 In. of a 140 Lb. Hammer falling
30 In. to Drive a 1-3/8 Inch ID Split
Spoon Sampler.
Pen—Length of Sampler or Core Barrel Penetration
Rec—Length of Recovered Sample
RQD—Length of Sound Core Sections
>4 In./Length Cored %
S—Split Spoon Sample
JHS—Jar Headspace Screening for VOCs with
PID with 11.7eV Bulb (as benzene)
∇ Ground Water

NOTES:
- Drilling rig is : Mobil B53
4 1/4 HSA
1 7/8 Split Spoon
140 lb Hammer

Bossi's 12 Swanton Street Winchester, MA	REMEDICATION & ENVIRONMENTAL MANAGEMENT SERVICES, INC. Project No: 24124-1
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BORING LOCATION: See Plan
 Ground Elevation (Ft): _____ Datum: _____
 Ground Water El. (Ft.): _____ Date: _____

Date Start: 2/28/05
 Date Finish: 2/28/05
 Drilled By: S. Garside
 Logged By: TPS

TEST BORING LOG
 PAGE 1 of 1
 B103

DEPTH FT.	SAMPLE				REMARKS	PID Back/Read	SOIL AND ROCK DESCRIPTIONS
	Type & No.	Blows /6 In.	Pen In.	Rec. In.			
5							- ASPHALT -
10							NO SAMPLES augers to 13 ft. petro odor on drill cuttings/auger returns at 13 ft.
15	S1	13 19 24 35				0/520	gray to black silty fine SAND, little clay
20							Auger Refusal at 15 ft. Bottom of Exploration at 15 ft.
25							
30							

Blows per 6 In. of a 140 Lb. Hammer falling 30 In. to Drive a 1-3/8 inch ID Split Spoon Sampler.
 Pen—Length of Sampler or Core Barrel Penetration
 Rec—Length of Recovered Sample
 RQD—Length of Sound Core Sections >4 In./Length Cored %
 S—Split Spoon Sample
 JHS—Jar Headspace Screening for VOCs with PID with 11.7eV Bulb (as benzene)
 ▽ Ground Water

NOTES:
 - Drilling rig is : Mobil B53
 4 1/4 HSA
 1 7/8 Split Spoon
 140 lb Hammer

Bossi's
 12 Swanton Street
 Winchester, MA

REMEDICATION & ENVIRONMENTAL
 MANAGEMENT SERVICES, INC.
 Project No: 24124-1

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BORING LOCATION: <u>See Plan</u>		Date Start: <u>2/28/05</u>	TEST BORING LOG
Ground Elevation (Ft.): _____	Datum: _____	Date Finish: <u>2/28/05</u>	
Ground Water El. (Ft.): _____	Date: _____	Drilled By: <u>S Garside</u>	
		Logged By: <u>TPS</u>	
PAGE 1 of 1		8104	

DEPTH FT.	SAMPLE				REMARKS	PID Back/Read	SOIL AND ROCK DESCRIPTIONS
	Type & No.	Blows /6 In.	Pen In.	Rec In.			
5							- ASPHALT -
10							NO SAMPLES
15	S1	13 19 24 35				0/72.6	dense black silty fine SAND (petro odor)
15	S2	13 29 50<1"	18			0/144.9	gray silty fine SAND, little coarse to medium sand, little gravel, trace clay
20							Bottom of Exploration at 16 ft.
25							
30							

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Blows per 6 In. of a 140 Lb. Hammer falling
30 In. to Drive a 1-3/8 Inch ID Split
Spoon Sampler.

Pen—Length of Sampler or Core Barrel Penetration

Rec—Length of Recovered Sample

RQD—Length of Sound Core Sections
>4 In./Length Cored %

S—Split Spoon Sample

JHS—Jar Headspace Screening for VOCs with
PID with 11.7eV Bulb (as benzene)

Ground Water

NOTES:	
- Drilling rig is : Mobil B53 4 1/4 HSA 1 7/8 Split Spoon 140 lb Hammer	
Bossi's 12 Swanton Street Winchester, MA	REMEDIATION & ENVIRONMENTAL MANAGEMENT SERVICES, INC. Project No: 24124-1

GROUND WATER OBSERVATION WELL REPORT

PROJECT	Bossi's	PROJECT NO.	24124-1
LOCATION	12 Swanton Street	BORING NO.	B101-MW
CLIENT	Bossi Realty Trust	ELEVATION -	
CONTRACTOR	Expedition Drilling	TOP OF PVC	100'
OBSERVED BY	TPS	DATE	02/25/05
CHECKED BY	TPS	LOCATION	See Plan

DEPTH	0.0 ft	GROUND EL.	ft (approximate)
GENERAL SOIL CONDITIONS (not to scale)		SURFACE SEAL	
		TYPE (indicate any additional seals)	Cement Grout
		THICKNESS	0.5 ft.
		SURFACE CASING	
		TYPE	Roadway Box
		INNER DIAMETER	3 in.
		DEPTH OF BOTTOM	1 ft.
		RISER PIPE	
		TYPE	Sch. 40 PVC
		Size	2 in. nominal
	BACKFILL AROUND RISER PIPE	Borehole Cuttings	
	BOREHOLE/WELL SEAL		
	TYPE	-	
	DEPTH OF TOP	-	
	DEPTH OF BOTTOM	-	
	TYPE	Bentonite	
	DEPTH OF TOP	4.3 ft.	
	DEPTH OF BOTTOM	5.3 ft.	
	SCREENED SECTION		
	TYPE	Sch. 40 PVC	
	ID and OD	2 in. nominal	
	DESCRIBE OPENINGS	0.010 in.	
	DEPTH OF TOP OF SCREEN	0.3 ft.	
	BACKFILL AROUND SCREEN	Silica Sand	
	DEPTH OF BOTTOM OF SCREEN	16.3 ft.	
	DEPTH OF TOP OF SAND COLUMN	5.3 ft.	
	DEPTH OF BOTTOM OF SAND COLUMN	16.3 ft.	
	TYPE OF BACKFILL BELOW PERVIOUS SECTION	-	
	BOREHOLE		
	DIAMETER	8 in.	
	DEPTH OF BOTTOM	16.3 ft.	

NOTES: 1. Survey Datum:

**REMEDICATION & ENVIRONMENTAL
MANAGEMENT SERVICES, INC.**

GROUND WATER OBSERVATION WELL REPORT			
PROJECT	Bossi's	PROJECT NO.	24124-1
LOCATION	12 Swanton Street	BORING NO.	B102B-MW
CLIENT	Bossi Realty Trust	ELEVATION -	
CONTRACTOR	Expedition Drilling	DRILLER	S. Garside
OBSERVED BY	TPS	DATE	02/25/05
CHECKED BY	TPS	TOP OF PVC	100.97'
		LOCATION	See Plan

DEPTH	0.0 ft	GROUND EL.	ft (approximate)
GENERAL SOIL CONDITIONS (not to scale)		SURFACE SEAL	
		TYPE (indicate any additional seals)	Cement Grout
		THICKNESS	0.5 ft.
		SURFACE CASING	
		TYPE	Roadway Box
		INNER DIAMETER	3 in.
		DEPTH OF BOTTOM	10 in.
		RISER PIPE	
		TYPE	Sch. 40 PVC
		Size	2 in. nominal
		BACKFILL AROUND RISER PIPE	Borehole Cuttings
		BOREHOLE/WELL SEAL	
	TYPE	Bentonite	
	DEPTH OF TOP	5.25 ft.	
	DEPTH OF BOTTOM	6.25 ft.	
	TYPE	-	
	DEPTH OF TOP	-	
	DEPTH OF BOTTOM	-	
	SCREENED SECTION		
	TYPE	Sch. 40 PVC	
	ID and OD	2 in. nominal	
	DESCRIBE OPENINGS	0.010 in.	
	DEPTH OF TOP OF SCREEN	7.25 ft.	
	BACKFILL AROUND SCREEN	Silica Sand	
	DEPTH OF BOTTOM OF SCREEN	12.25 ft.	
	DEPTH OF TOP OF SAND COLUMN	6.25 ft.	
	DEPTH OF BOTTOM OF SAND COLUMN	12.25 ft.	
	TYPE OF BACKFILL BELOW PERVIOUS SECTION	-	
	BOREHOLE		
	DIAMETER	8 in.	
	DEPTH OF BOTTOM	12.25 ft.	

NOTES: 1. Survey Datum:

REMEDICATION & ENVIRONMENTAL MANAGEMENT SERVICES, INC.

GROUND WATER OBSERVATION WELL REPORT

PROJECT	Bossi's	PROJECT NO.	24124-1
LOCATION	12 Swanton Street	BORING NO.	B103-MW
CLIENT	Bossi Realty Trust	ELEVATION -	
CONTRACTOR	Expedition Drilling	TOP OF PVC	101.04'
OBSERVED BY	TPS	DRILLER	S. Garside
CHECKED BY	TPS	DATE	02/25/05
		LOCATION	See Plan

DEPTH	0.0 ft	GROUND EL.	ft (approximate)
GENERAL SOIL CONDITIONS (not to scale)		SURFACE SEAL	
		TYPE (indicate any additional seals)	Cement Grout
		THICKNESS	0.5 ft.
		SURFACE CASING	
		TYPE	Roadway Box
		INNER DIAMETER	3 in.
		DEPTH OF BOTTOM	10 in.
		RISER PIPE	
		TYPE	Sch. 40 PVC
		Size	2 in. nominal
		BACKFILL AROUND RISER PIPE	Borehole Cuttings
		BOREHOLE/WELL SEAL	
		TYPE	Bentonite
		DEPTH OF TOP	3.5 ft.
		DEPTH OF BOTTOM	4.5 ft.
	TYPE	-	
	DEPTH OF TOP	-	
	DEPTH OF BOTTOM	-	
	SCREENED SECTION		
	TYPE	Sch. 40 PVC	
	ID and OD	2 in. nominal	
	DESCRIBE OPENINGS	0.010 in.	
	DEPTH OF TOP OF SCREEN	5.5 ft.	
	BACKFILL AROUND SCREEN	Silica Sand	
	DEPTH OF BOTTOM OF SCREEN	15.5 ft.	
	DEPTH OF TOP OF SAND COLUMN	4.5 ft.	
	DEPTH OF BOTTOM OF SAND COLUMN	15.5 ft.	
	TYPE OF BACKFILL BELOW PERVIOUS SECTION	-	
	BOREHOLE		
	DIAMETER	8 in.	
	DEPTH OF BOTTOM	15.5 ft.	

NOTES: 1. Survey Datum:

**REMEDICATION & ENVIRONMENTAL
MANAGEMENT SERVICES, INC.**

GROUND WATER OBSERVATION WELL REPORT

PROJECT	Bossi's	PROJECT NO.	24124-1
LOCATION	12 Swanton Street	BORING NO.	B104-MW
CLIENT	Bossi Realty Trust	ELEVATION -	
CONTRACTOR	Expedition Drilling	TOP OF PVC	101.68'
OBSERVED BY	TPS	DRILLER	S. Garside
CHECKED BY	TPS	DATE	02/25/05
		LOCATION	See Plan

DEPTH	0.0 ft	GROUND EL. ft (approximate)	
GENERAL SOIL CONDITIONS (not to scale)		SURFACE SEAL	
		TYPE (indicate any additional seals)	Cement Grout
		THICKNESS	0.5 ft.
		SURFACE CASING	
		TYPE	Roadway Box
		INNER DIAMETER	3 in.
		DEPTH OF BOTTOM	10 in.
		RISER PIPE	
		TYPE	Sch. 40 PVC
		Size	2 in. nominal
	BACKFILL AROUND RISER PIPE	Borehole Cuttings	
	BOREHOLE/WELL SEAL		
	TYPE	Bentonite	
	DEPTH OF TOP	4 ft.	
	DEPTH OF BOTTOM	5 ft.	
	TYPE	-	
	DEPTH OF TOP	-	
	DEPTH OF BOTTOM	-	
	SCREENED SECTION		
	TYPE	Sch. 40 PVC	
	ID and OD	2 in. nominal	
	DESCRIBE OPENINGS	0.010 in.	
	DEPTH OF TOP OF SCREEN	6 ft.	
	BACKFILL AROUND SCREEN	Silica Sand	
	DEPTH OF BOTTOM OF SCREEN	16 ft.	
	DEPTH OF TOP OF SAND COLUMN	5 ft.	
	DEPTH OF BOTTOM OF SAND COLUMN	16 ft.	
	TYPE OF BACKFILL BELOW PERVIOUS SECTION	-	
	BOREHOLE		
	DIAMETER	8 in.	
	DEPTH OF BOTTOM	16 ft.	

NOTES: 1. Survey Datum:

**REMEDICATION & ENVIRONMENTAL
MANAGEMENT SERVICES, INC.**

GROUNDWATER ANALYTICAL

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

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

October 30, 2000

Mr. Steve Rumba
WEB Engineering
106 Longwater Drive
Norwell, MA 02061

Project: Bossi's Service Center/00-E-033
Lab ID: 36733
Sampled: 10-13-00

Dear Steve:

Enclosed are the Extractable Petroleum Hydrocarbons and Volatile Petroleum Hydrocarbons 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/pmb
Enclosures

GROUNDWATER ANALYTICAL

Massachusetts DEP EPH Method Extractable Petroleum Hydrocarbons by GC/FID

Field ID:	MW-1 (10'-12')	Laboratory ID:	36733-01
Project:	Bossi's Service Center/00-E-033	QC Batch ID:	EP-1037-M
Client:	WEB Engineering	Sampled:	10-13-00
Container:	250 mL Glass	Received:	10-16-00
Preservation:	Cool	Extracted:	10-19-00
Matrix:	Soil	Analyzed:	10-26-00
% Moisture:	8	Dilution Factor:	Aliphatic: 1 Aromatic: 1

EPH Ranges	Concentration	Units	Reporting Limit
n-C9 to n-C18 Aliphatic Hydrocarbons †	BRL	mg/Kg	31
n-C19 to n-C36 Aliphatic Hydrocarbons †	BRL	mg/Kg	31
n-C11 to n-C22 Aromatic Hydrocarbons † ◊	BRL	mg/Kg	31
Unadjusted n-C11 to n-C22 Aromatic Hydrocarbons †	BRL	mg/Kg	31

CAS Number	Target Analytes	Concentration	Units	Reporting Limit
91-20-3	Naphthalene	BRL	mg/Kg	0.51
91-57-6	2-Methylnaphthalene	BRL	mg/Kg	0.51
85-01-8	Phenanthrene	BRL	mg/Kg	0.51
83-32-9	Acenaphthene	BRL	mg/Kg	0.51

QC Surrogate Compounds	Recovery	QC Limits	
Fractionation:	2-Fluorobiphenyl	95 %	40 - 140 %
	2-Bromonaphthalene	83 %	40 - 140 %
Extraction:	Chloro-octadecane	73 %	40 - 140 %
	ortho-Terphenyl	76 %	40 - 140 %

QA/QC Certification	
1. Were all QA/QC procedures required by the method followed?	Yes
2. Were all performance/acceptance standards for the required QA/QC procedures achieved?	Yes
3. Were any significant modifications made to the method, as specified in Section 11.3.1.1?	Yes

Method non-conformances indicated above are detailed below on this data report, or in the accompanying project narrative and project quality control report. Release of this data is authorized by the accompanying signed project cover letter. The accompanying cover letter, project narrative and quality control report are considered part of this data report.

Method Reference: Method for the Determination of Extractable Petroleum Hydrocarbons, MA DEP (1998). Results are calculated on a dry weight basis. Method modified by use of microwave accelerated solvent extraction technique.

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.

† Hydrocarbon range data excludes concentrations of any surrogate(s) and/or internal standards eluting in that range.

◊ n-C11 to n-C22 Aromatic Hydrocarbons range data excludes the method target analyte concentrations.

GROUNDWATER ANALYTICAL

Massachusetts DEP EPH Method Extractable Petroleum Hydrocarbons by GC/FID

Field ID:	MW-2 (10'-12')	Laboratory ID:	36733-02
Project:	Bossi's Service Center/00-E-033	QC Batch ID:	EP-1037-M
Client:	WEB Engineering	Sampled:	10-13-00
Container:	250 mL Glass	Received:	10-16-00
Preservation:	Cool	Extracted:	10-19-00
Matrix:	Soil	Analyzed:	10-26-00
% Moisture:	10	Dilution Factor:	Aliphatic: 1 Aromatic: 1

EPH Ranges	Concentration	Units	Reporting Limit
n-C9 to n-C18 Aliphatic Hydrocarbons †	BRL	mg/Kg	31
n-C19 to n-C36 Aliphatic Hydrocarbons †	BRL	mg/Kg	31
n-C11 to n-C22 Aromatic Hydrocarbons †‡	BRL	mg/Kg	31
Unadjusted n-C11 to n-C22 Aromatic Hydrocarbons †	BRL	mg/Kg	31

CAS Number	Target Analytes	Concentration	Units	Reporting Limit
91-20-3	Naphthalene	BRL	mg/Kg	0.52
91-57-6	2-Methylnaphthalene	BRL	mg/Kg	0.52
85-01-8	Phenanthrene	BRL	mg/Kg	0.52
83-32-9	Acenaphthene	BRL	mg/Kg	0.52

QC Surrogate Compounds	Recovery	QC Limits
Fractionation: 2-Fluorobiphenyl	91 %	40 - 140 %
2-Bromonaphthalene	88 %	40 - 140 %
Extraction: Chloro-octadecane	79 %	40 - 140 %
ortho-Terphenyl	80 %	40 - 140 %

QA/QC Certification	
1. Were all QA/QC procedures required by the method followed?	Yes
2. Were all performance/acceptance standards for the required QA/QC procedures achieved?	Yes
3. Were any significant modifications made to the method, as specified in Section 11.3.1.1?	Yes
Method non-conformances indicated above are detailed below on this data report, or in the accompanying project narrative and project quality control report. Release of this data is authorized by the accompanying signed project cover letter. The accompanying cover letter, project narrative and quality control report are considered part of this data report.	

Method Reference: Method for the Determination of Extractable Petroleum Hydrocarbons, MA DEP (1998). Results are calculated on a dry weight basis. Method modified by use of microwave accelerated solvent extraction technique.

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.

† Hydrocarbon range data excludes concentrations of any surrogate(s) and/or internal standards eluting in that range.

◇ n-C11 to n-C22 Aromatic Hydrocarbons range data excludes the method target analyte concentrations.

GROUNDWATER ANALYTICAL

Massachusetts DEP EPH Method Extractable Petroleum Hydrocarbons by GC/FID

Field ID:	MW-3 (10'-12')	Laboratory ID:	36733-03
Project:	Boss's Service Center/00-E-033	QC Batch ID:	EP-1037-M
Client:	WEB Engineering	Sampled:	10-13-00
Container:	250 mL Glass	Received:	10-16-00
Preservation:	Cool	Extracted:	10-19-00
Matrix:	Soil	Analyzed:	10-26-00
% Moisture:	5	Dilution Factor:	Aliphatic: 1 Aromatic: 1

EPH Ranges	Concentration	Units	Reporting Limit
n-C9 to n-C18 Aliphatic Hydrocarbons †	BRL	mg/Kg	30
n-C19 to n-C36 Aliphatic Hydrocarbons †	BRL	mg/Kg	30
n-C11 to n-C22 Aromatic Hydrocarbons † ^o	BRL	mg/Kg	30
Unadjusted n-C11 to n-C22 Aromatic Hydrocarbons †	BRL	mg/Kg	30

CAS Number	Target Analytes	Concentration	Units	Reporting Limit
91-20-3	Naphthalene	BRL	mg/Kg	0.50
91-57-6	2-Methylnaphthalene	BRL	mg/Kg	0.50
85-01-8	Phenanthrene	BRL	mg/Kg	0.50
83-32-9	Acenaphthene	BRL	mg/Kg	0.50

QC Surrogate Compounds	Recovery	QC Limits
Fractionation: 2-Fluorobiphenyl	92 %	40 - 140 %
2-Bromonaphthalene	89 %	40 - 140 %
Extraction: Chloro-octadecane	75 %	40 - 140 %
ortho-Terphenyl	76 %	40 - 140 %

QA/QC Certification	
1. Were all QA/QC procedures required by the method followed?	Yes
2. Were all performance/acceptance standards for the required QA/QC procedures achieved?	Yes
3. Were any significant modifications made to the method, as specified in Section 11.3.1.1?	Yes
Method non-conformances indicated above are detailed below on this data report, or in the accompanying project narrative and project quality control report. Release of this data is authorized by the accompanying signed project cover letter. The accompanying cover letter, project narrative and quality control report are considered part of this data report.	

Method Reference: Method for the Determination of Extractable Petroleum Hydrocarbons, MA DEP (1998). Results are calculated on a dry weight basis. Method modified by use of microwave accelerated solvent extraction technique.

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.

† Hydrocarbon range data excludes concentrations of any surrogate(s) and/or internal standards eluting in that range.

o n-C11 to n-C22 Aromatic Hydrocarbons range data excludes the method target analyte concentrations.

GROUNDWATER ANALYTICAL

Massachusetts DEP EPH Method Extractable Petroleum Hydrocarbons by GC/FID

Field ID:	MW-4 (15'-15.5')	Laboratory ID:	36733-04
Project:	Bossi's Service Center/00-E-033	QC Batch ID:	EP-1037-M
Client:	WEB Engineering	Sampled:	10-13-00
Container:	250 mL Glass	Received:	10-16-00
Preservation:	Cool	Extracted:	10-19-00
Matrix:	Soil	Analyzed:	10-26-00
% Moisture:	11	Dilution Factor:	Aliphatic: 1 Aromatic: 1

EPH Ranges	Concentration	Units	Reporting Limit
n-C9 to n-C18 Aliphatic Hydrocarbons †	350	mg/Kg	33
n-C19 to n-C36 Aliphatic Hydrocarbons †	BRL	mg/Kg	33
n-C11 to n-C22 Aromatic Hydrocarbons †‡	120	mg/Kg	33
Unadjusted n-C11 to n-C22 Aromatic Hydrocarbons †	180	mg/Kg	33

CAS Number	Target Analytes	Concentration	Units	Reporting Limit
91-20-3	Naphthalene	29	mg/Kg	0.55
91-57-6	2-Methylnaphthalene	26	mg/Kg	0.55
85-01-8	Phenanthrene	BRL	mg/Kg	0.55
83-32-9	Acenaphthene	BRL	mg/Kg	0.55

QC Surrogate Compounds	Recovery	QC Limits	
Fractionation:	2-Fluorobiphenyl	94 %	40 - 140 %
	2-Bromonaphthalene	88 %	40 - 140 %
Extraction:	Chloro-octadecane	64 %	40 - 140 %
	ortho-Terphenyl	76 %	40 - 140 %

QA/QC Certification	
1. Were all QA/QC procedures required by the method followed?	Yes
2. Were all performance/acceptance standards for the required QA/QC procedures achieved?	Yes
3. Were any significant modifications made to the method, as specified in Section 11.3.1.1?	Yes
Method non-conformances indicated above are detailed below on this data report, or in the accompanying project narrative and project quality control report. Release of this data is authorized by the accompanying signed project cover letter. The accompanying cover letter, project narrative and quality control report are considered part of this data report.	

Method Reference: Method for the Determination of Extractable Petroleum Hydrocarbons, MA DEP (1998). Results are calculated on a dry weight basis. Method modified by use of microwave accelerated solvent extraction technique.

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.

† Hydrocarbon range data excludes concentrations of any surrogate(s) and/or internal standards eluting in that range.

◇ n-C11 to n-C22 Aromatic Hydrocarbons range data excludes the method target analyte concentrations.

GROUNDWATER ANALYTICAL

Massachusetts DEP VPH Method Volatile Petroleum Hydrocarbons by GC/PID/FID

Field ID:	MW-1 (10'-12')	Laboratory ID:	36733-05
Project:	Bossi's Service Center/00-E-033	QC Batch ID:	VG1-1140-E
Client:	WEB Engineering	Sampled:	10-13-00
Container:	60 mL Glass Vial	Received:	10-16-00
Preservation:	Methanol / Cool	Analyzed:	10-23-00
Matrix:	Soil	Dilution Factor:	1
% Moisture:	8		

VPH Ranges	Concentration	Units	Reporting Limit
n-C5 to n-C8 Aliphatic Hydrocarbons [†] ⊖	BRL	mg/Kg	1.0
n-C9 to n-C12 Aliphatic Hydrocarbons [†] ⊗	1.9	mg/Kg	1.0
n-C9 to n-C10 Aromatic Hydrocarbons [†]	BRL	mg/Kg	1.0
Unadjusted n-C5 to n-C8 Aliphatic Hydrocarbons [†]	BRL	mg/Kg	1.0
Unadjusted n-C9 to n-C12 Aliphatic Hydrocarbons [†]	3.1	mg/Kg	1.0

CAS Number	Target Analytes	Concentration	Units	Reporting Limit
1634-04-4	Methyl tert-butyl Ether [⊠]	BRL	mg/Kg	0.10
71-43-2	Benzene [⊠]	BRL	mg/Kg	0.10
108-88-3	Toluene [⊠]	BRL	mg/Kg	0.10
100-41-4	Ethylbenzene [‡]	BRL	mg/Kg	0.10
108-38-3 and 106-42-3	meta- Xylene and para- Xylene [‡]	0.13	mg/Kg	0.10
95-47-6	ortho- Xylene [‡]	BRL	mg/Kg	0.10
91-20-3	Naphthalene	BRL	mg/Kg	0.50

QC Surrogate Compounds	Recovery	QC Limits
2,5-Dibromotoluene (PID)	109 %	70 - 130 %
2,5-Dibromotoluene (FID)	129 %	70 - 130 %

QA/QC Certification	
1. Were all QA/QC procedures required by the method followed?	Yes
2. Were all performance/acceptance standards for the required QA/QC procedures achieved?	Yes
3. Were any significant modifications made to the method, as specified in Section 11.3.2.1?	No
Method non-conformances indicated above are detailed below on this data report, or in the accompanying project narrative and project quality control report. Release of this data is authorized by the accompanying signed project cover letter. The accompanying cover letter, project narrative and quality control report are considered part of this data report.	

Method Reference: Method for the Determination of Volatile Petroleum Hydrocarbons, MA DEP (1998). Results are calculated 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.
- † Hydrocarbon range data excludes concentrations of any surrogate(s) and/or internal standards eluting in that range.
- ⊖ n-C5 to n-C8 Aliphatic Hydrocarbons range data excludes the method target analyte concentrations.
- ⊗ n-C9 to n-C12 Aliphatic Hydrocarbons range data excludes the method target analyte concentrations and the concentration for the n-C9 to n-C10 Aromatic Hydrocarbons range.
- ⊠ Analyte elutes in the n-C5 to n-C8 Aliphatic Hydrocarbons range.
- ‡ Analyte elutes in the n-C9 to n-C12 Aliphatic Hydrocarbons range.

GROUNDWATER ANALYTICAL

Massachusetts DEP VPH Method Volatile Petroleum Hydrocarbons by GC/PID/FID

Field ID: MW-3 (10'-12')
 Project: Bossi's Service Center/00-E-033
 Client: WEB Engineering
 Container: 60 mL Glass Vial
 Preservation: Methanol / Cool
 Matrix: Soil
 % Moisture: 5

Laboratory ID: 36733-06
 QC Batch ID: VG1-1140-E
 Sampled: 10-13-00
 Received: 10-16-00
 Analyzed: 10-23-00
 Dilution Factor: 1

VPH Range	Concentration	Units	Reporting Limit
n-C5 to n-C8 Aliphatic Hydrocarbons [†] ⊙	2.0	mg/Kg	1.0
n-C9 to n-C12 Aliphatic Hydrocarbons [†] ⊙	2.2	mg/Kg	1.0
n-C9 to n-C10 Aromatic Hydrocarbons [†]	1.4	mg/Kg	1.0
Unadjusted n-C5 to n-C8 Aliphatic Hydrocarbons [†]	2.0	mg/Kg	1.0
Unadjusted n-C9 to n-C12 Aliphatic Hydrocarbons [†]	3.6	mg/Kg	1.0

GC# Number	Target Analytes	Concentration	Units	Reporting Limit
1634-04-4	Methyl tert-butyl Ether [‡]	BRL	mg/Kg	0.10
71-43-2	Benzene [‡]	BRL	mg/Kg	0.10
108-88-3	Toluene [‡]	BRL	mg/Kg	0.10
100-41-4	Ethylbenzene [‡]	BRL	mg/Kg	0.10
108-38-3 and 106-42-3	meta- Xylene and para- Xylene [‡]	BRL	mg/Kg	0.10
95-47-6	ortho- Xylene [‡]	BRL	mg/Kg	0.10
91-20-3	Naphthalene	BRL	mg/Kg	0.50

QC Surrogate Compounds	Recovery	QC Limits
2,5-Dibromotoluene (PID)	106 %	70 - 130 %
2,5-Dibromotoluene (FID)	92 %	70 - 130 %

QA/QC Certification	
1. Were all QA/QC procedures required by the method followed?	Yes
2. Were all performance/acceptance standards for the required QA/QC procedures achieved?	Yes
3. Were any significant modifications made to the method, as specified in Section 11.3.2.1?	No
Method non-conformances indicated above are detailed below on this data report, or in the accompanying project narrative and project quality control report. Release of this data is authorized by the accompanying signed project cover letter. The accompanying cover letter, project narrative and quality control report are considered part of this data report.	

Method Reference: Method for the Determination of Volatile Petroleum Hydrocarbons, MA DEP (1998). Results are calculated 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.
- † Hydrocarbon range data excludes concentrations of any surrogate(s) and/or internal standards eluting in that range.
- ◇ n-C5 to n-C8 Aliphatic Hydrocarbons range data excludes the method target analyte concentrations.
- ⊙ n-C9 to n-C12 Aliphatic Hydrocarbons range data excludes the method target analyte concentrations and the concentration for the n-C9 to n-C10 Aromatic Hydrocarbons range.
- ‡ Analyte elutes in the n-C5 to n-C8 Aliphatic Hydrocarbons range.
- ‡ Analyte elutes in the n-C9 to n-C12 Aliphatic Hydrocarbons range.

GROUNDWATER ANALYTICAL

Massachusetts DEP VPH Method Volatile Petroleum Hydrocarbons by GC/PID/FID

Field ID: MW-4 (15'-5.5')
Project: Bossi's Service Center/00-E-033
Client: WEB Engineering
Container: 60 mL Glass Vial
Preservation: Methanol / Cool
Matrix: Soil
% Moisture: 11

Laboratory ID: 36733-07
QC Batch ID: VG1-1140-E
Sampled: 10-13-00
Received: 10-16-00
Analyzed: 10-24-00
Dilution Factor: 40

VPH Ranges	Concentration	Units	Reporting Limit
n-C5 to n-C8 Aliphatic Hydrocarbons [†]	2,100	mg/Kg	33
n-C9 to n-C12 Aliphatic Hydrocarbons [†] ⊗	BRL	mg/Kg	33
n-C9 to n-C10 Aromatic Hydrocarbons [†]	2,400	mg/Kg	33
Unadjusted n-C5 to n-C8 Aliphatic Hydrocarbons [†]	2,600	mg/Kg	33
Unadjusted n-C9 to n-C12 Aliphatic Hydrocarbons [†]	3,000	mg/Kg	33

CAS Number	Target Analytes	Concentration	Units	Reporting Limit
1634-04-4	Methyl tert-butyl Ether [⊠]	10	mg/Kg	3.3
71-43-2	Benzene [⊠]	BRL	mg/Kg	3.3
108-88-3	Toluene [⊠]	470	mg/Kg	3.3
100-41-4	Ethylbenzene [‡]	170	mg/Kg	3.3
108-38-3 and 106-42-3	meta- Xylene and para - Xylene [‡]	620	mg/Kg	3.3
95-47-6	ortho- Xylene [‡]	260	mg/Kg	3.3
91-20-3	Naphthalene	60	mg/Kg	16

QC Surrogate Compounds	Recovery	QC Limits
2,5-Dibromotoluene (PID)	d	70 - 130 %
2,5-Dibromotoluene (FID)	d	70 - 130 %

QA/QC Certification	
1. Were all QA/QC procedures required by the method followed?	Yes
2. Were all performance/acceptance standards for the required QA/QC procedures achieved?	No
3. Were any significant modifications made to the method, as specified in Section 11.3.2.1?	No
Method non-conformances indicated above are detailed below on this data report, or in the accompanying project narrative and project quality control report. Release of this data is authorized by the accompanying signed project cover letter. The accompanying cover letter, project narrative and quality control report are considered part of this data report.	

Method Reference: Method for the Determination of Volatile Petroleum Hydrocarbons, MA DEP (1998). Results are calculated 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:
- † Hydrocarbon range data excludes concentrations of any surrogate(s) and/or internal standards eluting in that range.
- ◇ n-C5 to n-C8 Aliphatic Hydrocarbons range data excludes the method target analyte concentrations.
- ⊗ n-C9 to n-C12 Aliphatic Hydrocarbons range data excludes the method target analyte concentrations and the concentration for the n-C9 to n-C10 Aromatic Hydrocarbons range.
- ⊠ Analyte elutes in the n-C5 to n-C8 Aliphatic Hydrocarbons range.
- ‡ Analyte elutes in the n-C9 to n-C12 Aliphatic Hydrocarbons range.
- d Indicates surrogate recovery outside recommended limits due to required sample dilution.

GROUNDWATER ANALYTICAL

Project Narrative

Project: Bossi's Service Center/00-E-033
Client: WEB Engineering

Lab ID: 36733
Received: 10-16-00

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

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: MA DEP EPH Method
 QC Batch ID: EP-1037-M
 Matrix: Soil
 Units: mg/Kg

CAS Number	Analyte	Spiked	Measured	Recovery	QC Limits
111-84-2	n-Nonane (C9)	5.0	2.4	47 %	40 - 140 %
629-59-4	n-Tetradecane (C14)	5.0	2.9	59 %	40 - 140 %
629-92-5	n-Nonadecane (C19)	5.0	3.4	69 %	40 - 140 %
112-95-8	n-Eicosane (C20)	5.0	3.6	72 %	40 - 140 %
630-02-4	n-Octacosane (C28)	5.0	3.5	70 %	40 - 140 %
91-20-3	Naphthalene	5.0	2.7	53 %	40 - 140 %
83-32-9	Acenaphthene	5.0	3.0	60 %	40 - 140 %

QC Surrogate Compounds	Recovery	QC Limits	
Fractionation:	2-Fluorobiphenyl	85 %	40 - 140 %
	2-Bromonaphthalene	83 %	40 - 140 %
Extraction:	Chloro-octadecane	73 %	40 - 140 %
	<i>ortho</i> -Terphenyl	69 %	40 - 140 %

Method Reference: Method for the Determination of Extractable Petroleum Hydrocarbons, MA DEP (1998).

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: MA DEP EPH Method
QC Batch ID: EP-1037-M
Matrix: Soil

EPH Ranges	Concentration	Units	Reporting Limit
n-C9 to n-C18 Aliphatic Hydrocarbons †	BRL	mg/Kg	30
n-C19 to n-C36 Aliphatic Hydrocarbons †	BRL	mg/Kg	30
n-C11 to n-C22 Aromatic Hydrocarbons † ^o	BRL	mg/Kg	30
Unadjusted n-C11 to n-C22 Aromatic Hydrocarbons †	BRL	mg/Kg	30

CAS Number	Target Analytes	Concentration	Units	Reporting Limit
91-20-3	Naphthalene	BRL	mg/Kg	0.50
91-57-6	2-Methylnaphthalene	BRL	mg/Kg	0.50
85-01-8	Phenanthrene	BRL	mg/Kg	0.50
83-32-9	Acenaphthene	BRL	mg/Kg	0.50

QC Surrogate Compounds	Recovery	QC Limits	
Fractionation:	2-Fluorobiphenyl	80 %	40 - 140 %
	2-Bromonaphthalene	76 %	40 - 140 %
Extraction:	Chloro-octadecane	82 %	40 - 140 %
	ortho-Terphenyl	75 %	40 - 140 %

Method Reference: Method for the Determination of Extractable Petroleum Hydrocarbons, MA DEP (1998).

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.

† Hydrocarbon range data excludes concentrations of any surrogate(s) and/or internal standards eluting in that range.

o n-C11 to n-C22 Aromatic Hydrocarbons range data excludes the method target analyte concentrations.

GROUNDWATER ANALYTICAL

Quality Control Report Laboratory Control Sample

Category: MA DEP VPH Method
QC Batch ID: VG1-1140-E
Matrix: Soil
Units: mg/Kg

CAS Number	Analyte	Spiked	Measured	Recovery	QC Limits
1634-04-4	Methyl tert-butyl Ether	2.5	2.3	92%	70 - 130 %
71-43-2	Benzene	2.5	2.4	96%	70 - 130 %
108-88-3	Toluene	2.5	2.6	106%	70 - 130 %
100-41-4	Ethylbenzene	2.5	2.5	101%	70 - 130 %
108-38-3 and 106-42-3	meta- Xylene and para - Xylene	5.0	5.5	110%	70 - 130 %
95-47-6	ortho- Xylene	2.5	2.6	106%	70 - 130 %
91-20-3	Naphthalene	2.5	2.6	104%	70 - 130 %

QC Surrogate Compounds	Recovery	QC Limits
2,5-Dibromotoluene (PID)	100 %	70 - 130 %
2,5-Dibromotoluene (FID)	99 %	70 - 130 %

Method Reference: Method for the Determination of Volatile Petroleum Hydrocarbons, MA DEP (1998).

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: MA DEP VPH Method
QC Batch ID: VG1-1140-E
Matrix: Soil

VPH Ranges	Concentration	Units	Reporting Limit
n-C5 to n-C8 Aliphatic Hydrocarbons † ◊	BRL	mg/Kg	1.0
n-C9 to n-C12 Aliphatic Hydrocarbons † ⊗	BRL	mg/Kg	1.0
n-C9 to n-C10 Aromatic Hydrocarbons †	BRL	mg/Kg	1.0
Unadjusted n-C5 to n-C8 Aliphatic Hydrocarbons †	BRL	mg/Kg	1.0
Unadjusted n-C9 to n-C12 Aliphatic Hydrocarbons †	BRL	mg/Kg	1.0

CAS Number	Target Analytes	Concentration	Units	Reporting Limit
1634-04-4	Methyl tert-butyl Ether †	BRL	mg/Kg	0.10
71-43-2	Benzene †	BRL	mg/Kg	0.10
108-88-3	Toluene †	BRL	mg/Kg	0.10
100-41-4	Ethylbenzene †	BRL	mg/Kg	0.10
108-38-3 and 106-42-3	meta- Xylene and para- Xylene †	BRL	mg/Kg	0.10
95-47-6	ortho- Xylene †	BRL	mg/Kg	0.10
91-20-3	Naphthalene	BRL	mg/Kg	0.50

QC Surrogate Compounds	Recovery	QC Limits
2,5-Dibromotoluene (PID)	123 %	70 - 130 %
2,5-Dibromotoluene (FID)	118 %	70 - 130 %

Method Reference: Method for the Determination of Volatile Petroleum Hydrocarbons, MA DEP (1998).

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.
- † Hydrocarbon range data excludes concentrations of any surrogate(s) and/or internal standards eluting in that range.
- ◊ n-C5 to n-C8 Aliphatic Hydrocarbons range data excludes the method target analyte concentrations.
- ⊗ n-C9 to n-C12 Aliphatic Hydrocarbons range data excludes the method target analyte concentrations and the concentration for the n-C9 to n-C10 Aromatic Hydrocarbons range.
- ‡ Analyte elutes in the n-C5 to n-C8 Aliphatic Hydrocarbons range.
- ± Analyte elutes in the n-C9 to n-C12 Aliphatic Hydrocarbons range.

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, MA-103

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, 202-98

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

GROUNDWATER ANALYTICAL

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FAX (508) 759-4475

November 8, 2000

Mr. Steve Rumba
WEB Engineering
106 Longwater Drive
Norwell, MA 02061

Project: Bossi's/00-E-033
Lab ID: 36958
Sampled: 10-24-00

Dear Steve:

Enclosed are the Extractable Petroleum Hydrocarbons, Volatile Petroleum Hydrocarbons, and Semivolatile Organics 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/pmb
Enclosures

GROUNDWATER ANALYTICAL

Massachusetts DEP EPH Method Extractable Petroleum Hydrocarbons by GC/FID

Field ID: MW-1
 Project: Bossi's/00-E-033
 Client: WEB Engineering
 Container: 1 L Amber Glass
 Preservation: H2SO4 / Cool
 Matrix: Aqueous

Laboratory ID: 36958-01
 QC Batch ID: EP-0754-F
 Sampled: 10-24-00
 Received: 10-25-00
 Extracted: 11-01-00
 Analyzed: 11-07-00
 Dilution Factor: Aliphatic: 1 Aromatic: 1

EPH Ranges	Concentration	Units	Reporting Limit
n-C9 to n-C18 Aliphatic Hydrocarbons †	BRL	ug/L	560
n-C19 to n-C36 Aliphatic Hydrocarbons †	BRL	ug/L	560
n-C11 to n-C22 Aromatic Hydrocarbons † ◊	BRL	ug/L	200
Unadjusted n-C11 to n-C22 Aromatic Hydrocarbons †	BRL	ug/L	200

QC Surrogate Compounds	Recovery	QC Limits	
Fractionation:	2-Fluorobiphenyl	77 %	40 - 140 %
	2-Bromonaphthalene	79 %	40 - 140 %
Extraction:	Chloro-octadecane	70 %	40 - 140 %
	ortho-Terphenyl	71 %	40 - 140 %

QA/QC Certification	
1. Were all QA/QC procedures required by the method followed?	Yes
2. Were all performance/acceptance standards for the required QA/QC procedures achieved?	Yes
3. Were any significant modifications made to the method, as specified in Section 11.3?	No
Method non-conformances indicated above are detailed below on this data report, or in the accompanying project narrative and project quality control report. Release of this data is authorized by the accompanying signed project cover letter. The accompanying cover letter, project narrative and quality control report are considered part of this data report.	

Method Reference: Method for the Determination of Extractable Petroleum Hydrocarbons, MA DEP (1998). Extraction performed utilizing separatory funnel technique.

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.

† Hydrocarbon range data excludes concentrations of any surrogate(s) and/or internal standards eluting in that range.

◊ n-C11 to n-C22 Aromatic Hydrocarbons range data excludes the method target analyte concentrations.

GROUNDWATER ANALYTICAL

Massachusetts DEP EPH Method Extractable Petroleum Hydrocarbons by GC/FID

Field ID:	MW-3	Laboratory ID:	36958-02
Project:	Bossi's/00-E-033	QC Batch ID:	EP-0754-F
Client:	WEB Engineering	Sampled:	10-24-00
Container:	1 L Amber Glass	Received:	10-25-00
Preservation:	H2SO4 / Cool	Extracted:	11-01-00
Matrix:	Aqueous	Analyzed:	11-07-00
		Dilution Factor:	Aliphatic: 1 Aromatic: 1

EPH Ranges	Concentration	Units	Reporting Limit
n-C9 to n-C18 Aliphatic Hydrocarbons †	1,500	ug/L	630
n-C19 to n-C36 Aliphatic Hydrocarbons †	BRL	ug/L	630
n-C11 to n-C22 Aromatic Hydrocarbons † ^o	630	ug/L	250
Unadjusted n-C11 to n-C22 Aromatic Hydrocarbons †	1,100	ug/L	250

QC Surrogate Compounds		Recovery	QC Limits
Fractionation:	2-Fluorobiphenyl	65 %	40 - 140 %
	2-Bromonaphthalene	65 %	40 - 140 %
Extraction:	Chloro-octadecane	47 %	40 - 140 %
	ortho-Terphenyl	67 %	40 - 140 %

QA/QC Certification	
1. Were all QA/QC procedures required by the method followed?	Yes
2. Were all performance/acceptance standards for the required QA/QC procedures achieved?	Yes
3. Were any significant modifications made to the method, as specified in Section 11.3?	No
Method non-conformances indicated above are detailed below on this data report, or in the accompanying project narrative and project quality control report. Release of this data is authorized by the accompanying signed project cover letter. The accompanying cover letter, project narrative and quality control report are considered part of this data report.	

Method Reference: Method for the Determination of Extractable Petroleum Hydrocarbons, MA DEP (1998). Extraction performed utilizing separatory funnel technique.

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.

† Hydrocarbon range data excludes concentrations of any surrogate(s) and/or internal standards eluting in that range.

o n-C11 to n-C22 Aromatic Hydrocarbons range data excludes the method target analyte concentrations.

GROUNDWATER ANALYTICAL

Massachusetts DEP EPH Method Extractable Petroleum Hydrocarbons by GC/FID

Field ID:	MW-4	Laboratory ID:	36958-03
Project:	Bossi's/00-E-033	QC Batch ID:	EP-0754-F
Client:	WEB Engineering	Sampled:	10-24-00
Container:	1 L Amber Glass	Received:	10-25-00
Preservation:	H2SO4 / Cool	Extracted:	11-01-00
Matrix:	Aqueous	Analyzed:	11-07-00
		Dilution Factor:	Aliphatic: 1 Aromatic: 1

EPH Ranges	Concentration	Units	Reporting Limit
n-C9 to n-C18 Aliphatic Hydrocarbons †	1,300	ug/L	1,100
n-C19 to n-C36 Aliphatic Hydrocarbons †	BRL	ug/L	1,100
n-C11 to n-C22 Aromatic Hydrocarbons † ^v	800	ug/L	440
Unadjusted n-C11 to n-C22 Aromatic Hydrocarbons †	1,400	ug/L	440

QC Surrogate Compounds	Recovery	QC Limits
Fractionation: 2-Fluorobiphenyl	71 %	40 - 140 %
2-Bromonaphthalene	74 %	40 - 140 %
Extraction: Chloro-octadecane	61 %	40 - 140 %
ortho-Terphenyl	66 %	40 - 140 %

QA/QC Certification	
1. Were all QA/QC procedures required by the method followed?	Yes
2. Were all performance/acceptance standards for the required QA/QC procedures achieved?	Yes
3. Were any significant modifications made to the method, as specified in Section 11.3?	No
Method non-conformances indicated above are detailed below on this data report, or in the accompanying project narrative and project quality control report. Release of this data is authorized by the accompanying signed project cover letter. The accompanying cover letter, project narrative and quality control report are considered part of this data report.	

Method Reference: Method for the Determination of Extractable Petroleum Hydrocarbons, MA DEP (1998). Extraction performed utilizing separatory funnel technique.

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.

† Hydrocarbon range data excludes concentrations of any surrogate(s) and/or internal standards eluting in that range.

◊ n-C11 to n-C22 Aromatic Hydrocarbons range data excludes the method target analyte concentrations.

GROUNDWATER ANALYTICAL

Massachusetts DEP VPH Method Volatile Petroleum Hydrocarbons by GC/PID/FID

Field ID:	MW-1	Laboratory ID:	36958-04
Project:	Bossi's/00-E-033	QC Batch ID:	VG3-1291-W
Client:	WEB Engineering	Sampled:	10-24-00
Container:	40 mL Glass Vial	Received:	10-25-00
Preservation:	HCl / Cool	Analyzed:	10-28-00
Matrix:	Aqueous	Dilution Factor:	1

VPH Ranges	Concentration	Units	Reporting Limit
n-C5 to n-C8 Aliphatic Hydrocarbons [†] ⊖	1,400	ug/L	20
n-C9 to n-C12 Aliphatic Hydrocarbons [†] ⊗	340	ug/L	20
n-C9 to n-C10 Aromatic Hydrocarbons [†]	440	ug/L	20
Unadjusted n-C5 to n-C8 Aliphatic Hydrocarbons [†]	1,500	ug/L	20
Unadjusted n-C9 to n-C12 Aliphatic Hydrocarbons [†]	960	ug/L	20

CAS Number	Target Analytes	Concentration	Units	Reporting Limit
1634-04-4	Methyl tert-butyl Ether [‡]	16	ug/L	.5
71-43-2	Benzene [‡]	11	ug/L	1
108-88-3	Toluene [‡]	40	ug/L	5
100-41-4	Ethylbenzene [‡]	37	ug/L	5
108-38-3 and 106-42-3	meta- Xylene and para- Xylene [‡]	110	ug/L	5
95-47-6	ortho- Xylene [‡]	28	ug/L	5
91-20-3	Naphthalene	BRL	ug/L	5

QC Surrogate Compounds	Recovery	QC Limits
2,5-Dibromotoluene (PID)	90 %	70 - 130 %
2,5-Dibromotoluene (FID)	76 %	70 - 130 %

QA/QC Certification	
1. Were all QA/QC procedures required by the method followed?	Yes
2. Were all performance/acceptance standards for the required QA/QC procedures achieved?	Yes
3. Were any significant modifications made to the method, as specified in Section 11.3.2.1?	No
Method non-conformances indicated above are detailed below on this data report, or in the accompanying project narrative and project quality control report. Release of this data is authorized by the accompanying signed project cover letter. The accompanying cover letter, project narrative and quality control report are considered part of this data report.	

Method Reference: Method for the Determination of Volatile Petroleum Hydrocarbons, MA DEP (1998).

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.

- † Hydrocarbon range data excludes concentrations of any surrogate(s) and/or internal standards eluting in that range.
- ⊖ n-C5 to n-C8 Aliphatic Hydrocarbons range data excludes the method target analyte concentrations.
- ⊗ n-C9 to n-C12 Aliphatic Hydrocarbons range data excludes the method target analyte concentrations and the concentration for the n-C9 to n-C10 Aromatic Hydrocarbons range.
- ‡ Analyte elutes in the n-C5 to n-C8 Aliphatic Hydrocarbons range.
- ‡ Analyte elutes in the n-C9 to n-C12 Aliphatic Hydrocarbons range.

GROUNDWATER ANALYTICAL

Massachusetts DEP VPH Method Volatile Petroleum Hydrocarbons by GC/PID/FID

Field ID:	MW-3	Laboratory ID:	36958-05
Project:	Bossi's/00-E-033	QC Batch ID:	VG3-1291-W
Client:	WEB Engineering	Sampled:	10-24-00
Container:	40 mL Glass Vial	Received:	10-25-00
Preservation:	HCl / Cool	Analyzed:	10-27-00
Matrix:	Aqueous	Dilution Factor:	50

VPH Ranges	Concentration	Units	Reporting Limit
n-C5 to n-C8 Aliphatic Hydrocarbons [†] ◊	30,000	ug/L	1,000
n-C9 to n-C12 Aliphatic Hydrocarbons [†] ⊗	21,000	ug/L	1,000
n-C9 to n-C10 Aromatic Hydrocarbons [†]	17,000	ug/L	1,000
Unadjusted n-C5 to n-C8 Aliphatic Hydrocarbons [†]	55,000	ug/L	1,000
Unadjusted n-C9 to n-C12 Aliphatic Hydrocarbons [†]	67,000	ug/L	1,000

CAS Number	Target Analytes	Concentration	Units	Reporting Limit
1634-04-4	Methyl tert-butyl Ether [‡]	BRL	ug/L	250
71-43-2	Benzene [‡]	1,900	ug/L	50
108-88-3	Toluene [‡]	23,000	ug/L	250
100-41-4	Ethylbenzene [‡]	4,500	ug/L	250
108-38-3 and 106-42-3	meta- Xylene and para- Xylene [‡]	17,000	ug/L	250
95-47-6	ortho- Xylene [‡]	7,200	ug/L	250
91-20-3	Naphthalene	830	ug/L	250

QC Surrogate Compounds	Recovery	QC Limits
2,5-Dibromotoluene (PID)	98 %	70 - 130 %
2,5-Dibromotoluene (FID)	94 %	70 - 130 %

QA/QC Certification	
1. Were all QA/QC procedures required by the method followed?	Yes
2. Were all performance/acceptance standards for the required QA/QC procedures achieved?	Yes
3. Were any significant modifications made to the method, as specified in Section 11.3.2.1?	No
Method non-conformances indicated above are detailed below on this data report, or in the accompanying project narrative and project quality control report. Release of this data is authorized by the accompanying signed project cover letter. The accompanying cover letter, project narrative and quality control report are considered part of this data report.	

Method Reference: Method for the Determination of Volatile Petroleum Hydrocarbons, MA DEP (1998).

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.
- † Hydrocarbon range data excludes concentrations of any surrogate(s) and/or internal standards eluting in that range.
- ◊ n-C5 to n-C8 Aliphatic Hydrocarbons range data excludes the method target analyte concentrations.
- ⊗ n-C9 to n-C12 Aliphatic Hydrocarbons range data excludes the method target analyte concentrations and the concentration for the n-C9 to n-C10 Aromatic Hydrocarbons range.
- ‡ Analyte elutes in the n-C5 to n-C8 Aliphatic Hydrocarbons range.
- ‡ Analyte elutes in the n-C9 to n-C12 Aliphatic Hydrocarbons range.

GROUNDWATER ANALYTICAL

Massachusetts DEP VPH Method Volatile Petroleum Hydrocarbons by GC/PID/FID

Field ID:	MW-4	Laboratory ID:	36958-06
Project:	Bossi's/00-E-033	QC Batch ID:	VG3-1291-W
Client:	WEB Engineering	Sampled:	10-24-00
Container:	40 mL Glass Vial	Received:	10-25-00
Preservation:	HCl / Cool	Analyzed:	10-27-00
Matrix:	Aqueous	Dilution Factor:	100

VPH Ranges	Concentration	Units	Reporting Limit
n-C5 to n-C8 Aliphatic Hydrocarbons [†]	47,000	ug/L	2,000
n-C9 to n-C12 Aliphatic Hydrocarbons ^{†⊗}	29,000	ug/L	2,000
n-C9 to n-C10 Aromatic Hydrocarbons [†]	18,000	ug/L	2,000
Unadjusted n-C5 to n-C8 Aliphatic Hydrocarbons [†]	94,000	ug/L	2,000
Unadjusted n-C9 to n-C12 Aliphatic Hydrocarbons [†]	89,000	ug/L	2,000

CAS Number	Target Analytes	Concentration	Units	Reporting Limit
1634-04-4	Methyl tert-butyl Ether [‡]	3,500	ug/L	500
71-43-2	Benzene [‡]	1,900	ug/L	100
108-88-3	Toluene [‡]	41,000	ug/L	500
100-41-4	Ethylbenzene [‡]	6,200	ug/L	500
108-38-3 and 106-42-3	meta- Xylene and para- Xylene [‡]	25,000	ug/L	500
95-47-6	ortho- Xylene [‡]	12,000	ug/L	500
91-20-3	Naphthalene	1,100	ug/L	500

QC Surrogate Compounds	Recovery	QC Limits
2,5-Dibromotoluene (PID)	97 %	70 - 130 %
2,5-Dibromotoluene (FID)	93 %	70 - 130 %

QA/QC Certification	
1. Were all QA/QC procedures required by the method followed?	Yes
2. Were all performance/acceptance standards for the required QA/QC procedures achieved?	Yes
3. Were any significant modifications made to the method, as specified in Section 11.3.2.1?	No
Method non-conformances indicated above are detailed below on this data report, or in the accompanying project narrative and project quality control report. Release of this data is authorized by the accompanying signed project cover letter. The accompanying cover letter, project narrative and quality control report are considered part of this data report.	

Method Reference: Method for the Determination of Volatile Petroleum Hydrocarbons, MA DEP (1998).

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.
- † Hydrocarbon range data excludes concentrations of any surrogate(s) and/or internal standards eluting in that range.
- ◇ n-C5 to n-C8 Aliphatic Hydrocarbons range data excludes the method target analyte concentrations.
- ⊗ n-C9 to n-C12 Aliphatic Hydrocarbons range data excludes the method target analyte concentrations and the concentration for the n-C9 to n-C10 Aromatic Hydrocarbons range.
- ‡ Analyte elutes in the n-C5 to n-C8 Aliphatic Hydrocarbons range.
- ‡ Analyte elutes in the n-C9 to n-C12 Aliphatic Hydrocarbons range.

GROUNDWATER ANALYTICAL

EPA Method 8270C (Modified) MA DEP EPH Polynuclear Aromatic Hydrocarbons by GC/MS-SIM

Field ID: MW-1
Project: Bossi's/00-E-033
Client: WEB Engineering
Container: 1L Amber Glass
Preservation: H₂SO₄ / Cool
Matrix: Aqueous

Laboratory ID: 36958-01
QC Batch ID: EP-0754-F
Sampled: 10-24-00
Preserved: 10-25-00
Received: 10-25-00
Extracted: 11-01-00
Analyzed: 11-03-00
Dilution Factor: 1

CAS Number	Analyte	Concentration	Units	Reporting Limit
91-20-3	Naphthalene	2.3	ug/L	0.5
91-57-6	2-Methylnaphthalene	1.4	ug/L	0.5
208-96-8	Acenaphthylene	BRL	ug/L	0.5
83-32-9	Acenaphthene	BRL	ug/L	0.5
86-73-7	Fluorene	BRL	ug/L	0.5
85-01-8	Phenanthrene	BRL	ug/L	0.5
120-12-7	Anthracene	BRL	ug/L	0.5
206-44-0	Fluoranthene	BRL	ug/L	0.5
129-00-0	Pyrene	BRL	ug/L	0.5
56-55-3	Benzo[a]anthracene	BRL	ug/L	0.1
218-01-9	Chrysene	BRL	ug/L	0.1
205-99-2	Benzo[b]fluoranthene	BRL	ug/L	0.1
207-08-9	Benzo[k]fluoranthene	BRL	ug/L	0.1
50-32-8	Benzo[a]pyrene	BRL	ug/L	0.1
193-39-5	Indeno[1,2,3-c,d]pyrene	BRL	ug/L	0.1
53-70-3	Dibenzo[a,h]anthracene	BRL	ug/L	0.1
191-24-2	Benzo[g,h,i]perylene	BRL	ug/L	0.1

QC Surrogate Compound	Recovery	QC Limits
ortho-Terphenyl	76 %	40 - 140 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Analyte list as specified by the target analytes of the MA DEP Method for the Determination of Extractable Petroleum Hydrocarbons. Method modified by use of selected ion monitoring (SIM) in accordance with Section 7.5.5 of the method. Method protocol modified to include acidification and the surrogate compound in accordance with the MA DEP Method for the Determination of Extractable Petroleum Hydrocarbons.

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

EPA Method 8270C (Modified) MA DEP EPH Polynuclear Aromatic Hydrocarbons by GC/MS-SIM

Field ID: MW-3
Project: Bossi's/00-E-033
Client: WEB Engineering
Container: 1L Amber Glass
Preservation: H₂SO₄ / Cool
Matrix: Aqueous

Laboratory ID: 36958-02
QC Batch ID: EP-0754-F
Sampled: 10-24-00
Preserved: 10-25-00
Received: 10-25-00
Extracted: 11-01-00
Analyzed: 11-03-00
Dilution Factor: 1

CAS Number	Analyte	Concentration	Units	Reporting Limit
91-20-3	Naphthalene	170 ee	ug/L	13
91-57-6	2-Methylnaphthalene	140 ee	ug/L	13
208-96-8	Acenaphthylene	BRL	ug/L	0.6
83-32-9	Acenaphthene	BRL	ug/L	0.6
86-73-7	Fluorene	1.1	ug/L	0.6
85-01-8	Phenanthrene	1.4	ug/L	0.6
120-12-7	Anthracene	BRL	ug/L	0.6
206-44-0	Fluoranthene	BRL	ug/L	0.6
129-00-0	Pyrene	BRL	ug/L	0.6
56-55-3	Benzo[a]anthracene	0.1	ug/L	0.1
218-01-9	Chrysene	BRL	ug/L	0.1
205-99-2	Benzo[b]fluoranthene	BRL	ug/L	0.1
207-08-9	Benzo[k]fluoranthene	BRL	ug/L	0.1
50-32-8	Benzo[a]pyrene	BRL	ug/L	0.1
193-39-5	Indeno[1,2,3-c,d]pyrene	BRL	ug/L	0.1
53-70-3	Dibenzo[a,h]anthracene	BRL	ug/L	0.1
191-24-2	Benzo[g,h,i]perylene	BRL	ug/L	0.1
QC Surrogate Compound		Recovery	QC Limits	
ortho-Terphenyl		72 %	40 - 140 %	

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Analyte list as specified by the target analytes of the MA DEP Method for the Determination of Extractable Petroleum Hydrocarbons. Method modified by use of selected ion monitoring (SIM) in accordance with Section 7.5.5 of the method. Method protocol modified to include acidification and the surrogate compound in accordance with the MA DEP Method for the Determination of Extractable Petroleum Hydrocarbons.

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.
- ee Analyte response exceeded calibration range. Analyte result was quantified on the basis of a separate analytical run with the mass spectrometer operating in the full scan mode.

GROUNDWATER ANALYTICAL

EPA Method 8270C (Modified) MA DEP EPH Polynuclear Aromatic Hydrocarbons by GC/MS-SIM

Field ID: MW-4
Project: Bossi's/00-E-033
Client: WEB Engineering
Container: 1L Amber Glass
Preservation: H₂SO₄ / Cool
Matrix: Aqueous

Laboratory ID: 36958-03
QC Batch ID: EP-0754-F
Sampled: 10-24-00
Preserved: 10-25-00
Received: 10-25-00
Extracted: 11-01-00
Analyzed: 11-03-00
Dilution Factor: 1

CAS Number	Analyte	Concentration	Units	Reporting Limit
91-20-3	Naphthalene	280 ee	ug/L	22
91-57-6	2-Methylnaphthalene	170 ee	ug/L	22
208-96-8	Acenaphthylene	BRL	ug/L	1.1
83-32-9	Acenaphthene	BRL	ug/L	1.1
86-73-7	Fluorene	1.3	ug/L	1.1
85-01-8	Phenanthrene	1.7	ug/L	1.1
120-12-7	Anthracene	BRL	ug/L	1.1
206-44-0	Fluoranthene	BRL	ug/L	1.1
129-00-0	Pyrene	BRL	ug/L	0.2
56-55-3	Benzo[a]anthracene	BRL	ug/L	0.2
218-01-9	Chrysene	BRL	ug/L	0.2
205-99-2	Benzo[b]fluoranthene	BRL	ug/L	0.2
207-08-9	Benzo[k]fluoranthene	BRL	ug/L	0.2
50-32-8	Benzo[a]pyrene	BRL	ug/L	0.2
193-39-5	Indeno[1,2,3-c,d]pyrene	BRL	ug/L	0.2
53-70-3	Dibenzo[a,h]anthracene	BRL	ug/L	0.2
191-24-2	Benzo[g,h,i]perylene	BRL	ug/L	0.2
QC Surrogate Compound		Recovery	QC Limits	
ortho-Terphenyl		73 %	40 - 140 %	

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Analyte list as specified by the target analytes of the MA DEP Method for the Determination of Extractable Petroleum Hydrocarbons. Method modified by use of selected ion monitoring (SIM) in accordance with Section 7.5.5 of the method. Method protocol modified to include acidification and the surrogate compound in accordance with the MA DEP Method for the Determination of Extractable Petroleum Hydrocarbons.

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.

ee Analyte response exceeded calibration range. Analyte result was quantified on the basis of a separate analytical run with the mass spectrometer operating in the full scan mode.

GROUNDWATER ANALYTICAL

Project Narrative

Project: Bossi's/00-E-033
Client: WEB Engineering

Lab ID: 36958
Received: 10-25-00

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, P.O. Box 1200
 Buzzards Bay, MA 02532
 Telephone (508) 759-4441
 FAX (508) 759-4475

CHAIN-OF-CUSTODY RECORD AND WORK ORDER

№ 46430

Project Name: **BOSSE'S**
 Project Number: **00-E-033**
 Sampler Name: **S. Lomba**
 Project Manager: **S. Lomba**

Firm: **WEB**
 Address: **106 Longwater Dr.**
 City / State / Zip: **Norwell, MA 02061**
 Telephone: **781 878-7766**

TURNAROUND
 STANDARD (10 Business Days)
 PRIORITY (5 Business Days)
 RUSH (RAN) (Rush requires Rush Authorization Number)
 Please FAX YES NO
 FAX Number:

BILLING
 Purchase Order No.: **GWA Reference No.:**

ANALYSIS REQUEST

Matrix	Type	Container(s)	Preservation	Filtered	LABORATORY NUMBER (Lab Use Only)
WATER <td>COMPOSITE <td>1200 mL or larger Glass</td> <td>1200 mL or larger Glass</td> <td><input checked="" type="checkbox"/></td> <td>36958</td> </td>	COMPOSITE <td>1200 mL or larger Glass</td> <td>1200 mL or larger Glass</td> <td><input checked="" type="checkbox"/></td> <td>36958</td>	1200 mL or larger Glass	1200 mL or larger Glass	<input checked="" type="checkbox"/>	36958
SOIL <td>GRAV</td> <td>1500 mL or Glass</td> <td>1500 mL or Glass</td> <td><input checked="" type="checkbox"/></td> <td>1</td>	GRAV	1500 mL or Glass	1500 mL or Glass	<input checked="" type="checkbox"/>	1
		1500 mL or Plastic	1500 mL or Plastic	<input checked="" type="checkbox"/>	15
		1500 mL or Plastic	1500 mL or Plastic	<input checked="" type="checkbox"/>	6
		1500 mL or Plastic	1500 mL or Plastic	<input checked="" type="checkbox"/>	3

CHAIN-OF-CUSTODY RECORD

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

Requested by Sampler: *[Signature]*
 Date: **10-14-00**
 Time: **11:00**
 Received by: *[Signature]*
 Date: **10-14-00**
 Time: **11:00**

Relinquished by: *[Signature]*
 Date: **10-14-00**
 Time: **11:00**
 Received by Laboratory: *[Signature]*
 Date: **10-14-00**
 Time: **11:00**

Relinquished by: *[Signature]*
 Date: **10-14-00**
 Time: **11:00**
 Received by Laboratory: *[Signature]*
 Date: **10-14-00**
 Time: **11:00**

Method of Shipment: GWA Company Express Mail UPS Air Mail Other

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

DATA QUALITY OBJECTIVES

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 changed 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:

REMARKS / SPECIAL INSTRUCTIONS

Regulatory Program
 Safe Drinking Water Act
 MA DEP Form
 NPDES/Clean Water Act
 Specify State:
 RCRA/Haz. Waste Char.
 MA MCP (310 CMR 40)
 Reportable Concentrations
 RCGW - 1 RCS - 1
 RCGW - 2 RCS - 2
 MA Dredge Disposal
 NH RI CT ME
 Specify Category: _____

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

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 8270C (Modified) - EPH PAHs by GC/MS-SIM
QC Batch ID: EP-0754-FL
Matrix: Aqueous
Units: ug/L

CAS Number	Analyte	Spiked	Measured	Recovery	QC Limits
91-20-3	Naphthalene	5.0	2.8	55 %	40 - 140 %
83-32-9	Acenaphthene	5.0	2.7	53 %	40 - 140 %
120-12-7	Anthracene	5.0	3.7	74 %	40 - 140 %
129-00-0	Pyrene	5.0	3.4	68 %	40 - 140 %
218-01-9	Chrysene	5.0	3.6	73 %	40 - 140 %

QC Surrogate Compound	Recovery	QC Limits
ortho-Terphenyl	94 %	40 - 140 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Analyte list as specified by the MA DEP Method for the Determination of Extractable Petroleum Hydrocarbons. Method modified by use of selected ion monitoring (SIM) in accordance with Section 7.5.5 of the method. Method protocol modified to include acidification and the surrogate compound in accordance with the MA DEP Method for the Determination of Extractable Petroleum Hydrocarbons.

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 8270C (Modified) - EPH PAHs by GC/MS-SIM
 QC Batch ID: EP-0754-FB
 Matrix: Aqueous

CAS Number	Analyte	Concentration	Units	Reporting Limit
91-20-3	Naphthalene	BRL	ug/L	0.5
91-57-6	2-Methylnaphthalene	BRL	ug/L	0.5
208-96-8	Acenaphthylene	BRL	ug/L	0.5
83-32-9	Acenaphthene	BRL	ug/L	0.5
86-73-7	Fluorene	BRL	ug/L	0.5
85-01-8	Phenanthrene	BRL	ug/L	0.5
120-12-7	Anthracene	BRL	ug/L	0.5
206-44-0	Fluoranthene	BRL	ug/L	0.5
129-00-0	Pyrene	BRL	ug/L	0.5
56-55-3	Benzo[a]anthracene	BRL	ug/L	0.1
218-01-9	Chrysene	BRL	ug/L	0.1
205-99-2	Benzo[b]fluoranthene	BRL	ug/L	0.1
207-08-9	Benzo[k]fluoranthene	BRL	ug/L	0.1
50-32-8	Benzo[a]pyrene	BRL	ug/L	0.1
193-39-5	Indeno[1,2,3-c,d]pyrene	BRL	ug/L	0.1
53-70-3	Dibenzo[a,h]anthracene	BRL	ug/L	0.1
191-24-2	Benzo[g,h,i]perylene	BRL	ug/L	0.1
QC Surrogate Compound		Recovery	QC Limits	
ortho-Terphenyl		107 %	40 - 140 %	

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Analyte list as specified by the target analytes of the MA DEP Method for the Determination of Extractable Petroleum Hydrocarbons. Method modified by use of selected ion monitoring (SIM) in accordance with Section 7.5.3 of the method. Method protocol modified to include acidification and the surrogate compound in accordance with the MA DEP Method for the Determination of Extractable Petroleum Hydrocarbons.

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

Quality Control Report Laboratory Control Sample

Category: MA DEP EPH Method
 QC Batch ID: EP-0754-F
 Matrix: Water
 Units: ug/L

CAS Number	Analyte	Spiked	Measured	Recovery	QC Limits
111-84-2	n-Nonane (C9)	50	22	44 %	40 - 140 %
629-59-4	n-Tetradecane (C14)	50	29	58 %	40 - 140 %
629-92-5	n-Nonadecane (C19)	50	35	70 %	40 - 140 %
112-95-8	n-Eicosane (C20)	50	36	72 %	40 - 140 %
630-02-4	n-Octacosane (C28)	50	33	67 %	40 - 140 %

QC Surrogate Compounds		Recovery	QC Limits
Fractionation:	2-Fluorobiphenyl	80 %	40 - 140 %
	2-Bromonaphthalene	82 %	40 - 140 %
Extraction:	Chloro-octadecane	71 %	40 - 140 %
	ortho-Terphenyl	80 %	40 - 140 %

Method Reference: Method for the Determination of Extractable Petroleum Hydrocarbons, MA DEP (1998).

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: MA DEP EPH Method
 QC Batch ID: EP-0754-F
 Matrix: Water

EPH Ranges	Concentration	Units	Reporting Limit
n-C9 to n-C18 Aliphatic Hydrocarbons †	BRL	ug/L	500
n-C19 to n-C36 Aliphatic Hydrocarbons †	BRL	ug/L	500
n-C11 to n-C22 Aromatic Hydrocarbons † ^o	BRL	ug/L	200
Unadjusted n-C11 to n-C22 Aromatic Hydrocarbons †	BRL	ug/L	200

QC Surrogate Compounds		Recovery	QC Limits
Fractionation:	2-Fluorobiphenyl	82 %	40 - 140 %
	2-Bromonaphthalene	84 %	40 - 140 %
Extraction:	Chloro-octadecane	76 %	40 - 140 %
	ortho-Terphenyl	84 %	40 - 140 %

Method Reference: Method for the Determination of Extractable Petroleum Hydrocarbons, MA DEP (1998).

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.

† Hydrocarbon range data excludes concentrations of any surrogate(s) and/or internal standards eluting in that range.

^o n-C11 to n-C22 Aromatic Hydrocarbons range data excludes the method target analyte concentrations.

GROUNDWATER ANALYTICAL

Quality Control Report Laboratory Control Sample

Category: MA DEP VPH Method
QC Batch ID: VG3-1291-W
Matrix: Aqueous
Units: ug/L

CAS Number	Analyte	Spiked	Measured	Recovery	QC Limits
1634-04-4	Methyl tert-butyl Ether	50	43	86%	70 - 130 %
71-43-2	Benzene	50	53	106%	70 - 130 %
108-88-3	Toluene	50	57	114%	70 - 130 %
100-41-4	Ethylbenzene	50	52	104%	70 - 130 %
108-38-3 and 106-42-3	meta- Xylene and para- Xylene	100	120	117%	70 - 130 %
95-47-6	ortho- Xylene	50	58	115%	70 - 130 %
91-20-3	Naphthalene	50	63	127%	70 - 130 %

QC Surrogate Compounds	Recovery	QC Limits
2,5-Dibromotoluene (PID)	101 %	70 - 130 %
2,5-Dibromotoluene (FID)	97 %	70 - 130 %

Method Reference: Method for the Determination of Volatile Petroleum Hydrocarbons, MA DEP (1998).

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: MA DEP VPH Method
QC Batch ID: VG3-1291-W
Matrix: Aqueous

VPH Ranges	Concentration	Units	Reporting Limit
n-C5 to n-C8 Aliphatic Hydrocarbons [†] [⊖]	BRL	ug/L	20
n-C9 to n-C12 Aliphatic Hydrocarbons [†] [⊗]	BRL	ug/L	20
n-C9 to n-C10 Aromatic Hydrocarbons [†]	BRL	ug/L	20
Unadjusted n-C5 to n-C8 Aliphatic Hydrocarbons [†]	BRL	ug/L	20
Unadjusted n-C9 to n-C12 Aliphatic Hydrocarbons [†]	BRL	ug/L	20

CAS Number	Target Analytes	Concentration	Units	Reporting Limit
1634-04-4	Methyl tert-butyl Ether [‡]	BRL	ug/L	5
71-43-2	Benzene [‡]	BRL	ug/L	1
108-88-3	Toluene [‡]	BRL	ug/L	5
100-41-4	Ethylbenzene [‡]	BRL	ug/L	5
108-38-3 and 106-42-3	meta- Xylene and para- Xylene [‡]	BRL	ug/L	5
95-47-6	ortho- Xylene [‡]	BRL	ug/L	5
91-20-3	Naphthalene	BRL	ug/L	5

QC Surrogate Compounds	Recovery	QC Limits
2,5-Dibromotoluene (PID)	116 %	70 - 130 %
2,5-Dibromotoluene (FID)	109 %	70 - 130 %

Method Reference: Method for the Determination of Volatile Petroleum Hydrocarbons, MA DEP (1998).

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.

- † Hydrocarbon range data excludes concentrations of any surrogate(s) and/or internal standards eluting in that range.
- ⊖ n-C5 to n-C8 Aliphatic Hydrocarbons range data excludes the method target analyte concentrations.
- ⊗ n-C9 to n-C12 Aliphatic Hydrocarbons range data excludes the method target analyte concentrations and the concentration for the n-C9 to n-C10 Aromatic Hydrocarbons range.
- ‡ Analyte elutes in the n-C5 to n-C8 Aliphatic Hydrocarbons range.
- ‡ Analyte elutes in the n-C9 to n-C12 Aliphatic Hydrocarbons range.

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

GROUNDWATER ANALYTICAL

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

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

January 5, 2001

Mr. Steve Rumba
WEB Engineering
106 Longwater Drive
Norwell, MA 02061

Project: Bossi/00-E-033
Lab ID: 38130
Sampled: 12-18-00

Dear Steve:

Enclosed are the Volatile Organics, PCBs, Hydrocarbon Fingerprint, Metals, Reactivity, Corrosivity and Ignitability 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/myr
Enclosures

GROUNDWATER ANALYTICAL

EPA Method 8260B TCL Volatile Organics by GC/MS

Field ID: Stockpile
Project: Bossi/00-E-033
Client: WEB Engineering
Container: 120 mL Glass
Preservation: Methanol / Cool
Matrix: Soil
% Moisture: 11

Laboratory ID: 38130-01
QC Batch ID: VM4-1614-E
Sampled: 12-18-00
Received: 12-20-00
Analyzed: 12-29-00
Dilution Factor: 1

CAS Number	Analyte	Concentration	Units	Reporting Limit
74-87-3	Chloromethane	BRL	ug/Kg	500
75-01-4	Vinyl Chloride	BRL	ug/Kg	500
74-83-9	Bromomethane	BRL	ug/Kg	500
75-00-3	Chloroethane	BRL	ug/Kg	500
75-35-4	1,1-Dichloroethene	BRL	ug/Kg	250
67-64-1	Acetone	BRL	ug/Kg	2,500
75-15-0	Carbon Disulfide	BRL	ug/Kg	2,500
75-09-2	Methylene Chloride	BRL	ug/Kg	1,000
156-60-5	trans-1,2-Dichloroethene	BRL	ug/Kg	250
75-34-3	1,1-Dichloroethane	BRL	ug/Kg	250
156-59-2	cis-1,2-Dichloroethene	BRL	ug/Kg	250
78-93-3	2-Butanone (MEK)	BRL	ug/Kg	2,500
67-66-3	Chloroform	BRL	ug/Kg	250
71-55-6	1,1,1-Trichloroethane	BRL	ug/Kg	250
56-23-5	Carbon Tetrachloride	BRL	ug/Kg	250
71-43-2	Benzene	BRL	ug/Kg	250
107-06-2	1,2-Dichloroethane	BRL	ug/Kg	250
79-01-6	Trichloroethene	BRL	ug/Kg	250
78-87-5	1,2-Dichloropropane	BRL	ug/Kg	250
75-27-4	Bromodichloromethane	BRL	ug/Kg	250
10061-01-5	cis-1,3-Dichloropropene	BRL	ug/Kg	250
108-10-1	4-Methyl-2-Pentanone (MIBK)	BRL	ug/Kg	2,500
108-88-3	Toluene	BRL	ug/Kg	250
10061-02-6	trans-1,3-Dichloropropene	BRL	ug/Kg	250
79-00-5	1,1,2-Trichloroethane	BRL	ug/Kg	250
127-18-4	Tetrachloroethene	BRL	ug/Kg	250
591-78-6	2-Hexanone	BRL	ug/Kg	2,500
124-48-1	Dibromochloromethane	BRL	ug/Kg	250
108-90-7	Chlorobenzene	BRL	ug/Kg	250
100-41-4	Ethylbenzene	BRL	ug/Kg	250
108-38-3/106-42-3	meta-Xylene and para-Xylene	BRL	ug/Kg	250
95-47-6	ortho-Xylene	BRL	ug/Kg	250
100-42-5	Styrene	BRL	ug/Kg	250
75-25-2	Bromoform	BRL	ug/Kg	250
79-34-5	1,1,2,2-Tetrachloroethane	BRL	ug/Kg	250
QC Surrogate Compounds	Recovery	QC Limits		
Dibromofluoromethane	106 %	80 - 120 %		
1,2-Dichloroethane-d ₄	98 %	80 - 120 %		
Toluene-d ₈	98 %	81 - 117 %		
4-Bromofluorobenzene	100 %	74 - 121 %		

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Analyte list as specified by the Target Compound List (TCL) of the US EPA Contract Laboratory Program. Results are reported on a dry weight basis. Analysis performed utilizing methanol extraction technique.

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 8082 Polychlorinated Biphenyls (PCBs) by GC/ECD

Field ID: Stockpile Laboratory ID: 38130-02
Project: Bossi/00-E-033 QC Batch ID: PB-1207-M
Client: WEB Engineering Sampled: 12-18-00
Container: 250 mL Glass Received: 12-20-00
Preservation: Cool Extracted: 12-29-00
Matrix: Soil Analyzed: 01-03-01
% Moisture: 11 Dilution Factor: 1

CAS Number	Analyte	Concentration	Units	Reporting Limit
12674-11-2	Aroclor 1016	BRL	ug/Kg	88
11104-28-2	Aroclor 1221	BRL	ug/Kg	88
11141-16-5	Aroclor 1232	BRL	ug/Kg	88
53469-21-9	Aroclor 1242	BRL	ug/Kg	88
12672-29-6	Aroclor 1248	BRL	ug/Kg	88
11097-69-1	Aroclor 1254	BRL	ug/Kg	88
11096-82-5	Aroclor 1260	BRL	ug/Kg	88

QC Surrogate Compound	Recovery	QC Limits
Tetrachloro- <i>m</i> -xylene	85 %	25 - 121 %
Decachlorobiphenyl	106 %	28 - 138 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Analyte list as Aroclor analytes formerly specified by EPA Method 8080A. 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.

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

Field ID:	Stockpile	Laboratory ID:	38130-02
Project:	Bossi/00-E-033	QC Batch ID:	HF-1430-M
Client:	WEB Engineering	Sampled:	12-18-00
Container:	250 mL Glass	Received:	12-20-00
Preservation:	Cool	Extracted:	12-29-00
Matrix:	Soil	Analyzed:	01-04-01
% Moisture:	11	Dilution Factor:	1

Qualitative Identification

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

1. Petroleum products in the n-C16 to n-C36 range.
2. 3 through 5 ring polynuclear aromatic hydrocarbons.

Analyte	Concentration	Units	Reporting Limit
Total Petroleum Hydrocarbons	110	mg/Kg	66

QC Surrogate Compound	Recovery	QC Limits
ortho-Terphenyl	93 %	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 5 α -androstane. Sample preparation protocol modified by use of microwave accelerated solvent extraction. Results are reported on a dry weight basis.

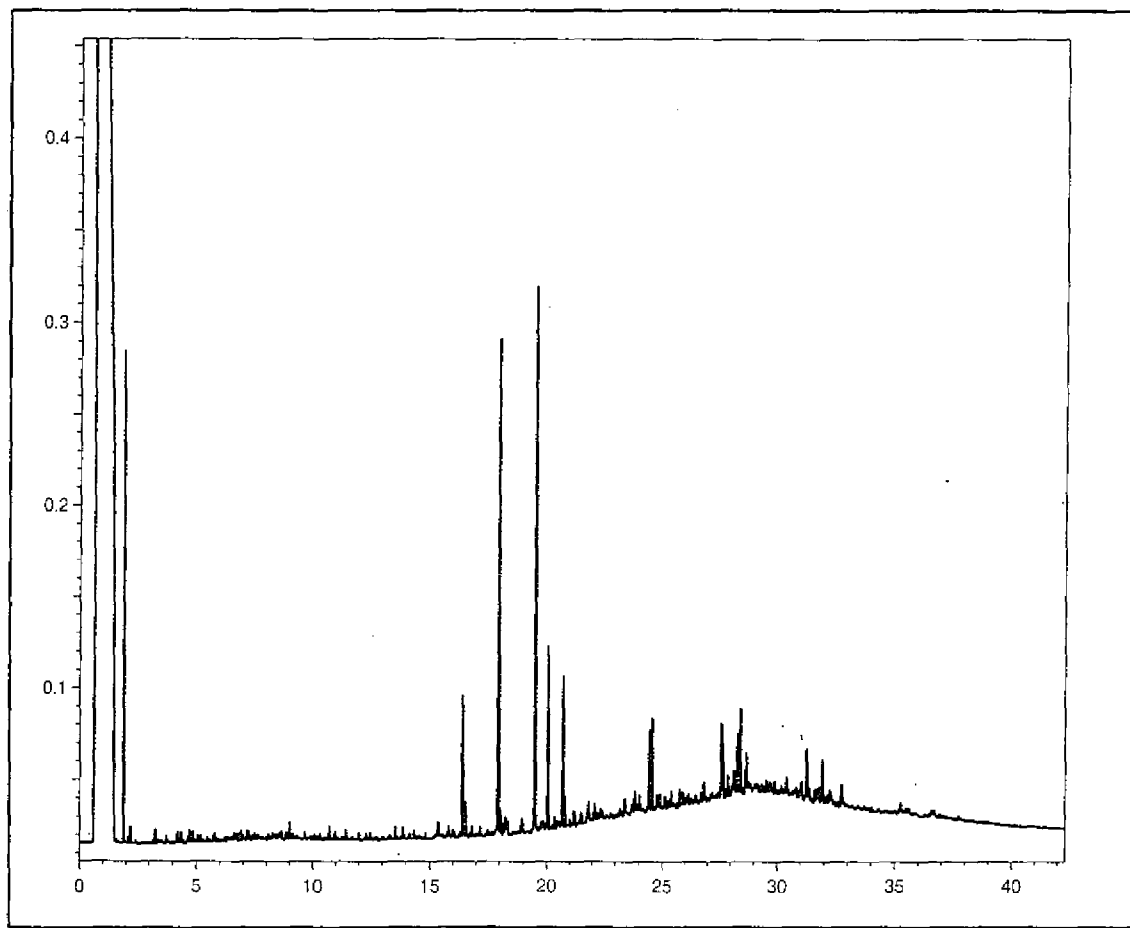
Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample dilution and sample size.

**GROUNDWATER
ANALYTICAL**

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

Lab ID: 38130-02

Hydrocarbons Laboratory



Retention Time (Minutes)

GROUNDWATER ANALYTICAL

Trace Metals by ICP-AES and CVAA

Field ID: Stockpile
Project: Bossi/00-E-033
Client: WEB Engineering
Container: 250 mL Glass
Preservation: Cool
Matrix: Soil

Laboratory ID: 38130-02
Sampled: 12-18-00
Received: 12-20-00
% Solids 89

CAS Number	Analyte	Concentration	Units	Reporting Limit	Analyzed	OC Batch	Method
7440-38-2	Arsenic, Total	BRL	mg/Kg	5.8	01-02-01	MM-01194-S	6010B
7440-43-9	Cadmium, Total	BRL	mg/Kg	0.58	01-02-01	MM-01194-S	6010B
7440-47-3	Chromium, Total	13	mg/Kg	12	01-02-01	MM-01194-S	6010B
7439-92-1	Lead, Total	24	mg/Kg	12	01-02-01	MM-01194-S	6010B
7439-97-6	Mercury, Total	BRL	mg/Kg	0.058	12-22-00	MP-0902-S	7471A

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

RCRA Hazardous Waste Characterization

Field ID: Stockpile
Project: Bossi/00-E-033
Client: WEB Engineering
Container: 250 mL Glass
Preservation: Cool
Matrix: Solid

Laboratory ID: 38130-02
Sampled: 12-18-00
Received: 12-20-00

Analyte	Result	Units	Reporting Limit	RCRA Limit	Analyzed	Method
Corrosivity (as pH)	7.2	pH	2.0	>2.0 and <12.5	01-02-01	EPA 9045C
Ignitability (as Flashpoint)	> 165	°F	70	+	01-02-01	EPA 1010-Mod
Reactive Cyanide	BRL	mg/Kg	5	250 ^o	01-02-01	SW-846 Chp. 7.3.1
Reactive Sulfide	BRL	mg/Kg	25	500 ^o	01-02-01	SW-846 Chp. 7.3.4

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

Report Notations:

- BRL Indicates result, if any, is below reporting limit for analyte. Reporting limit is the lowest value that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample dilution and sample size.
- + When ignited, burns so vigorously and persistently that it creates a hazard (40 C.F.R. 261.22).
- o Current EPA guidance level (SW-846).

Project Narrative

Project: **Bossi/00-E-033**
Client: **WEB Engineering**

Lab ID: **38130**
Received: **12-20-00**

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, P.O. Box 1200
Buzzards Bay, MA 02532
Telephone (508) 759-4441
FAX (508) 759-4475

Project Name: BOSSE
Project Number: 00-E-033
Sampler Name: S. Rumba
Project Manager: S. Rumba
Firm: WEG
Address: 106 LONGWATER DR.
City / State / Zip: NORWELL, MA 02061
Telephone: 781 878-2266

CHAIN-OF-CUSTODY RECORD AND WORK ORDER

STANDARD (10 Business Days)
 PRIORITY (5 Business Days)
 RUSH (RAIN - Flush requires Flush Authorization Number)
Please FAX YES NO
FAX Number: 781 878-2266

Purchase Order No.: _____ GWA Reference No.: _____

Matrix Type	Matrix	Type	Containers(s)	Preservation	Filtered	LABORATORY NUMBER (Lab Use Only)
WATER	X	K	1	NO	NO	39130
COMPOSITE	X	K	1	NO	NO	
SOIL	X	K	2	NO	NO	

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

TURNAROUND ANALYSIS REQUEST

Options	Volatiles	Semi-volatiles	Permeable Inorganic	Trace Metals	General Chemistry	Other
<input type="checkbox"/> TC Screen	<input type="checkbox"/> 8200/00/01 <input type="checkbox"/> 8200/00/02 <input type="checkbox"/> 8200/00/03 <input type="checkbox"/> 8200/00/04 <input type="checkbox"/> 8200/00/05 <input type="checkbox"/> 8200/00/06 <input type="checkbox"/> 8200/00/07 <input type="checkbox"/> 8200/00/08 <input type="checkbox"/> 8200/00/09 <input type="checkbox"/> 8200/00/10 <input type="checkbox"/> 8200/00/11 <input type="checkbox"/> 8200/00/12 <input type="checkbox"/> 8200/00/13 <input type="checkbox"/> 8200/00/14 <input type="checkbox"/> 8200/00/15 <input type="checkbox"/> 8200/00/16 <input type="checkbox"/> 8200/00/17 <input type="checkbox"/> 8200/00/18 <input type="checkbox"/> 8200/00/19 <input type="checkbox"/> 8200/00/20	<input type="checkbox"/> 8200/00/01 <input type="checkbox"/> 8200/00/02 <input type="checkbox"/> 8200/00/03 <input type="checkbox"/> 8200/00/04 <input type="checkbox"/> 8200/00/05 <input type="checkbox"/> 8200/00/06 <input type="checkbox"/> 8200/00/07 <input type="checkbox"/> 8200/00/08 <input type="checkbox"/> 8200/00/09 <input type="checkbox"/> 8200/00/10 <input type="checkbox"/> 8200/00/11 <input type="checkbox"/> 8200/00/12 <input type="checkbox"/> 8200/00/13 <input type="checkbox"/> 8200/00/14 <input type="checkbox"/> 8200/00/15 <input type="checkbox"/> 8200/00/16 <input type="checkbox"/> 8200/00/17 <input type="checkbox"/> 8200/00/18 <input type="checkbox"/> 8200/00/19 <input type="checkbox"/> 8200/00/20	<input type="checkbox"/> 8200/00/01 <input type="checkbox"/> 8200/00/02 <input type="checkbox"/> 8200/00/03 <input type="checkbox"/> 8200/00/04 <input type="checkbox"/> 8200/00/05 <input type="checkbox"/> 8200/00/06 <input type="checkbox"/> 8200/00/07 <input type="checkbox"/> 8200/00/08 <input type="checkbox"/> 8200/00/09 <input type="checkbox"/> 8200/00/10 <input type="checkbox"/> 8200/00/11 <input type="checkbox"/> 8200/00/12 <input type="checkbox"/> 8200/00/13 <input type="checkbox"/> 8200/00/14 <input type="checkbox"/> 8200/00/15 <input type="checkbox"/> 8200/00/16 <input type="checkbox"/> 8200/00/17 <input type="checkbox"/> 8200/00/18 <input type="checkbox"/> 8200/00/19 <input type="checkbox"/> 8200/00/20	<input type="checkbox"/> 8200/00/01 <input type="checkbox"/> 8200/00/02 <input type="checkbox"/> 8200/00/03 <input type="checkbox"/> 8200/00/04 <input type="checkbox"/> 8200/00/05 <input type="checkbox"/> 8200/00/06 <input type="checkbox"/> 8200/00/07 <input type="checkbox"/> 8200/00/08 <input type="checkbox"/> 8200/00/09 <input type="checkbox"/> 8200/00/10 <input type="checkbox"/> 8200/00/11 <input type="checkbox"/> 8200/00/12 <input type="checkbox"/> 8200/00/13 <input type="checkbox"/> 8200/00/14 <input type="checkbox"/> 8200/00/15 <input type="checkbox"/> 8200/00/16 <input type="checkbox"/> 8200/00/17 <input type="checkbox"/> 8200/00/18 <input type="checkbox"/> 8200/00/19 <input type="checkbox"/> 8200/00/20	<input type="checkbox"/> 8200/00/01 <input type="checkbox"/> 8200/00/02 <input type="checkbox"/> 8200/00/03 <input type="checkbox"/> 8200/00/04 <input type="checkbox"/> 8200/00/05 <input type="checkbox"/> 8200/00/06 <input type="checkbox"/> 8200/00/07 <input type="checkbox"/> 8200/00/08 <input type="checkbox"/> 8200/00/09 <input type="checkbox"/> 8200/00/10 <input type="checkbox"/> 8200/00/11 <input type="checkbox"/> 8200/00/12 <input type="checkbox"/> 8200/00/13 <input type="checkbox"/> 8200/00/14 <input type="checkbox"/> 8200/00/15 <input type="checkbox"/> 8200/00/16 <input type="checkbox"/> 8200/00/17 <input type="checkbox"/> 8200/00/18 <input type="checkbox"/> 8200/00/19 <input type="checkbox"/> 8200/00/20	<input type="checkbox"/> 8200/00/01 <input type="checkbox"/> 8200/00/02 <input type="checkbox"/> 8200/00/03 <input type="checkbox"/> 8200/00/04 <input type="checkbox"/> 8200/00/05 <input type="checkbox"/> 8200/00/06 <input type="checkbox"/> 8200/00/07 <input type="checkbox"/> 8200/00/08 <input type="checkbox"/> 8200/00/09 <input type="checkbox"/> 8200/00/10 <input type="checkbox"/> 8200/00/11 <input type="checkbox"/> 8200/00/12 <input type="checkbox"/> 8200/00/13 <input type="checkbox"/> 8200/00/14 <input type="checkbox"/> 8200/00/15 <input type="checkbox"/> 8200/00/16 <input type="checkbox"/> 8200/00/17 <input type="checkbox"/> 8200/00/18 <input type="checkbox"/> 8200/00/19 <input type="checkbox"/> 8200/00/20

CHAIN-OF-CUSTODY RECORD

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

Relinquished by Sampler: [Signature] Date: 12/20/00 Time: 14:30 Receipt Temperature: 4.0°C

Relinquished by: _____ Date: _____ Time: _____ Shipping/Airbill Number: _____

Relinquished by: [Signature] Date: 12/20/00 Time: 14:30 Received by Laboratory: [Signature]

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

DATA QUALITY OBJECTIVES

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 program requires. 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 Selection of QC Sample

Sample Duplicate Selected by Laboratory

Matrix Spike Please use sample: _____

Matrix Spike Duplicate

REMARKS / SPECIAL INSTRUCTIONS

Regulatory Program

Safe Drinking Water Act
 MA DEP Form
 NPDES/Clean Water Act
Specify Slab: _____
 RCRA/Haz. Waste Char.
 MA MCP (310 CMR 40)
Reportable Concentrations:
 RCGW - 1 RCS - 1
 RCGW - 2 RCS - 2
 MA Dredge Disposal
 NH RI CT ME
Specify Category: _____

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: Metals
Matrix: Soil

CAS Number	Analyte	Method	QC Batch	Units	Spiked	Measured	Recovery	QC Limits
7440-38-2	Arsenic	6010B	MM-1194-SL	mg/Kg	100	89	89 %	80 - 120 %
7440-43-9	Cadmium	6010B	MM-1194-SL	mg/Kg	100	87	87 %	80 - 120 %
7440-47-3	Chromium	6010B	MM-1194-SL	mg/Kg	100	85	85 %	80 - 120 %
7439-92-1	Lead	6010B	MM-1194-SL	mg/Kg	100	87	87 %	80 - 120 %
7439-97-6	Mercury	7471A	MP-0902-SL	mg/Kg	0.25	0.26	105 %	80 - 120 %

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

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

GROUNDWATER ANALYTICAL

Quality Control Report Method Blank

Category: Metals
Matrix: Soil

CAS Number	Analyte	Result	Units	Reporting Limit	QC Batch	Method
7440-38-2	Arsenic	BRL	mg/Kg	5	MM-1194-SB	6010B
7440-43-9	Cadmium	BRL	mg/Kg	0.5	MM-1195-SB	6010B
7440-47-3	Chromium	BRL	mg/Kg	10.0	MM-1196-SB	6010B
7439-92-1	Lead	BRL	mg/Kg	10	MM-1197-SB	6010B
7439-97-6	Mercury	BRL	mg/Kg	0.05	MP-0902-SB	7471A

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

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

GROUNDWATER ANALYTICAL

Quality Control Report Laboratory Control Sample

Category: ASTM Method D3328-90 (Modified)
QC Batch ID: HF-1430-M
Matrix: Soil
Units: mg/Kg

Analyte	Spiked	Measured	Recovery	QC Limits
Fuel Oil No. 2	130	110	83 %	60 - 140 %

QC Surrogate Compound	Recovery	QC Limits
<i>ortho</i> -Terphenyl	96 %	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 5 α -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-1430-M
Matrix: Soil

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

QC Surrogate Compound	Recovery	QC Limits
<i>ortho</i> -Terphenyl	93 %	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 5 α -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

Quality Control Report Laboratory Control Sample

Category: EPA Method 8082
QC Batch ID: PB-1207-M
Matrix: Soil
Units: ug/Kg

CAS Number	Analyte	Spiked	Measured	Recovery	QC Limits
11097-69-1	Aroclor 1254	330	310	92%	70 - 130 %
QC Surrogate Compound		Recovery		QC Limits	
Tetrachloro- <i>m</i> -xylene		77%		25 - 121 %	
Decachlorobiphenyl		93%		28 - 138 %	

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Results are calculated 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 Laboratory Control Sample

Category: EPA Method 8260B
QC Batch ID: VM4-1614-EL
Matrix: Soil
Units: ug/Kg

CAS Number	Analyte	Spiked	Measured	Recovery	QC Limits
75-35-4	1,1-Dichloroethene	2,500	2,400	96 %	70 - 130 %
71-43-2	Benzene	2,500	2,400	96 %	70 - 130 %
79-01-6	Trichloroethene	2,500	2,500	98 %	70 - 130 %
108-88-3	Toluene	2,500	2,300	93 %	70 - 130 %
108-90-7	Chlorobenzene	2,500	2,300	93 %	70 - 130 %

QC Surrogate Compounds	Recovery	QC Limits
Dibromofluoromethane	112 %	80 - 120 %
1,2-Dichloroethane-d ₄	98 %	80 - 120 %
Toluene-d ₈	99 %	81 - 117 %
4-Bromofluorobenzene	102 %	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: VM4-1614-EB
Matrix: Soil

CAS Number	Analyte	Concentration	Units	Reporting Limit
74-87-3	Chloromethane	BRL	ug/Kg	500
75-01-4	Vinyl Chloride	BRL	ug/Kg	500
74-83-9	Bromomethane	BRL	ug/Kg	500
75-00-3	Chloroethane	BRL	ug/Kg	500
75-35-4	1,1-Dichloroethene	BRL	ug/Kg	250
67-64-1	Acetone	BRL	ug/Kg	2,500
75-15-0	Carbon Disulfide	BRL	ug/Kg	2,500
75-09-2	Methylene Chloride	BRL	ug/Kg	1000
156-60-5	<i>trans</i> -1,2-Dichloroethene	BRL	ug/Kg	250
1634-04-4	Methyl <i>tert</i> -butyl Ether (MTBE) ⁰	BRL	ug/Kg	250
75-34-3	1,1-Dichloroethane	BRL	ug/Kg	250
156-59-2	<i>cis</i> -1,2-Dichloroethene	BRL	ug/Kg	250
78-93-3	2-Butanone (MEK)	BRL	ug/Kg	2,500
67-66-3	Chloroform	BRL	ug/Kg	250
71-55-6	1,1,1-Trichloroethane	BRL	ug/Kg	250
56-23-5	Carbon Tetrachloride	BRL	ug/Kg	250
71-43-2	Benzene	BRL	ug/Kg	250
107-06-2	1,2-Dichloroethane	BRL	ug/Kg	250
79-01-6	Trichloroethene	BRL	ug/Kg	250
78-87-5	1,2-Dichloropropane	BRL	ug/Kg	250
75-27-4	Bromodichloromethane	BRL	ug/Kg	250
10061-01-5	<i>cis</i> -1,3-Dichloropropene	BRL	ug/Kg	250
108-10-1	4-Methyl-2-Pentanone (MIBK)	BRL	ug/Kg	2,500
108-88-3	Toluene	BRL	ug/Kg	250
10061-02-6	<i>trans</i> -1,3-Dichloropropene	BRL	ug/Kg	250
79-00-5	1,1,2-Trichloroethane	BRL	ug/Kg	250
127-18-4	Tetrachloroethene	BRL	ug/Kg	250
591-78-6	2-Hexanone	BRL	ug/Kg	2,500
124-48-1	Dibromochloromethane	BRL	ug/Kg	250
108-90-7	Chlorobenzene	BRL	ug/Kg	250
100-41-4	Ethylbenzene	BRL	ug/Kg	250
108-38-3/106-42-3	<i>meta</i> -Xylene and <i>para</i> -Xylene	BRL	ug/Kg	250
95-47-6	<i>ortho</i> -Xylene	BRL	ug/Kg	250
100-42-5	Styrene	BRL	ug/Kg	250
75-25-2	Bromoform	BRL	ug/Kg	250
79-34-5	1,1,2,2-Tetrachloroethane	BRL	ug/Kg	250

QC Surrogate Compound	Recovery	QC Limits
Dibromofluoromethane	110 %	80 - 120 %
1,2-Dichloroethane-d ₄	97 %	80 - 120 %
Toluene-d ₈	98 %	81 - 117 %
4-Bromofluorobenzene	102 %	74 - 121 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Analyte list as specified by the Target Compound List (TCL) of the US EPA Contract Laboratory Program. 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.

0 Indicates additional target analyte.

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

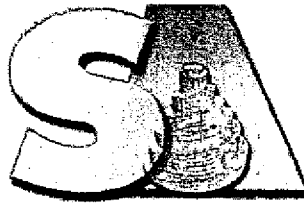
Metals by Graphite Furnace, Metals by ICP, Mercury, pH, Specific Conductivity, TDS, Total Hardness, Calcium, Magnesium, Sodium, Potassium, Total Alkalinity, Chloride, Fluoride, Sulfate, Ammonia-N, Nitrate-N, Orthophosphate, TKN, Total Phosphorus, COD, BOD, Non-Filterable Residue, Oil & Grease, Total 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

Report Date:
07-Mar-05 15:20



- Final Report
 Re-Issued Report
 Revised Report

SPECTRUM ANALYTICAL, INC.

Featuring
HANIBAL TECHNOLOGY

Laboratory Report

REMSERV, Inc.
35 Winthrop Street
Winchester, MA 01890
Attn: Tom Simmons

Project: Bossi's-12 Swanton St-MA
Project #: [none]

<u>Laboratory ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Date Sampled</u>	<u>Date Received</u>
SA24677-01	B101 S4 13-15	Soil	28-Feb-05 00:00	01-Mar-05 14:50
SA24677-02	B102 S1B 11.5-12	Soil	28-Feb-05 00:00	01-Mar-05 14:50
SA24677-03	B103 S1 13-15	Soil	28-Feb-05 00:00	01-Mar-05 14:50
SA24677-04	B104 S1 13-15	Soil	28-Feb-05 00:00	01-Mar-05 14:50

I attest that the information contained within the report has been reviewed for accuracy and checked against the quality control requirements for each method. All applicable NELAC requirements have been met.

Please note that this report contains 17 pages of analytical data plus Chain of Custody document(s).

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Massachusetts Certification # M-MA138/MA1110
Connecticut # PH-0777
Florida # E87600/E87936
Maine # MA138
New Hampshire # 2538/2972
New York # 11393/11840
Rhode Island # 98
USDA # S-51435
Vermont # VT-11393



Authorized by:

Hanibal C. Tayeh, Ph.D.
President/Laboratory Director

Spectrum Analytical, Inc. is a NELAC accredited laboratory organization and meets NELAC testing standards. Use of the NELAC logo however does not insure that Spectrum is currently accredited for the specific method indicated. Please refer to our "Quality" webpage at www.spectrum-analytical.com for a full listing of our current certifications.

ENVIRONMENTAL ANALYSES

11 Almgren Drive • Agawam, Massachusetts 01001 • Operational Building & Sample Receiving
830 Silver Street • Agawam, Massachusetts 01001 • Administrative Offices, Volatile & Air Departments
1-800-789-9115 • 413-789-9018 • Fax 413-789-4076

Sample Identification

B101 S4 13-15

SA24677-01

Client Project #

[none]

Matrix

Soil

Collection Date/Time

28-Feb-05 00:00

Received

01-Mar-05

CAS No.	Analyte(s)	Result	*RDL/Units	Dilution	Method Ref.	Prepared	Analyzed	Batch	Analyst	Flag
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Volatile Organic Compounds

VOC Extraction	Field extracted	N/A	1	VOC	01-Mar-05	01-Mar-05	5030088	ES		
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VPH Aliphatic/Aromatic Carbon Ranges

Prepared by method VPH

VOC10

C5-C8 Aliphatic Hydrocarbons	16.4	1.34 mg/kg dry	100	+MADEP 5/2004 Rev. 1.1	03-Mar-05	03-Mar-05	5030179	ss		
C9-C12 Aliphatic Hydrocarbons	6.08	0.446 mg/kg dry	100	"	"	"	"	"		
C9-C10 Aromatic Hydrocarbons	8.66	0.446 mg/kg dry	100	"	"	"	"	"		
Unadjusted C5-C8 Aliphatic Hydrocarbons	16.7	1.34 mg/kg dry	100	"	"	"	"	"		
Unadjusted C9-C12 Aliphatic Hydrocarbons	14.7	0.446 mg/kg dry	100	"	"	"	"	"		

VPH Target Analytes

Prepared by method VPH

VOC10

71-43-2 Benzene	BRL	89.3 µg/kg dry	100	"	"	"	"	"		
100-41-4 Ethylbenzene	BRL	89.3 µg/kg dry	100	"	"	"	"	"		
1634-04-4 Methyl tert-butyl ether	BRL	89.3 µg/kg dry	100	"	"	"	"	"		
91-20-3 Naphthalene	332	89.3 µg/kg dry	100	"	"	"	"	"		
108-88-3 Toluene	140	89.3 µg/kg dry	100	"	"	"	"	"		
1330-20-7 m,p-Xylene	BRL	179 µg/kg dry	100	"	"	"	"	"		
95-47-6 o-Xylene	BRL	89.3 µg/kg dry	100	"	"	"	"	"		

Surrogate recoveries:

615-59-8 2,5-Dibromotoluene (FID)	118	70-130 %	"	"	"	"	"	"		
615-59-8 2,5-Dibromotoluene (PID)	104	70-130 %	"	"	"	"	"	"		

Extractable Petroleum Hydrocarbons

EPH Aliphatic/Aromatic Ranges

Prepared by method SW846 3545A

C9-C18 Aliphatic Hydrocarbons	BRL	29.6 mg/kg dry	1	+MADEP 5/2004 R	03-Mar-05	06-Mar-05	5030185	M.B		
C19-C36 Aliphatic Hydrocarbons	BRL	29.6 mg/kg dry	1	"	"	"	"	"		
C11-C22 Aromatic Hydrocarbons	BRL	29.6 mg/kg dry	1	"	"	"	"	"		
Unadjusted C11-C22 Aromatic Hydrocarbons	BRL	29.6 mg/kg dry	1	"	"	"	"	"		
Total Petroleum Hydrocarbons	BRL	29.6 mg/kg dry	1	"	"	"	"	"		
Unadjusted Total Petroleum Hydrocarbons	BRL	29.6 mg/kg dry	1	"	"	"	"	"		

EPH Target PAH Analytes

Prepared by method SW846 3545A

91-20-3 Naphthalene	BRL	147 µg/kg dry	1	"	"	"	"	"		
91-57-6 2-Methylnaphthalene	162	147 µg/kg dry	1	"	"	"	"	"		
208-96-8 Acenaphthylene	BRL	147 µg/kg dry	1	"	"	"	"	"		
83-32-9 Acenaphthene	BRL	147 µg/kg dry	1	"	"	"	"	"		
86-73-7 Fluorene	BRL	147 µg/kg dry	1	"	"	"	"	"		
85-01-8 Phenanthrene	BRL	147 µg/kg dry	1	"	"	"	"	"		
120-12-7 Anthracene	BRL	147 µg/kg dry	1	"	"	"	"	"		
206-44-0 Fluoranthene	BRL	147 µg/kg dry	1	"	"	"	"	"		
129-00-0 Pyrene	BRL	147 µg/kg dry	1	"	"	"	"	"		
56-55-3 Benzo (a) anthracene	BRL	147 µg/kg dry	1	"	"	"	"	"		
218-01-9 Chrysene	BRL	147 µg/kg dry	1	"	"	"	"	"		
205-99-2 Benzo (b) fluoranthene	BRL	147 µg/kg dry	1	"	"	"	"	"		

This laboratory report is not valid without an authorized signature on the cover page.

* Reportable Detection Limit

BRL = Below Reporting Limit

Sample Identification

B101 S4 13-15

SA24677-01

Client Project #

[none]

Matrix

Soil

Collection Date/Time

28-Feb-05 00:00

Received

01-Mar-05

CAS No.	Analyte(s)	Result	*RDL/Units	Dilution	Method Ref.	Prepared	Analyzed	Batch	Analyst	Flag
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Extractable Petroleum Hydrocarbons

EPH Target PAH Analytes

Prepared by method SW846 3545A

207-08-9	Benzo (k) fluoranthene	BRL	147 µg/kg dry	1	+MADEP 5/2004 R	03-Mar-05	06-Mar-05	5030185	M.B	
50-32-8	Benzo (a) pyrene	BRL	147 µg/kg dry	1	"	"	"	"	"	"
193-39-5	Indeno (1,2,3-cd) pyrene	BRL	147 µg/kg dry	1	"	"	"	"	"	"
53-70-3	Dibenzo (a,h) anthracene	BRL	147 µg/kg dry	1	"	"	"	"	"	"
191-24-2	Benzo (g,h,i) perylene	BRL	147 µg/kg dry	1	"	"	"	"	"	"

Surrogate recoveries:

3386-33-2	1-Chlorooctadecane	61.0	40-140 %		"	"	"	"	"	"
84-15-1	Ortho-Terphenyl	68.3	40-140 %		"	"	"	"	"	"
580-13-2	2-Bromonaphthalene	65.1	40-140 %		"	"	"	"	"	"
321-60-8	2-Fluorobiphenyl	76.6	40-140 %		"	"	"	"	"	"

General Chemistry Parameters

% Solids	89.9	%		1	SM2540 G Mod.	01-Mar-05	02-Mar-05	5030086	AJ	
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This laboratory report is not valid without an authorized signature on the cover page.

* Reportable Detection Limit

BRL = Below Reporting Limit

Sample Identification
 B102 S1B 11.5-12
 SA24677-02

Client Project #
 [none]

Matrix
 Soil

Collection Date/Time
 28-Feb-05 00:00

Received
 01-Mar-05

CAS No.	Analyte(s)	Result	*RDL/Units	Dilution	Method Ref.	Prepared	Analyzed	Batch	Analyst	Flag
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Volatile Organic Compounds

VOC Extraction	Field extracted	N/A	1	VOC	01-Mar-05	01-Mar-05	5030088	ES
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VPH Aliphatic/Aromatic Carbon Ranges Prepared by method VPH

C5-C8 Aliphatic Hydrocarbons	BRL	0.940 mg/kg dry	50	+MADEP 5/2004 Rev. 1.1	03-Mar-05	03-Mar-05	5030179	ss
C9-C12 Aliphatic Hydrocarbons	BRL	0.313 mg/kg dry	50	"	"	"	"	"
C9-C10 Aromatic Hydrocarbons	BRL	0.313 mg/kg dry	50	"	"	"	"	"
Unadjusted C5-C8 Aliphatic Hydrocarbons	BRL	0.940 mg/kg dry	50	"	"	"	"	"
Unadjusted C9-C12 Aliphatic Hydrocarbons	BRL	0.313 mg/kg dry	50	"	"	"	"	"

VPH Target Analytes Prepared by method VPH

71-43-2 Benzene	BRL	62.7 µg/kg dry	50	"	"	"	"	"
100-41-4 Ethylbenzene	BRL	62.7 µg/kg dry	50	"	"	"	"	"
1634-04-4 Methyl tert-butyl ether	BRL	62.7 µg/kg dry	50	"	"	"	"	"
91-20-3 Naphthalene	BRL	62.7 µg/kg dry	50	"	"	"	"	"
108-88-3 Toluene	BRL	62.7 µg/kg dry	50	"	"	"	"	"
1330-20-7 m,p-Xylene	BRL	125 µg/kg dry	50	"	"	"	"	"
95-47-6 o-Xylene	BRL	62.7 µg/kg dry	50	"	"	"	"	"

Surrogate recoveries:

615-59-8 2,5-Dibromotoluene (FID)	115	70-130 %	"	"	"	"	"	"
615-59-8 2,5-Dibromotoluene (PID)	102	70-130 %	"	"	"	"	"	"

Extractable Petroleum Hydrocarbons

EPH Aliphatic/Aromatic Ranges Prepared by method SW846 3545A

C9-C18 Aliphatic Hydrocarbons	BRL	30.0 mg/kg dry	1	+MADEP 5/2004 R	03-Mar-05	06-Mar-05	5030185	M.B
C19-C36 Aliphatic Hydrocarbons	BRL	30.0 mg/kg dry	1	"	"	"	"	"
C11-C22 Aromatic Hydrocarbons	BRL	30.0 mg/kg dry	1	"	"	"	"	"
Unadjusted C11-C22 Aromatic Hydrocarbons	BRL	30.0 mg/kg dry	1	"	"	"	"	"
Total Petroleum Hydrocarbons	BRL	30.0 mg/kg dry	1	"	"	"	"	"
Unadjusted Total Petroleum Hydrocarbons	BRL	30.0 mg/kg dry	1	"	"	"	"	"

EPH Target PAH Analytes Prepared by method SW846 3545A

91-20-3 Naphthalene	BRL	149 µg/kg dry	1	"	"	"	"	"
91-57-6 2-Methylnaphthalene	BRL	149 µg/kg dry	1	"	"	"	"	"
208-96-8 Acenaphthylene	BRL	149 µg/kg dry	1	"	"	"	"	"
83-32-9 Acenaphthene	BRL	149 µg/kg dry	1	"	"	"	"	"
86-73-7 Fluorene	BRL	149 µg/kg dry	1	"	"	"	"	"
85-01-8 Phenanthrene	BRL	149 µg/kg dry	1	"	"	"	"	"
120-12-7 Anthracene	BRL	149 µg/kg dry	1	"	"	"	"	"
206-44-0 Fluoranthene	BRL	149 µg/kg dry	1	"	"	"	"	"
129-00-0 Pyrene	BRL	149 µg/kg dry	1	"	"	"	"	"
56-55-3 Benzo (a) anthracene	BRL	149 µg/kg dry	1	"	"	"	"	"
218-01-9 Chrysene	BRL	149 µg/kg dry	1	"	"	"	"	"
205-99-2 Benzo (b) fluoranthene	BRL	149 µg/kg dry	1	"	"	"	"	"

This laboratory report is not valid without an authorized signature on the cover page.

* Reportable Detection Limit

BRL = Below Reporting Limit

Sample Identification

B102 S1B 11.5-12

SA24677-02

Client Project #

[none]

Matrix

Soil

Collection Date/Time

28-Feb-05 00:00

Received

01-Mar-05

CAS No.	Analyte(s)	Result	*RDL/Units	Dilution	Method Ref.	Prepared	Analyzed	Batch	Analyst	Flag
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Extractable Petroleum Hydrocarbons

EPH Target PAH Analytes

Prepared by method SW846 3545A

207-08-9	Benzo (k) fluoranthene	BRL	149 µg/kg dry	1	+MADEP 5/2004 R	03-Mar-05	06-Mar-05	5030185	M.B	
50-32-8	Benzo (a) pyrene	BRL	149 µg/kg dry	1	"	"	"	"	"	"
193-39-5	Indeno (1,2,3-cd) pyrene	BRL	149 µg/kg dry	1	"	"	"	"	"	"
53-70-3	Dibenzo (a,h) anthracene	BRL	149 µg/kg dry	1	"	"	"	"	"	"
191-24-2	Benzo (g,h,i) perylene	BRL	149 µg/kg dry	1	"	"	"	"	"	"

Surrogate recoveries:

3386-33-2	1-Chlorooctadecane	76.7	40-140 %		"	"	"	"	"	"
84-15-1	Ortho-Terphenyl	73.3	40-140 %		"	"	"	"	"	"
580-13-2	2-Bromonaphthalene	60.9	40-140 %		"	"	"	"	"	"
321-60-8	2-Fluorobiphenyl	77.6	40-140 %		"	"	"	"	"	"

General Chemistry Parameters

% Solids	90.8	%	1	SM2540 G Mod.	01-Mar-05	02-Mar-05	5030086	AJ		
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This laboratory report is not valid without an authorized signature on the cover page.

* Reportable Detection Limit

BRL = Below Reporting Limit

Sample Identification

B103 S1 13-15
SA24677-03

Client Project #
[none]

Matrix
Soil

Collection Date/Time
28-Feb-05 00:00

Received
01-Mar-05

CAS No.	Analyte(s)	Result	*RDL/Units	Dilution	Method Ref.	Prepared	Analyzed	Batch	Analyst	Flag
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Volatile Organic Compounds

VOC Extraction	Field extracted	N/A	1	VOC	01-Mar-05	01-Mar-05	5030088	ES		
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VPH Aliphatic/Aromatic Carbon Ranges

Prepared by method VPH

VOC10

C5-C8 Aliphatic Hydrocarbons	639	22.4 mg/kg dry	2000	+MADEP 5/2004 Rev. 1.1	03-Mar-05	03-Mar-05	5030179	ss		
C9-C12 Aliphatic Hydrocarbons	217	7.48 mg/kg dry	2000	"	"	"	"	"		
C9-C10 Aromatic Hydrocarbons	280	7.48 mg/kg dry	2000	"	"	"	"	"		
Unadjusted C5-C8 Aliphatic Hydrocarbons	832	22.4 mg/kg dry	2000	"	"	"	"	"		
Unadjusted C9-C12 Aliphatic Hydrocarbons	497	7.48 mg/kg dry	2000	"	"	"	"	"		

VPH Target Analytes

Prepared by method VPH

VOC10

71-43-2 Benzene	1,750	748 µg/kg dry	2000	"	"	"	"	"		
100-41-4 Ethylbenzene	24,200	748 µg/kg dry	2000	"	"	"	"	"		
1634-04-4 Methyl tert-butyl ether	BRL	748 µg/kg dry	2000	"	"	"	"	"		
91-20-3 Naphthalene	9,550	748 µg/kg dry	2000	"	"	"	"	"		
108-88-3 Toluene	39,600	748 µg/kg dry	2000	"	"	"	"	"		
1330-20-7 m,p-Xylene	92,400	1500 µg/kg dry	2000	"	"	"	"	"		
95-47-6 o-Xylene	35,400	748 µg/kg dry	2000	"	"	"	"	"		

Surrogate recoveries:

615-59-8 2,5-Dibromotoluene (FID)	110	70-130 %	"	"	"	"	"	"		
615-59-8 2,5-Dibromotoluene (PID)	97.0	70-130 %	"	"	"	"	"	"		

Extractable Petroleum Hydrocarbons

EPH Aliphatic/Aromatic Ranges

Prepared by method SW846 3545A

C9-C18 Aliphatic Hydrocarbons	43.3	35.3 mg/kg dry	1	+MADEP 5/2004 R	03-Mar-05	06-Mar-05	5030185	M.B		
C19-C36 Aliphatic Hydrocarbons	BRL	35.3 mg/kg dry	1	"	"	"	"	"		
C11-C22 Aromatic Hydrocarbons	40.6	35.3 mg/kg dry	1	"	"	"	"	"		
Unadjusted C11-C22 Aromatic Hydrocarbons	48.5	35.3 mg/kg dry	1	"	"	"	"	"		
Total Petroleum Hydrocarbons	84.0	35.3 mg/kg dry	1	"	"	"	"	"		
Unadjusted Total Petroleum Hydrocarbons	91.9	35.3 mg/kg dry	1	"	"	"	"	"		

EPH Target PAH Analytes

Prepared by method SW846 3545A

91-20-3 Naphthalene	3,920	176 µg/kg dry	1	"	"	"	"	"		
91-57-6 2-Methylnaphthalene	3,990	176 µg/kg dry	1	"	"	"	"	"		
208-96-8 Acenaphthylene	BRL	176 µg/kg dry	1	"	"	"	"	"		
83-32-9 Acenaphthene	BRL	176 µg/kg dry	1	"	"	"	"	"		
86-73-7 Fluorene	BRL	176 µg/kg dry	1	"	"	"	"	"		
85-01-8 Phenanthrene	BRL	176 µg/kg dry	1	"	"	"	"	"		
120-12-7 Anthracene	BRL	176 µg/kg dry	1	"	"	"	"	"		
206-44-0 Fluoranthene	BRL	176 µg/kg dry	1	"	"	"	"	"		
129-00-0 Pyrene	BRL	176 µg/kg dry	1	"	"	"	"	"		
56-55-3 Benzo (a) anthracene	BRL	176 µg/kg dry	1	"	"	"	"	"		
218-01-9 Chrysene	BRL	176 µg/kg dry	1	"	"	"	"	"		
205-99-2 Benzo (b) fluoranthene	BRL	176 µg/kg dry	1	"	"	"	"	"		

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* Reportable Detection Limit

BRL = Below Reporting Limit

Sample Identification

B103 S1 13-15

SA24677-03

Client Project #

[none]

Matrix

Soil

Collection Date/Time

28-Feb-05 00:00

Received

01-Mar-05

<i>CAS No.</i>	<i>Analyte(s)</i>	<i>Result</i>	<i>*RDL/Units</i>	<i>Dilution</i>	<i>Method Ref.</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Batch</i>	<i>Analyst</i>	<i>Flag</i>
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Extractable Petroleum Hydrocarbons

EPH Target PAH Analytes

Prepared by method SW846 3545A

207-08-9	Benzo (k) fluoranthene	BRL	176 µg/kg dry	1	+MADEP 5/2004 R	03-Mar-05	06-Mar-05	5030185	M.B	
50-32-8	Benzo (a) pyrene	BRL	176 µg/kg dry	1	"	"	"	"	"	"
193-39-5	Indeno (1,2,3-cd) pyrene	BRL	176 µg/kg dry	1	"	"	"	"	"	"
53-70-3	Dibenzo (a,h) anthracene	BRL	176 µg/kg dry	1	"	"	"	"	"	"
191-24-2	Benzo (g,h,i) perylene	BRL	176 µg/kg dry	1	"	"	"	"	"	"

Surrogate recoveries:

3386-33-2	1-Chlorooctadecane	53.7	40-140 %		"	"	"	"	"	"
84-15-1	Ortho-Terphenyl	56.0	40-140 %		"	"	"	"	"	"
580-13-2	2-Bromonaphthalene	53.0	40-140 %		"	"	"	"	"	"
321-60-8	2-Fluorobiphenyl	76.8	40-140 %		"	"	"	"	"	"

General Chemistry Parameters

% Solids	91.9	%	1	SM2540 G Mod.	01-Mar-05	02-Mar-05	5030086	AJ		
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* Reportable Detection Limit

BRL = Below Reporting Limit

Sample Identification

B104 S1 13-15

SA24677-04

Client Project #

[none]

Matrix

Soil

Collection Date/Time

28-Feb-05 00:00

Received

01-Mar-05

CAS No.	Analyte(s)	Result	*RDL/Units	Dilution	Method Ref.	Prepared	Analyzed	Batch	Analyst	Flag
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Volatile Organic Compounds

VOC Extraction	Field extracted	N/A	1	VOC	01-Mar-05	01-Mar-05	5030088	ES		
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VPH Aliphatic/Aromatic Carbon Ranges

Prepared by method VPH

VOC10

C5-C8 Aliphatic Hydrocarbons	1,130	11.9 mg/kg dry	1000	+MADEP 5/2004 Rev. 1.1	03-Mar-05	03-Mar-05	5030179	ss		
C9-C12 Aliphatic Hydrocarbons	350	3.96 mg/kg dry	1000	"	"	"	"	"		
C9-C10 Aromatic Hydrocarbons	216	3.96 mg/kg dry	1000	"	"	"	"	"		
Unadjusted C5-C8 Aliphatic Hydrocarbons	1,150	11.9 mg/kg dry	1000	"	"	"	"	"		
Unadjusted C9-C12 Aliphatic Hydrocarbons	565	3.96 mg/kg dry	1000	"	"	"	"	"		

VPH Target Analytes

Prepared by method VPH

VOC10

71-43-2 Benzene	BRL	793 µg/kg dry	1000	"	"	"	"	"		
100-41-4 Ethylbenzene	2,720	793 µg/kg dry	1000	"	"	"	"	"		
1634-04-4 Methyl tert-butyl ether	BRL	793 µg/kg dry	1000	"	"	"	"	"		
91-20-3 Naphthalene	5,820	793 µg/kg dry	1000	"	"	"	"	"		
108-88-3 Toluene	5,990	793 µg/kg dry	1000	"	"	"	"	"		
1330-20-7 m,p-Xylene	9,100	1590 µg/kg dry	1000	"	"	"	"	"		
95-47-6 o-Xylene	2,620	793 µg/kg dry	1000	"	"	"	"	"		

Surrogate recoveries:

615-59-8 2,5-Dibromotoluene (FID)	101	70-130 %	"	"	"	"	"	"		
615-59-8 2,5-Dibromotoluene (PID)	91.6	70-130 %	"	"	"	"	"	"		

Extractable Petroleum Hydrocarbons

EPH Aliphatic/Aromatic Ranges

Prepared by method SW846 3545A

C9-C18 Aliphatic Hydrocarbons	129	36.1 mg/kg dry	1	+MADEP 5/2004 R	03-Mar-05	06-Mar-05	5030185	M.B		
C19-C36 Aliphatic Hydrocarbons	BRL	36.1 mg/kg dry	1	"	"	"	"	"		
C11-C22 Aromatic Hydrocarbons	57.3	36.1 mg/kg dry	1	"	"	"	"	"		
Unadjusted C11-C22 Aromatic Hydrocarbons	59.5	36.1 mg/kg dry	1	"	"	"	"	"		
Total Petroleum Hydrocarbons	200	36.1 mg/kg dry	1	"	"	"	"	"		
Unadjusted Total Petroleum Hydrocarbons	202	36.1 mg/kg dry	1	"	"	"	"	"		

EPH Target PAH Analytes

Prepared by method SW846 3545A

91-20-3 Naphthalene	642	180 µg/kg dry	1	"	"	"	"	"		
91-57-6 2-Methylnaphthalene	1,660	180 µg/kg dry	1	"	"	"	"	"		
208-96-8 Acenaphthylene	BRL	180 µg/kg dry	1	"	"	"	"	"		
83-32-9 Acenaphthene	BRL	180 µg/kg dry	1	"	"	"	"	"		
86-73-7 Fluorene	BRL	180 µg/kg dry	1	"	"	"	"	"		
85-01-8 Phenanthrene	BRL	180 µg/kg dry	1	"	"	"	"	"		
120-12-7 Anthracene	BRL	180 µg/kg dry	1	"	"	"	"	"		
206-44-0 Fluoranthene	BRL	180 µg/kg dry	1	"	"	"	"	"		
129-00-0 Pyrene	BRL	180 µg/kg dry	1	"	"	"	"	"		
56-55-3 Benzo (a) anthracene	BRL	180 µg/kg dry	1	"	"	"	"	"		
218-01-9 Chrysene	BRL	180 µg/kg dry	1	"	"	"	"	"		
205-99-2 Benzo (b) fluoranthene	BRL	180 µg/kg dry	1	"	"	"	"	"		

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* Reportable Detection Limit

BRL = Below Reporting Limit

Sample Identification

B104 S1 13-15

SA24677-04

Client Project #

[none]

Matrix

Soil

Collection Date/Time

28-Feb-05 00:00

Received

01-Mar-05

CAS No.	Analyte(s)	Result	*RDL/Units	Dilution	Method Ref.	Prepared	Analyzed	Batch	Analyst	Flag
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Extractable Petroleum Hydrocarbons

EPH Target PAH Analytes

Prepared by method SW846 3545A

207-08-9	Benzo (k) fluoranthene	BRL	180 µg/kg dry	1	+MADEP 5/2004 R	03-Mar-05	06-Mar-05	5030185	M.B	
50-32-8	Benzo (a) pyrene	BRL	180 µg/kg dry	1	"	"	"	"	"	"
193-39-5	Indeno (1,2,3-cd) pyrene	BRL	180 µg/kg dry	1	"	"	"	"	"	"
53-70-3	Dibenzo (a,h) anthracene	BRL	180 µg/kg dry	1	"	"	"	"	"	"
191-24-2	Benzo (g,h,i) perylene	BRL	180 µg/kg dry	1	"	"	"	"	"	"

Surrogate recoveries:

3386-33-2	1-Chlorooctadecane	109	40-140 %		"	"	"	"	"	"
84-15-1	Ortho-Terphenyl	71.2	40-140 %		"	"	"	"	"	"
580-13-2	2-Bromonaphthalene	56.5	40-140 %		"	"	"	"	"	"
321-60-8	2-Fluorobiphenyl	78.7	40-140 %		"	"	"	"	"	"

General Chemistry Parameters

% Solids	89.2	%	1	SM2540 G Mod.	01-Mar-05	02-Mar-05	5030086	AJ		
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* Reportable Detection Limit

BRL = Below Reporting Limit

Volatile Organic Compounds - Quality Control

Analyte(s)	Result	*RDL Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Flag
Batch 5030179 - VPH								
Blank (5030179-BLK1)			Prepared & Analyzed: 03-Mar-05					
C5-C8 Aliphatic Hydrocarbons	BRL	0.750 mg/kg wet						
C9-C12 Aliphatic Hydrocarbons	BRL	0.250 mg/kg wet						
C9-C10 Aromatic Hydrocarbons	BRL	0.250 mg/kg wet						
Unadjusted C5-C8 Aliphatic Hydrocarbons	BRL	0.750 mg/kg wet						
Unadjusted C9-C12 Aliphatic Hydrocarbons	BRL	0.250 mg/kg wet						
Benzene	BRL	50.0 µg/kg wet						
Ethylbenzene	BRL	50.0 µg/kg wet						
Methyl tert-butyl ether	BRL	50.0 µg/kg wet						
Naphthalene	BRL	50.0 µg/kg wet						
Toluene	BRL	50.0 µg/kg wet						
m,p-Xylene	BRL	100 µg/kg wet						
o-Xylene	BRL	50.0 µg/kg wet						
<i>Surrogate: 2,5-Dibromotoluene (FID)</i>	65.0	µg/kg wet	50.0		130 70-130			
<i>Surrogate: 2,5-Dibromotoluene (PID)</i>	58.3	µg/kg wet	50.0		117 70-130			
LCS (5030179-BS1)			Prepared & Analyzed: 03-Mar-05					
C5-C8 Aliphatic Hydrocarbons	170	mg/kg wet	180		94.4 70-130			
C9-C12 Aliphatic Hydrocarbons	59.1	mg/kg wet	80.0		73.9 70-130			
C9-C10 Aromatic Hydrocarbons	32.2	mg/kg wet	30.0		107 70-130			
Unadjusted C5-C8 Aliphatic Hydrocarbons	278	mg/kg wet	320		86.9 70-130			
Unadjusted C9-C12 Aliphatic Hydrocarbons	91.4	mg/kg wet	110		83.1 70-130			
Benzene	15.2	µg/kg wet	20.0		76.0 70-130			
Ethylbenzene	15.1	µg/kg wet	20.0		75.5 70-130			
Methyl tert-butyl ether	16.5	µg/kg wet	20.0		82.5 70-130			
Naphthalene	18.1	µg/kg wet	20.0		90.5 70-130			
Toluene	15.2	µg/kg wet	20.0		76.0 70-130			
m,p-Xylene	30.1	µg/kg wet	40.0		75.2 70-130			
o-Xylene	15.4	µg/kg wet	20.0		77.0 70-130			
2-Methylpentane	15.5	µg/kg wet	20.0		77.5 70-130			
n-Nonane	14.8	µg/kg wet	20.0		74.0 70-130			
n-Pentane	16.3	µg/kg wet	20.0		81.5 70-130			
1,2,4-Trimethylbenzene	15.9	µg/kg wet	20.0		79.5 70-130			
2,2,4-Trimethylpentane	15.5	µg/kg wet	20.0		77.5 70-130			
n-Butylcyclohexane	15.7	µg/kg wet	20.0		78.5 70-130			
n-Decane	16.2	µg/kg wet	20.0		81.0 70-130			
<i>Surrogate: 2,5-Dibromotoluene (FID)</i>	62.9	µg/kg wet	50.0		126 70-130			
<i>Surrogate: 2,5-Dibromotoluene (PID)</i>	55.6	µg/kg wet	50.0		111 70-130			
LCS Dup (5030179-BSD1)			Prepared & Analyzed: 03-Mar-05					
C5-C8 Aliphatic Hydrocarbons	159	mg/kg wet	180		88.3 70-130	6.68	25	
C9-C12 Aliphatic Hydrocarbons	58.0	mg/kg wet	80.0		72.5 70-130	1.91	25	
C9-C10 Aromatic Hydrocarbons	28.0	mg/kg wet	30.0		93.3 70-130	13.7	25	
Unadjusted C5-C8 Aliphatic Hydrocarbons	262	mg/kg wet	320		81.9 70-130	5.92	25	
Unadjusted C9-C12 Aliphatic Hydrocarbons	86.0	mg/kg wet	110		78.2 70-130	6.08	25	
Benzene	14.9	µg/kg wet	20.0		74.5 70-130	1.99	25	
Ethylbenzene	14.2	µg/kg wet	20.0		71.0 70-130	6.14	25	
Methyl tert-butyl ether	17.0	µg/kg wet	20.0		85.0 70-130	2.99	25	
Naphthalene	16.9	µg/kg wet	20.0		84.5 70-130	6.86	25	
Toluene	14.4	µg/kg wet	20.0		72.0 70-130	5.41	25	
m,p-Xylene	28.1	µg/kg wet	40.0		70.2 70-130	6.88	25	
o-Xylene	14.5	µg/kg wet	20.0		72.5 70-130	6.02	25	
2-Methylpentane	14.5	µg/kg wet	20.0		72.5 70-130	6.67	25	
n-Nonane	14.3	µg/kg wet	20.0		71.5 70-130	3.44	25	

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* Reportable Detection Limit

BRL = Below Reporting Limit

Volatile Organic Compounds - Quality Control

Analyte(s)	Result	*RDL Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 5030179 - VPH									
LCS Dup (5030179-BSD1)			Prepared & Analyzed: 03-Mar-05						
n-Pentane	15.0	µg/kg wet	20.0		75.0	70-130	8.31	25	
1,2,4-Trimethylbenzene	14.7	µg/kg wet	20.0		73.5	70-130	7.84	25	
2,2,4-Trimethylpentane	14.2	µg/kg wet	20.0		71.0	70-130	8.75	25	
n-Butylcyclohexane	15.2	µg/kg wet	20.0		76.0	70-130	3.24	25	
n-Decane	15.4	µg/kg wet	20.0		77.0	70-130	5.06	25	
<i>Surrogate: 2,5-Dibromotoluene (FID)</i>	54.0	µg/kg wet	50.0		108	70-130			
<i>Surrogate: 2,5-Dibromotoluene (PID)</i>	47.0	µg/kg wet	50.0		94.0	70-130			
Duplicate (5030179-DUP1)			Source: SA24708-01		Prepared & Analyzed: 03-Mar-05				
C5-C8 Aliphatic Hydrocarbons	7.88	0.907 mg/kg dry		6.48			19.5	50	
C9-C12 Aliphatic Hydrocarbons	3.65	0.302 mg/kg dry		2.81			26.0	50	
C9-C10 Aromatic Hydrocarbons	1.37	0.302 mg/kg dry		1.33			2.96	50	
Unadjusted C5-C8 Aliphatic Hydrocarbons	8.68	0.907 mg/kg dry		7.25			18.0	50	
Unadjusted C9-C12 Aliphatic Hydrocarbons	5.02	0.302 mg/kg dry		4.13			19.5	50	
Benzene	BRL	60.5 µg/kg dry		BRL				50	
Ethylbenzene	BRL	60.5 µg/kg dry		BRL				50	
Methyl tert-butyl ether	684	60.5 µg/kg dry		681			0.440	50	
Naphthalene	64.6	60.5 µg/kg dry		40.3			46.3	50	
Toluene	BRL	60.5 µg/kg dry		33.3			18.5	50	
m,p-Xylene	BRL	121 µg/kg dry		52.7			30.0	50	
o-Xylene	BRL	60.5 µg/kg dry		BRL				50	
<i>Surrogate: 2,5-Dibromotoluene (FID)</i>	52.2	µg/kg dry	50.0		104	70-130			
<i>Surrogate: 2,5-Dibromotoluene (PID)</i>	48.8	µg/kg dry	50.0		97.6	70-130			
Matrix Spike (5030179-MS1)			Source: SA24708-04		Prepared & Analyzed: 03-Mar-05				
Benzene	16.9	µg/kg dry	20.0	BRL	84.5	70-130			
Ethylbenzene	16.6	µg/kg dry	20.0	BRL	83.0	70-130			
Methyl tert-butyl ether	18.3	µg/kg dry	20.0	BRL	91.5	70-130			
Naphthalene	17.4	µg/kg dry	20.0	BRL	87.0	70-130			
Toluene	17.3	µg/kg dry	20.0	BRL	86.5	70-130			
m,p-Xylene	33.6	µg/kg dry	40.0	BRL	84.0	70-130			
o-Xylene	16.8	µg/kg dry	20.0	BRL	84.0	70-130			
2-Methylpentane	20.0	µg/kg dry	20.0	BRL	100	70-130			
n-Nonane	19.7	µg/kg dry	20.0	BRL	98.5	70-130			
n-Pentane	23.5	µg/kg dry	20.0	BRL	118	70-130			
1,2,4-Trimethylbenzene	16.9	µg/kg dry	20.0	BRL	84.5	70-130			
2,2,4-Trimethylpentane	21.0	µg/kg dry	20.0	BRL	105	70-130			
n-Butylcyclohexane	20.5	µg/kg dry	20.0	0.0	102	70-130			
n-Decane	22.4	µg/kg dry	20.0	0.0	112	70-130			
<i>Surrogate: 2,5-Dibromotoluene (FID)</i>	54.3	µg/kg dry	50.0		109	70-130			
<i>Surrogate: 2,5-Dibromotoluene (PID)</i>	47.7	µg/kg dry	50.0		95.4	70-130			

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* Reportable Detection Limit

BRL = Below Reporting Limit

Extractable Petroleum Hydrocarbons - Quality Control

Analyte(s)	Result	*RDL Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 0503019 - 5030185									
Calibration Check (0503019-CCV1)			Prepared: 03-Mar-05 Analyzed: 04-Mar-05						
C9-C18 Aliphatic Hydrocarbons	0.671	mg/kg wet	0.600		112	75-125			
C19-C36 Aliphatic Hydrocarbons	0.896	mg/kg wet	0.800		112	75-125			
C11-C22 Aromatic Hydrocarbons	1.54	mg/kg wet	1.70		90.6	75-125			
Naphthalene	90.9	µg/kg wet	100		90.9	80-120			
2-Methylnaphthalene	94.7	µg/kg wet	100		94.7	80-120			
Acenaphthylene	89.2	µg/kg wet	100		89.2	80-120			
Acenaphthene	89.9	µg/kg wet	100		89.9	80-120			
Fluorene	92.8	µg/kg wet	100		92.8	80-120			
Phenanthrene	91.4	µg/kg wet	100		91.4	80-120			
Anthracene	90.2	µg/kg wet	100		90.2	80-120			
Fluoranthene	106	µg/kg wet	100		106	80-120			
Pyrene	100	µg/kg wet	100		100	80-120			
Benzo (a) anthracene	102	µg/kg wet	100		102	80-120			
Chrysene	105	µg/kg wet	100		105	80-120			
Benzo (b) fluoranthene	86.7	µg/kg wet	100		86.7	80-120			
Benzo (k) fluoranthene	119	µg/kg wet	100		119	80-120			
Benzo (a) pyrene	101	µg/kg wet	100		101	80-120			
Indeno (1,2,3-cd) pyrene	84.5	µg/kg wet	100		84.5	80-120			
Dibenzo (a,h) anthracene	84.7	µg/kg wet	100		84.7	80-120			
Benzo (g,h,i) perylene	80.6	µg/kg wet	100		80.6	80-120			
Calibration Check (0503019-CCV2)			Prepared: 03-Mar-05 Analyzed: 07-Mar-05						
C9-C18 Aliphatic Hydrocarbons	0.711	mg/kg wet	0.600		118	75-125			
C19-C36 Aliphatic Hydrocarbons	0.957	mg/kg wet	0.800		120	75-125			
C11-C22 Aromatic Hydrocarbons	1.53	mg/kg wet	1.70		90.0	75-125			
Naphthalene	98.1	µg/kg wet	100		98.1	80-120			
2-Methylnaphthalene	94.8	µg/kg wet	100		94.8	80-120			
Acenaphthylene	95.1	µg/kg wet	100		95.1	80-120			
Acenaphthene	93.1	µg/kg wet	100		93.1	80-120			
Fluorene	96.6	µg/kg wet	100		96.6	80-120			
Phenanthrene	96.9	µg/kg wet	100		96.9	80-120			
Anthracene	92.4	µg/kg wet	100		92.4	80-120			
Fluoranthene	109	µg/kg wet	100		109	80-120			
Pyrene	97.6	µg/kg wet	100		97.6	80-120			
Benzo (a) anthracene	89.8	µg/kg wet	100		89.8	80-120			
Chrysene	99.4	µg/kg wet	100		99.4	80-120			
Benzo (b) fluoranthene	76.7	µg/kg wet	100		76.7	80-120			
Benzo (k) fluoranthene	95.2	µg/kg wet	100		95.2	80-120			QC-1
Benzo (a) pyrene	84.6	µg/kg wet	100		84.6	80-120			
Indeno (1,2,3-cd) pyrene	92.8	µg/kg wet	100		92.8	80-120			
Dibenzo (a,h) anthracene	89.0	µg/kg wet	100		89.0	80-120			
Benzo (g,h,i) perylene	98.3	µg/kg wet	100		98.3	80-120			
Batch 5030185 - SW846 3545A									
Blank (5030185-BLK1)			Prepared: 03-Mar-05 Analyzed: 04-Mar-05						
C9-C18 Aliphatic Hydrocarbons	BRL	13.4 mg/kg wet							
C19-C36 Aliphatic Hydrocarbons	BRL	13.4 mg/kg wet							
C11-C22 Aromatic Hydrocarbons	BRL	13.4 mg/kg wet							
Unadjusted C11-C22 Aromatic Hydrocarbons	BRL	13.4 mg/kg wet							
Total Petroleum Hydrocarbons	BRL	13.4 mg/kg wet							
Unadjusted Total Petroleum Hydrocarbons	BRL	13.4 mg/kg wet							
Naphthalene	BRL	66.5 µg/kg wet							
2-Methylnaphthalene	BRL	66.5 µg/kg wet							
Acenaphthylene	BRL	66.5 µg/kg wet							

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* Reportable Detection Limit BRL = Below Reporting Limit

Extractable Petroleum Hydrocarbons - Quality Control

Analyte(s)	Result	*RDL Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 5030185 - SW846 3545A									
Blank (5030185-BLK1)					Prepared: 03-Mar-05 Analyzed: 04-Mar-05				
Acenaphthene	BRL	66.5 µg/kg wet							
Fluorene	BRL	66.5 µg/kg wet							
Phenanthrene	BRL	66.5 µg/kg wet							
Anthracene	BRL	66.5 µg/kg wet							
Fluoranthene	BRL	66.5 µg/kg wet							
Pyrene	BRL	66.5 µg/kg wet							
Benzo (a) anthracene	BRL	66.5 µg/kg wet							
Chrysene	BRL	66.5 µg/kg wet							
Benzo (b) fluoranthene	BRL	66.5 µg/kg wet							
Benzo (k) fluoranthene	BRL	66.5 µg/kg wet							
Benzo (a) pyrene	BRL	66.5 µg/kg wet							
Indeno (1,2,3-cd) pyrene	BRL	66.5 µg/kg wet							
Dibenzo (a,h) anthracene	BRL	66.5 µg/kg wet							
Benzo (g,h,i) perylene	BRL	66.5 µg/kg wet							
<i>Surrogate: 1-Chlorooctadecane</i>	2690	µg/kg wet	3330		80.8	40-140			
<i>Surrogate: Ortho-Terphenyl</i>	2260	µg/kg wet	3330		67.9	40-140			
<i>Surrogate: 2-Bromonaphthalene</i>	613	µg/kg wet	2670		23.0	40-140			S-GC
<i>Surrogate: 2-Fluorobiphenyl</i>	1780	µg/kg wet	2670		66.7	40-140			
LCS (5030185-BS1)					Prepared: 03-Mar-05 Analyzed: 04-Mar-05				
C9-C18 Aliphatic Hydrocarbons	32.7	13.4 mg/kg wet	40.0		81.8	40-140			
C19-C36 Aliphatic Hydrocarbons	62.9	13.4 mg/kg wet	53.3		118	40-140			
C11-C22 Aromatic Hydrocarbons	70.7	13.4 mg/kg wet	113		62.6	40-140			
Naphthalene	2790	66.5 µg/kg wet	6670		41.8	40-140			
2-Methylnaphthalene	3300	66.5 µg/kg wet	6670		49.5	40-140			
Acenaphthylene	3330	66.5 µg/kg wet	6670		49.9	40-140			
Acenaphthene	3550	66.5 µg/kg wet	6670		53.2	40-140			
Fluorene	4220	66.5 µg/kg wet	6670		63.3	40-140			
Phenanthrene	4400	66.5 µg/kg wet	6670		66.0	40-140			
Anthracene	4120	66.5 µg/kg wet	6670		61.8	40-140			
Fluoranthene	5510	66.5 µg/kg wet	6670		82.6	40-140			
Pyrene	4960	66.5 µg/kg wet	6670		74.4	40-140			
Benzo (a) anthracene	4990	66.5 µg/kg wet	6670		74.8	40-140			
Chrysene	5560	66.5 µg/kg wet	6670		83.4	40-140			
Benzo (b) fluoranthene	4620	66.5 µg/kg wet	6670		69.3	40-140			
Benzo (k) fluoranthene	5090	66.5 µg/kg wet	6670		76.3	40-140			
Benzo (a) pyrene	3920	66.5 µg/kg wet	6670		58.8	40-140			
Indeno (1,2,3-cd) pyrene	3100	66.5 µg/kg wet	6670		46.5	40-140			
Dibenzo (a,h) anthracene	3250	66.5 µg/kg wet	6670		48.7	40-140			
Benzo (g,h,i) perylene	2610	66.5 µg/kg wet	6670		39.1	40-140			QC-1
Naphthalene (aliphatic fraction)	0.00667	µg/kg wet	6670		0.000100	0-200			
2-Methylnaphthalene (aliphatic fraction)	0.00667	µg/kg wet	6670		0.000100	0-200			
<i>Surrogate: 1-Chlorooctadecane</i>	3080	µg/kg wet	3330		92.5	40-140			
<i>Surrogate: Ortho-Terphenyl</i>	2340	µg/kg wet	3330		70.3	40-140			
<i>Surrogate: 2-Bromonaphthalene</i>	1190	µg/kg wet	2670		44.6	40-140			
<i>Surrogate: 2-Fluorobiphenyl</i>	1720	µg/kg wet	2670		64.4	40-140			
Naphthalene Breakthrough	0.00	%				0-5			
2-Methylnaphthalene Breakthrough	0.00	%				0-5			
Fractionation Check Standard (5030185-BS2)					Prepared & Analyzed: 03-Mar-05				
C9-C18 Aliphatic Hydrocarbons	23.1	13.4 mg/kg wet	40.0		57.8	40-140			
C19-C36 Aliphatic Hydrocarbons	47.5	13.4 mg/kg wet	53.3		89.1	40-140			
C11-C22 Aromatic Hydrocarbons	84.0	13.4 mg/kg wet	113		74.3	40-140			
Naphthalene	3590	66.5 µg/kg wet	6670		53.8	40-140			
2-Methylnaphthalene	4010	66.5 µg/kg wet	6670		60.1	40-140			

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* Reportable Detection Limit

BRL = Below Reporting Limit

Extractable Petroleum Hydrocarbons - Quality Control

Analyte(s)	Result	*RDL Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 5030185 - SW846 3545A									
Fractionation Check Standard (5030185-BS2)					Prepared & Analyzed: 03-Mar-05				
Acenaphthylene	4190	66.5 µg/kg wet	6670		62.8	40-140			
Acenaphthene	4090	66.5 µg/kg wet	6670		61.3	40-140			
Fluorene	4530	66.5 µg/kg wet	6670		67.9	40-140			
Phenanthrene	4560	66.5 µg/kg wet	6670		68.4	40-140			
Anthracene	4530	66.5 µg/kg wet	6670		67.9	40-140			
Fluoranthene	5610	66.5 µg/kg wet	6670		84.1	40-140			
Pyrene	5140	66.5 µg/kg wet	6670		77.1	40-140			
Benzo (a) anthracene	5320	66.5 µg/kg wet	6670		79.8	40-140			
Chrysene	5710	66.5 µg/kg wet	6670		85.6	40-140			
Benzo (b) fluoranthene	4740	66.5 µg/kg wet	6670		71.1	40-140			
Benzo (k) fluoranthene	5640	66.5 µg/kg wet	6670		84.6	40-140			
Benzo (a) pyrene	4990	66.5 µg/kg wet	6670		74.8	40-140			
Indeno (1,2,3-cd) pyrene	4310	66.5 µg/kg wet	6670		64.6	40-140			
Dibenzo (a,h) anthracene	4300	66.5 µg/kg wet	6670		64.5	40-140			
Benzo (g,h,i) perylene	4040	66.5 µg/kg wet	6670		60.6	40-140			
Naphthalene (aliphatic fraction)	0.00667	µg/kg wet	6670		0.000100	0-200			
2-Methylnaphthalene (aliphatic fraction)	0.00667	µg/kg wet	6670		0.000100	0-200			
<i>Surrogate: 1-Chlorooctadecane</i>	2460	µg/kg wet	3330		73.9	40-140			
<i>Surrogate: Ortho-Terphenyl</i>	2330	µg/kg wet	3330		70.0	40-140			
<i>Surrogate: 2-Bromonaphthalene</i>	2010	µg/kg wet	2670		75.3	40-140			
<i>Surrogate: 2-Fluorobiphenyl</i>	1950	µg/kg wet	2670		73.0	40-140			
LCS Dup (5030185-BSD1)					Prepared: 03-Mar-05 Analyzed: 04-Mar-05				
C9-C18 Aliphatic Hydrocarbons	30.5	13.4 mg/kg wet	40.0		76.2	40-140	7.09	25	
C19-C36 Aliphatic Hydrocarbons	56.5	13.4 mg/kg wet	53.3		106	40-140	10.7	25	
C11-C22 Aromatic Hydrocarbons	68.7	13.4 mg/kg wet	113		60.8	40-140	2.92	25	
Naphthalene	2640	66.5 µg/kg wet	6670		39.6	40-140	5.41	30	QC-1
2-Methylnaphthalene	3330	66.5 µg/kg wet	6670		49.9	40-140	0.805	30	
Acenaphthylene	3380	66.5 µg/kg wet	6670		50.7	40-140	1.59	30	
Acenaphthene	3580	66.5 µg/kg wet	6670		53.7	40-140	0.935	30	
Fluorene	4190	66.5 µg/kg wet	6670		62.8	40-140	0.793	30	
Phenanthrene	4160	66.5 µg/kg wet	6670		62.4	40-140	5.61	30	
Anthracene	3970	66.5 µg/kg wet	6670		59.5	40-140	3.79	30	
Fluoranthene	5120	66.5 µg/kg wet	6670		76.8	40-140	7.28	30	
Pyrene	4420	66.5 µg/kg wet	6670		66.3	40-140	11.5	30	
Benzo (a) anthracene	5250	66.5 µg/kg wet	6670		78.7	40-140	5.08	30	
Chrysene	4580	66.5 µg/kg wet	6670		68.7	40-140	19.3	30	
Benzo (b) fluoranthene	4530	66.5 µg/kg wet	6670		67.9	40-140	2.04	30	
Benzo (k) fluoranthene	4760	66.5 µg/kg wet	6670		71.4	40-140	6.64	30	
Benzo (a) pyrene	3780	66.5 µg/kg wet	6670		56.7	40-140	3.64	30	
Indeno (1,2,3-cd) pyrene	3230	66.5 µg/kg wet	6670		48.4	40-140	4.00	30	
Dibenzo (a,h) anthracene	3370	66.5 µg/kg wet	6670		50.5	40-140	3.63	30	
Benzo (g,h,i) perylene	2730	66.5 µg/kg wet	6670		40.9	40-140	4.50	30	
Naphthalene (aliphatic fraction)	0.00667	µg/kg wet	6670		0.000100	0-200	0.00	200	
2-Methylnaphthalene (aliphatic fraction)	0.00667	µg/kg wet	6670		0.000100	0-200	0.00	200	
<i>Surrogate: 1-Chlorooctadecane</i>	2730	µg/kg wet	3330		82.0	40-140			
<i>Surrogate: Ortho-Terphenyl</i>	2260	µg/kg wet	3330		67.9	40-140			
<i>Surrogate: 2-Bromonaphthalene</i>	799	µg/kg wet	2670		29.9	40-140			S-GC
<i>Surrogate: 2-Fluorobiphenyl</i>	1740	µg/kg wet	2670		65.2	40-140			
Naphthalene Breakthrough	0.00	%				0-5			
2-Methylnaphthalene Breakthrough	0.00	%				0-5			

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* Reportable Detection Limit

BRL = Below Reporting Limit

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General Chemistry Parameters - Quality Control

Analyte(s)	Result	*RDL Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
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Batch 5030086 - General Preparation

Duplicate (5030086-DUP1) Source: SA24677-04 Prepared: 01-Mar-05 Analyzed: 02-Mar-05

% Solids	87.9	%		89.2			1.47	20	
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Notes and Definitions

QC-1	Analyte out of acceptance range.
S-GC	Surrogate recovery outside of control limits. The data was accepted based on valid recovery of the remaining surrogate.
vext2	Field extracted
VOC10	The VOC field preserved soil sample is not within the 1:1 weight to volume ratio as recommended by SW846 methods 5030 and 5035 but may be within the 1:1 volume to volume ratio.
BRL	Below Reporting Limit - Analyte NOT DETECTED at or above the reporting limit
dry	Sample results reported on a dry weight basis
NR	Not Reported
RPD	Relative Percent Difference

A plus sign (+) in the Method Reference column indicates the method is not accredited by NELAC.

Laboratory Control Sample (LCS): A known matrix spiked with compound(s) representative of the target analytes, which is used to document laboratory performance.

Matrix Duplicate: An intra-laboratory split sample which is used to document the precision of a method in a given sample matrix.

Matrix Spike: An aliquot of a sample spiked with a known concentration of target analyte(s). The spiking occurs prior to sample preparation and analysis. A matrix spike is used to document the bias of a method in a given sample matrix.

Method Blank: An analyte-free matrix to which all reagents are added in the same volumes or proportions as used in sample processing. The method blank should be carried through the complete sample preparation and analytical procedure. The method blank is used to document contamination resulting from the analytical process.

Method Detection Limit (MDL): The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero and is determined from analysis of a sample in a given matrix type containing the analyte.

Reportable Detection Limit (RDL): The lowest concentration that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions. For many analytes the RDL analyte concentration is selected as the lowest non-zero standard in the calibration curve. While the RDL is approximately 5 to 10 times the MDL, the RDL for each sample takes into account the sample volume/weight, extract/digestate volume, cleanup procedures and, if applicable, dry weight correction. Sample RDLs are highly matrix-dependent.

Surrogate: An organic compound which is similar to the target analyte(s) in chemical composition and behavior in the analytical process, but which is not normally found in environmental samples. These compounds are spiked into all blanks, standards, and samples prior to analysis. Percent recoveries are calculated for each surrogate.

Validated by:
Hanibal C. Tayeh, Ph.D.
Nicole Brown

The following outlines the condition of all VPH samples contained within this report upon laboratory receipt.

Matrix	<input type="checkbox"/> Aqueous	<input checked="" type="checkbox"/> Soil	<input type="checkbox"/> Sediment	<input type="checkbox"/> Other	
Containers	<input checked="" type="checkbox"/> Satisfactory	<input type="checkbox"/> Broken	<input type="checkbox"/> Leaking		
Sample Preservative	Aqueous (acid-preserved)	<input checked="" type="checkbox"/> N/A	<input type="checkbox"/> pH \leq 2	<input type="checkbox"/> pH $>$ 2	Comment
	Soil or Sediment	<input type="checkbox"/> N/A <input type="checkbox"/> Samples not received in Methanol or air-tight container			ml Methanol/g soil <input checked="" type="checkbox"/> 1:1 +/-25% <input checked="" type="checkbox"/> Other:
		<input checked="" type="checkbox"/> Samples received in Methanol: <input checked="" type="checkbox"/> covering soil/sediment <input type="checkbox"/> not covering soil/sediment			
		<input type="checkbox"/> Samples received in air-tight container:			
Temperature	<input type="checkbox"/> Received on ice	<input checked="" type="checkbox"/> Received at 4 \pm 2 $^{\circ}$ C	<input type="checkbox"/> Other:	$^{\circ}$ C	

Were all QA/QC procedures followed as required by the VPH method? Yes No
 Were any significant modifications made to the VPH method as specified in section 11.3? No *see below
 Were all performance/acceptance standards for required QA/QC procedures achieved? Yes No
 * Yes, if PID and FID surrogate recoveries are listed as n/a, then that sample was run via GCMS using all QC criteria specified in the method

The following outlines the condition of all EPH samples contained within this report upon laboratory receipt.

Matrix	<input type="checkbox"/> Aqueous	<input checked="" type="checkbox"/> Soil	<input type="checkbox"/> Sediment	<input type="checkbox"/> Other	
Containers	<input checked="" type="checkbox"/> Satisfactory	<input type="checkbox"/> Broken	<input type="checkbox"/> Leaking		
Aqueous Preservative	<input checked="" type="checkbox"/> N/A	<input type="checkbox"/> pH \leq 2	<input type="checkbox"/> pH $>$ 2	<input type="checkbox"/> pH adjusted to $<$ 2 in lab	Comment
Temperature	<input type="checkbox"/> Received on ice	<input checked="" type="checkbox"/> Received at 4 \pm 2 $^{\circ}$ C	<input type="checkbox"/> Other:	$^{\circ}$ C	

Were all QA/QC procedures followed as required by the EPH method? Yes No
 Were any significant modifications made to the EPH method as specified in Section 11.3? No
 Were all performance/acceptance standards for required QA/QC procedures achieved? Yes No

I attest 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.

Authorized by:



Hanibal C. Tayeh, Ph.D.
 President/Laboratory Director



SPECTRUM ANALYTICAL, INC.
Featuring
HAMBAL TECHNOLOGY

CHAIN OF CUSTODY RECORD

Page 1 of 1

Special Handling:

- Standard TAT - 7 to 10 business days
- Rush TAT - Date Needed: 3/6/05 3:17
- All TATs are subject to laboratory approval.
- Min. 24-hour notification is needed for rushes.
- All samples are disposed of after 60 days unless otherwise instructed.

Report To: Remsen, Inc.
35 Winkrup St
Worcester, MA 01590

Project Mgr: TP Simmons

Invoice To: Same

Site Name: Bossis

Location: 12 Sunkin St State: MA

P.O. No.: _____ RQN: _____

Sampler(s): TPS

Lab Id.	Sample Id.	Date	Time	Matrix	Containers:				Notes
					# of VOA Vials	# of Amber Glass	# of Clear Glass	# of Plastic	
AB	64701	02-26-05							
AB	B1015413-15	02-28-05		G SO	X	1	1		MA DG VPH
AB	B1025113-12			G SO	X	1	1		MA DG VPH
AB	B1035113-15			G SO	X	1	1		
AB	B1045113-15			G SO	X	1	1		
AB									
AB									
AB									
AB									
AB									

Additional Instructions: _____

Relinquished By: TP Simmons

Received By: [Signature]

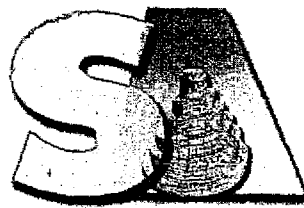
Date: 03-01-05 Time: 11:35

Date: 3/1/05 Time: 14:52

Fax results when available to (781) 721-4456

E-mail results when available to WSule@comcast.net

Report Date:
08-Apr-05 15:23



SPECTRUM ANALYTICAL, INC.
Featuring
HANIBAL TECHNOLOGY

- Final Report
- Re-Issued Report
- Revised Report

file

Laboratory Report

REMSERV, Inc.
35 Winthrop Street
Winchester, MA 01890
Attn: Tom Simmons

Project: Bossi's-12 Swanton St-MA
Project #: 24124-1

Laboratory ID	Client Sample ID	Matrix	Date Sampled	Date Received
SA26066-01	B101-MW	Ground Water	01-Apr-05 10:45	05-Apr-05 15:10
SA26066-02	B103-MW	Ground Water	01-Apr-05 12:15	05-Apr-05 15:10
SA26066-03	B104-MW	Ground Water	01-Apr-05 12:45	05-Apr-05 15:10
SA26066-04	MW-1	Ground Water	01-Apr-05 13:45	05-Apr-05 15:10
SA26066-05	MW-4	Ground Water	01-Apr-05 13:00	05-Apr-05 15:10
SA26066-06	B102B	Ground Water	01-Apr-05 14:00	05-Apr-05 15:10
SA26066-07	B102B	Ground Water	04-Apr-05 09:45	05-Apr-05 15:10

I attest that the information contained within the report has been reviewed for accuracy and checked against the quality control requirements for each method. All applicable NELAC requirements have been met.
Please note that this report contains 20 pages of analytical data plus Chain of Custody document(s).
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Connecticut # PH-0777
Florida # E87600/E87936
Maine # MA138
New Hampshire # 2538/2972
New York # 11393/11840
Rhode Island # 98
USDA # S-51435
Vermont # VT-11393



Authorized by:

Hanibal C. Tayeh, Ph.D.
President/Laboratory Director

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ENVIRONMENTAL ANALYSES

Sample Identification

B101-MW
SA26066-01

Client Project #
24124-1

Matrix
Ground Water

Collection Date/Time
01-Apr-05 10:45

Received
05-Apr-05

CAS No.	Analyte(s)	Result	*RDL/Units	Dilution	Method Ref.	Prepared	Analyzed	Batch	Analyst	Flag
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Volatile Organic Compounds

VPH Aliphatic/Aromatic Carbon Ranges

Prepared by method VPH

C5-C8 Aliphatic Hydrocarbons	1.11	0.150 mg/l	10	+MADEP 5/2004 Rev. 1.1	06-Apr-05	07-Apr-05	5040231	KW	
C9-C12 Aliphatic Hydrocarbons	1.11	0.0500 mg/l	10	"	"	"	"	"	
C9-C10 Aromatic Hydrocarbons	4.23	0.0500 mg/l	10	"	"	"	"	"	
Unadjusted C5-C8 Aliphatic Hydrocarbons	1.40	0.150 mg/l	10	"	"	"	"	"	
Unadjusted C9-C12 Aliphatic Hydrocarbons	5.34	0.0500 mg/l	10	"	"	"	"	"	

VPH Target Analytes

Prepared by method VPH

71-43-2 Benzene	BRL	5.0 µg/l	10	"	"	"	"	"	
100-41-4 Ethylbenzene	58.5	5.0 µg/l	10	"	"	"	"	"	
1634-04-4 Methyl tert-butyl ether	BRL	5.0 µg/l	10	"	"	"	"	"	
91-20-3 Naphthalene	92.4	5.0 µg/l	10	"	"	"	"	"	
108-88-3 Toluene	7.2	5.0 µg/l	10	"	"	"	"	"	
1330-20-7 m,p-Xylene	212	10.0 µg/l	10	"	"	"	"	"	
95-47-6 o-Xylene	12.3	5.0 µg/l	10	"	"	"	"	"	

Surrogate recoveries:

615-59-8 2,5-Dibromotoluene (FID)	105	70-130 %	"	"	"	"	"	"	
615-59-8 2,5-Dibromotoluene (PID)	105	70-130 %	"	"	"	"	"	"	

Extractable Petroleum Hydrocarbons

EPH Aliphatic/Aromatic Ranges

Prepared by method SW846 3510C

C9-C18 Aliphatic Hydrocarbons	0.3	0.2 mg/l	1	+MADEP 5/2004 R	06-Apr-05	08-Apr-05	5040219	M.B	
C19-C36 Aliphatic Hydrocarbons	BRL	0.2 mg/l	1	"	"	"	"	"	
C11-C22 Aromatic Hydrocarbons	0.6	0.2 mg/l	1	"	"	"	"	"	
Unadjusted C11-C22 Aromatic Hydrocarbons	0.8	0.2 mg/l	1	"	"	"	"	"	
Total Petroleum Hydrocarbons	0.9	0.2 mg/l	1	"	"	"	"	"	
Unadjusted Total Petroleum Hydrocarbons	1.1	0.2 mg/l	1	"	"	"	"	"	

EPH Target PAH Analytes

Prepared by method SW846 3510C

91-20-3 Naphthalene	44.5	5.56 µg/l	1	"	"	"	"	"	
91-57-6 2-Methylnaphthalene	96.3	5.56 µg/l	1	"	"	"	"	"	
208-96-8 Acenaphthylene	BRL	5.56 µg/l	1	"	"	"	"	"	
83-32-9 Acenaphthene	BRL	5.56 µg/l	1	"	"	"	"	"	
86-73-7 Fluorene	BRL	5.56 µg/l	1	"	"	"	"	"	
85-01-8 Phenanthrene	BRL	5.56 µg/l	1	"	"	"	"	"	
120-12-7 Anthracene	BRL	5.56 µg/l	1	"	"	"	"	"	
206-44-0 Fluoranthene	BRL	5.56 µg/l	1	"	"	"	"	"	
129-00-0 Pyrene	BRL	5.56 µg/l	1	"	"	"	"	"	
56-55-3 Benzo (a) anthracene	BRL	5.56 µg/l	1	"	"	"	"	"	
218-01-9 Chrysene	BRL	5.56 µg/l	1	"	"	"	"	"	
205-99-2 Benzo (b) fluoranthene	BRL	5.56 µg/l	1	"	"	"	"	"	
207-08-9 Benzo (k) fluoranthene	BRL	5.56 µg/l	1	"	"	"	"	"	

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* Reportable Detection Limit

BRL = Below Reporting Limit

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Sample Identification

B101-MW
SA26066-01

Client Project #
24124-1

Matrix
Ground Water

Collection Date/Time
01-Apr-05 10:45

Received
05-Apr-05

<i>CAS No.</i>	<i>Analyte(s)</i>	<i>Result</i>	<i>*RDL/Units</i>	<i>Dilution</i>	<i>Method Ref.</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Batch</i>	<i>Analyst</i>	<i>Flag</i>
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Extractable Petroleum Hydrocarbons

EPH Target PAH Analytes

Prepared by method SW846 3510C

50-32-8	Benzo (a) pyrene	BRL	5.56 µg/l	1	+MADEP 5/2004 R	06-Apr-05	08-Apr-05	5040219	M.B	
193-39-5	Indeno (1,2,3-cd) pyrene	BRL	5.56 µg/l	1	"	"	"	"	"	"
53-70-3	Dibenzo (a,h) anthracene	BRL	5.56 µg/l	1	"	"	"	"	"	"
191-24-2	Benzo (g,h,i) perylene	BRL	5.56 µg/l	1	"	"	"	"	"	"

Surrogate recoveries:

3386-33-2	1-Chlorooctadecane	73.4	40-140 %		"	"	"	"	"	"
84-15-1	Ortho-Terphenyl	64.2	40-140 %		"	"	"	"	"	"
580-13-2	2-Bromonaphthalene	68.5	40-140 %		"	"	"	"	"	"
321-60-8	2-Fluorobiphenyl	82.4	40-140 %		"	"	"	"	"	"

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* Reportable Detection Limit

BRL = Below Reporting Limit

Sample IdentificationB103-MW
SA26066-02Client Project #
24124-1Matrix
Ground WaterCollection Date/Time
01-Apr-05 12:15Received
05-Apr-05

CAS No.	Analyte(s)	Result	*RDL/Units	Dilution	Method Ref.	Prepared	Analyzed	Batch	Analyst	Flag
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Volatile Organic CompoundsVPH Aliphatic/Aromatic Carbon Ranges

Prepared by method VPH

C5-C8 Aliphatic Hydrocarbons	17.4	0.750 mg/l	50	+MADEP 5/2004 Rev. 1.1	06-Apr-05	07-Apr-05	5040231	KW	
C9-C12 Aliphatic Hydrocarbons	2.56	0.250 mg/l	50	"	"	"	"	"	
C9-C10 Aromatic Hydrocarbons	8.95	0.250 mg/l	50	"	"	"	"	"	
Unadjusted C5-C8 Aliphatic Hydrocarbons	32.5	0.750 mg/l	50	"	"	"	"	"	
Unadjusted C9-C12 Aliphatic Hydrocarbons	11.5	0.250 mg/l	50	"	"	"	"	"	

VPH Target Analytes

Prepared by method VPH

71-43-2 Benzene	168	50.0 µg/l	50	"	"	"	"	"	
100-41-4 Ethylbenzene	1,790	50.0 µg/l	50	"	"	"	"	"	
1634-04-4 Methyl tert-butyl ether	BRL	50.0 µg/l	50	"	"	"	"	"	
91-20-3 Naphthalene	392	50.0 µg/l	50	"	"	"	"	"	
108-88-3 Toluene	4,560	50.0 µg/l	50	"	"	"	"	"	
1330-20-7 m,p-Xylene	6,090	100 µg/l	50	"	"	"	"	"	
95-47-6 o-Xylene	2,480	50.0 µg/l	50	"	"	"	"	"	

Surrogate recoveries:

615-59-8 2,5-Dibromotoluene (FID)	104	70-130 %	"	"	"	"	"	"	
615-59-8 2,5-Dibromotoluene (PID)	102	70-130 %	"	"	"	"	"	"	

Extractable Petroleum HydrocarbonsEPH Aliphatic/Aromatic Ranges

Prepared by method SW846 3510C

C9-C18 Aliphatic Hydrocarbons	2.4	0.2 mg/l	1	+MADEP 5/2004 R	06-Apr-05	08-Apr-05	5040219	M.B	
C19-C36 Aliphatic Hydrocarbons	BRL	0.2 mg/l	1	"	"	"	"	"	
C11-C22 Aromatic Hydrocarbons	0.6	0.2 mg/l	1	"	"	"	"	"	
Unadjusted C11-C22 Aromatic Hydrocarbons	0.9	0.2 mg/l	1	"	"	"	"	"	
Total Petroleum Hydrocarbons	3.0	0.2 mg/l	1	"	"	"	"	"	
Unadjusted Total Petroleum Hydrocarbons	3.2	0.2 mg/l	1	"	"	"	"	"	

EPH Target PAH Analytes

Prepared by method SW846 3510C

91-20-3 Naphthalene	165	5.26 µg/l	1	"	"	"	"	"	
91-57-6 2-Methylnaphthalene	105	5.26 µg/l	1	"	"	"	"	"	
208-96-8 Acenaphthylene	BRL	5.26 µg/l	1	"	"	"	"	"	
83-32-9 Acenaphthene	BRL	5.26 µg/l	1	"	"	"	"	"	
86-73-7 Fluorene	BRL	5.26 µg/l	1	"	"	"	"	"	
85-01-8 Phenanthrene	BRL	5.26 µg/l	1	"	"	"	"	"	
120-12-7 Anthracene	BRL	5.26 µg/l	1	"	"	"	"	"	
206-44-0 Fluoranthene	BRL	5.26 µg/l	1	"	"	"	"	"	
129-00-0 Pyrene	BRL	5.26 µg/l	1	"	"	"	"	"	
56-55-3 Benzo (a) anthracene	BRL	5.26 µg/l	1	"	"	"	"	"	
218-01-9 Chrysene	BRL	5.26 µg/l	1	"	"	"	"	"	
205-99-2 Benzo (b) fluoranthene	BRL	5.26 µg/l	1	"	"	"	"	"	
207-08-9 Benzo (k) fluoranthene	BRL	5.26 µg/l	1	"	"	"	"	"	

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* Reportable Detection Limit

BRL = Below Reporting Limit

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Sample Identification

B103-MW
SA26066-02

Client Project #
24124-1

Matrix
Ground Water

Collection Date/Time
01-Apr-05 12:15

Received
05-Apr-05

<i>CAS No.</i>	<i>Analyte(s)</i>	<i>Result</i>	<i>*RDL/Units</i>	<i>Dilution</i>	<i>Method Ref.</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Batch</i>	<i>Analyst</i>	<i>Flag</i>
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Extractable Petroleum Hydrocarbons

EPH Target PAH Analytes

Prepared by method SW846 3510C

50-32-8	Benzo (a) pyrene	BRL	5.26 µg/l	1	+MADEP 5/2004 R	06-Apr-05	08-Apr-05	5040219	M.B	.
193-39-5	Indeno (1,2,3-cd) pyrene	BRL	5.26 µg/l	1	"	"	"	"	"	
53-70-3	Dibenzo (a,h) anthracene	BRL	5.26 µg/l	1	"	"	"	"	"	
191-24-2	Benzo (g,h,i) perylene	BRL	5.26 µg/l	1	"	"	"	"	"	

Surrogate recoveries:

3386-33-2	1-Chlorooctadecane	65.4	40-140 %		"	"	"	"	"	
84-15-1	Ortho-Terphenyl	63.1	40-140 %		"	"	"	"	"	
580-13-2	2-Bromonaphthalene	35.6	40-140 %		"	"	"	"	"	S-GC
321-60-8	2-Fluorobiphenyl	83.4	40-140 %		"	"	"	"	"	

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* Reportable Detection Limit

BRL = Below Reporting Limit

Sample IdentificationB104-MW
SA26066-03Client Project #

24124-1

Matrix

Ground Water

Collection Date/Time

01-Apr-05 12:45

Received

05-Apr-05

<u>CAS No.</u>	<u>Analyte(s)</u>	<u>Result</u>	<u>*RDL/Units</u>	<u>Dilution</u>	<u>Method Ref.</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Batch</u>	<u>Analyst</u>	<u>Flag</u>
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Volatile Organic CompoundsVPH Aliphatic/Aromatic Carbon Ranges

Prepared by method VPH

C5-C8 Aliphatic Hydrocarbons	8.89	0.300 mg/l	20	+MADEP 5/2004 Rev. 1.1	06-Apr-05	07-Apr-05	5040231	KW	
C9-C12 Aliphatic Hydrocarbons	1.52	0.100 mg/l	20	"	"	"	"	"	
C9-C10 Aromatic Hydrocarbons	3.75	0.100 mg/l	20	"	"	"	"	"	
Unadjusted C5-C8 Aliphatic Hydrocarbons	13.0	0.300 mg/l	20	"	"	"	"	"	
Unadjusted C9-C12 Aliphatic Hydrocarbons	5.27	0.100 mg/l	20	"	"	"	"	"	

VPH Target Analytes

Prepared by method VPH

71-43-2 Benzene	36.8	20.0 µg/l	20	"	"	"	"	"	
100-41-4 Ethylbenzene	843	20.0 µg/l	20	"	"	"	"	"	
1634-04-4 Methyl tert-butyl ether	38.6	20.0 µg/l	20	"	"	"	"	"	
91-20-3 Naphthalene	181	20.0 µg/l	20	"	"	"	"	"	
108-88-3 Toluene	338	20.0 µg/l	20	"	"	"	"	"	
1330-20-7 m,p-Xylene	2,080	40.0 µg/l	20	"	"	"	"	"	
95-47-6 o-Xylene	780	20.0 µg/l	20	"	"	"	"	"	

Surrogate recoveries:

615-59-8 2,5-Dibromotoluene (FID)	97.0	70-130 %	"	"	"	"	"	"	
615-59-8 2,5-Dibromotoluene (PID)	95.2	70-130 %	"	"	"	"	"	"	

Extractable Petroleum HydrocarbonsEPH Aliphatic/Aromatic Ranges

Prepared by method SW846 3510C

C9-C18 Aliphatic Hydrocarbons	0.4	0.2 mg/l	1	+MADEP 5/2004 R	06-Apr-05	08-Apr-05	5040219	M.B	
C19-C36 Aliphatic Hydrocarbons	BRL	0.2 mg/l	1	"	"	"	"	"	
C11-C22 Aromatic Hydrocarbons	0.4	0.2 mg/l	1	"	"	"	"	"	
Unadjusted C11-C22 Aromatic Hydrocarbons	0.5	0.2 mg/l	1	"	"	"	"	"	
Total Petroleum Hydrocarbons	0.8	0.2 mg/l	1	"	"	"	"	"	
Unadjusted Total Petroleum Hydrocarbons	1.0	0.2 mg/l	1	"	"	"	"	"	

EPH Target PAH Analytes

Prepared by method SW846 3510C

91-20-3 Naphthalene	88.1	5.00 µg/l	1	"	"	"	"	"	
91-57-6 2-Methylnaphthalene	48.3	5.00 µg/l	1	"	"	"	"	"	
208-96-8 Acenaphthylene	BRL	5.00 µg/l	1	"	"	"	"	"	
83-32-9 Acenaphthene	BRL	5.00 µg/l	1	"	"	"	"	"	
86-73-7 Fluorene	BRL	5.00 µg/l	1	"	"	"	"	"	
85-01-8 Phenanthrene	BRL	5.00 µg/l	1	"	"	"	"	"	
120-12-7 Anthracene	BRL	5.00 µg/l	1	"	"	"	"	"	
206-44-0 Fluoranthene	BRL	5.00 µg/l	1	"	"	"	"	"	
129-00-0 Pyrene	BRL	5.00 µg/l	1	"	"	"	"	"	
56-55-3 Benzo (a) anthracene	BRL	5.00 µg/l	1	"	"	"	"	"	
218-01-9 Chrysene	BRL	5.00 µg/l	1	"	"	"	"	"	
205-99-2 Benzo (b) fluoranthene	BRL	5.00 µg/l	1	"	"	"	"	"	
207-08-9 Benzo (k) fluoranthene	BRL	5.00 µg/l	1	"	"	"	"	"	

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* Reportable Detection Limit

BRL = Below Reporting Limit

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Sample Identification

B104-MW
SA26066-03

Client Project #
24124-1

Matrix
Ground Water

Collection Date/Time
01-Apr-05 12:45

Received
05-Apr-05

<i>CAS No.</i>	<i>Analyte(s)</i>	<i>Result</i>	<i>*RDL/Units</i>	<i>Dilution</i>	<i>Method Ref.</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Batch</i>	<i>Analyst</i>	<i>Flag</i>
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Extractable Petroleum Hydrocarbons

EPH Target PAH Analytes

Prepared by method SW846 3510C

50-32-8	Benzo (a) pyrene	BRL	5.00 µg/l	1	+MADEP 5/2004 R	06-Apr-05	08-Apr-05	5040219	M.B	
193-39-5	Indeno (1,2,3-cd) pyrene	BRL	5.00 µg/l	1	"	"	"	"	"	"
53-70-3	Dibenzo (a,h) anthracene	BRL	5.00 µg/l	1	"	"	"	"	"	"
191-24-2	Benzo (g,h,i) perylene	BRL	5.00 µg/l	1	"	"	"	"	"	"

Surrogate recoveries:

3386-33-2	1-Chlorooctadecane	77.8	40-140 %		"	"	"	"	"	"
84-15-1	Ortho-Terphenyl	66.8	40-140 %		"	"	"	"	"	"
580-13-2	2-Bromonaphthalene	59.2	40-140 %		"	"	"	"	"	"
321-60-8	2-Fluorobiphenyl	83.0	40-140 %		"	"	"	"	"	"

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* Reportable Detection Limit BRL = Below Reporting Limit

Sample IdentificationMW-1
SA26066-04Client Project #
24124-1Matrix
Ground WaterCollection Date/Time
01-Apr-05 13:45Received
05-Apr-05

<u>CAS No.</u>	<u>Analyte(s)</u>	<u>Result</u>	<u>*RDL/Units</u>	<u>Dilution</u>	<u>Method Ref.</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Batch</u>	<u>Analyst</u>	<u>Flag</u>
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Volatile Organic CompoundsVPH Aliphatic/Aromatic Carbon Ranges

Prepared by method VPH

C5-C8 Aliphatic Hydrocarbons	0.753	0.0750 mg/l	5	+MADEP 5/2004 Rev. 1.1	06-Apr-05	06-Apr-05	5040231	KW	
C9-C12 Aliphatic Hydrocarbons	0.159	0.0250 mg/l	5	"	"	"	"	"	"
C9-C10 Aromatic Hydrocarbons	0.300	0.0250 mg/l	5	"	"	"	"	"	"
Unadjusted C5-C8 Aliphatic Hydrocarbons	0.864	0.0750 mg/l	5	"	"	"	"	"	"
Unadjusted C9-C12 Aliphatic Hydrocarbons	0.459	0.0250 mg/l	5	"	"	"	"	"	"

VPH Target Analytes

Prepared by method VPH

71-43-2 Benzene	11.4	5.0 µg/l	5	"	"	"	"	"	"
100-41-4 Ethylbenzene	26.8	5.0 µg/l	5	"	"	"	"	"	"
1634-04-4 Methyl tert-butyl ether	BRL	5.0 µg/l	5	"	"	"	"	"	"
91-20-3 Naphthalene	10.8	5.0 µg/l	5	"	"	"	"	"	"
108-88-3 Toluene	12.4	5.0 µg/l	5	"	"	"	"	"	"
1330-20-7 m,p-Xylene	50.8	10.0 µg/l	5	"	"	"	"	"	"
95-47-6 o-Xylene	9.6	5.0 µg/l	5	"	"	"	"	"	"

Surrogate recoveries:

615-59-8 2,5-Dibromotoluene (FID)	86.6	70-130 %	"	"	"	"	"	"	"
615-59-8 2,5-Dibromotoluene (PID)	86.0	70-130 %	"	"	"	"	"	"	"

Extractable Petroleum HydrocarbonsEPH Aliphatic/Aromatic Ranges

Prepared by method SW846 3510C

C9-C18 Aliphatic Hydrocarbons	BRL	0.2 mg/l	1	+MADEP 5/2004 R	06-Apr-05	08-Apr-05	5040219	M.B	
C19-C36 Aliphatic Hydrocarbons	BRL	0.2 mg/l	1	"	"	"	"	"	"
C11-C22 Aromatic Hydrocarbons	BRL	0.2 mg/l	1	"	"	"	"	"	"
Unadjusted C11-C22 Aromatic Hydrocarbons	BRL	0.2 mg/l	1	"	"	"	"	"	"
Total Petroleum Hydrocarbons	0.2	0.2 mg/l	1	"	"	"	"	"	"
Unadjusted Total Petroleum Hydrocarbons	0.2	0.2 mg/l	1	"	"	"	"	"	"

EPH Target PAH Analytes

Prepared by method SW846 3510C

91-20-3 Naphthalene	BRL	5.00 µg/l	1	"	"	"	"	"	"
91-57-6 2-Methylnaphthalene	BRL	5.00 µg/l	1	"	"	"	"	"	"
208-96-8 Acenaphthylene	BRL	5.00 µg/l	1	"	"	"	"	"	"
83-32-9 Acenaphthene	BRL	5.00 µg/l	1	"	"	"	"	"	"
86-73-7 Fluorene	BRL	5.00 µg/l	1	"	"	"	"	"	"
85-01-8 Phenanthrene	BRL	5.00 µg/l	1	"	"	"	"	"	"
120-12-7 Anthracene	BRL	5.00 µg/l	1	"	"	"	"	"	"
206-44-0 Fluoranthene	BRL	5.00 µg/l	1	"	"	"	"	"	"
129-00-0 Pyrene	BRL	5.00 µg/l	1	"	"	"	"	"	"
56-55-3 Benzo (a) anthracene	BRL	5.00 µg/l	1	"	"	"	"	"	"
218-01-9 Chrysene	BRL	5.00 µg/l	1	"	"	"	"	"	"
205-99-2 Benzo (b) fluoranthene	BRL	5.00 µg/l	1	"	"	"	"	"	"
207-08-9 Benzo (k) fluoranthene	BRL	5.00 µg/l	1	"	"	"	"	"	"

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* Reportable Detection Limit

BRL = Below Reporting Limit

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Sample Identification

MW-1
SA26066-04

Client Project #
24124-1

Matrix
Ground Water

Collection Date/Time
01-Apr-05 13:45

Received
05-Apr-05

<i>CAS No.</i>	<i>Analyte(s)</i>	<i>Result</i>	<i>*RDL/Units</i>	<i>Dilution</i>	<i>Method Ref.</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Batch</i>	<i>Analyst</i>	<i>Flag</i>
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Extractable Petroleum Hydrocarbons

EPH Target PAH Analytes

Prepared by method SW846 3510C

50-32-8	Benzo (a) pyrene	BRL	5.00 µg/l	1	+MADEP 5/2004 R	06-Apr-05	08-Apr-05	5040219	M.B	
193-39-5	Indeno (1,2,3-cd) pyrene	BRL	5.00 µg/l	1	"	"	"	"	"	"
53-70-3	Dibenzo (a,h) anthracene	BRL	5.00 µg/l	1	"	"	"	"	"	"
191-24-2	Benzo (g,h,i) perylene	BRL	5.00 µg/l	1	"	"	"	"	"	"

Surrogate recoveries:

3386-33-2	<i>1-Chlorooctadecane</i>	67.2	40-140 %		"	"	"	"	"	"
84-15-1	<i>Ortho-Terphenyl</i>	63.6	40-140 %		"	"	"	"	"	"
580-13-2	<i>2-Bromonaphthalene</i>	71.5	40-140 %		"	"	"	"	"	"
321-60-8	<i>2-Fluorobiphenyl</i>	80.5	40-140 %		"	"	"	"	"	"

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* Reportable Detection Limit

BRL = Below Reporting Limit

Sample Identification
 MW-4
 SA26066-05

Client Project #
 24124-1

Matrix
 Ground Water

Collection Date/Time
 01-Apr-05 13:00

Received
 05-Apr-05

CAS No.	Analyte(s)	Result	*RDL/Units	Dilution	Method Ref.	Prepared	Analyzed	Batch	Analyst	Flag
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Volatile Organic Compounds

VPH Aliphatic/Aromatic Carbon Ranges

Prepared by method VPH

C5-C8 Aliphatic Hydrocarbons	22.4	3.00 mg/l	200	+MADEP 5/2004 Rev. 1.1	06-Apr-05	07-Apr-05	5040231	KW	
C9-C12 Aliphatic Hydrocarbons	5.83	1.00 mg/l	200	"	"	"	"	"	
C9-C10 Aromatic Hydrocarbons	16.2	1.00 mg/l	200	"	"	"	"	"	
Unadjusted C5-C8 Aliphatic Hydrocarbons	53.9	3.00 mg/l	200	"	"	"	"	"	
Unadjusted C9-C12 Aliphatic Hydrocarbons	22.0	1.00 mg/l	200	"	"	"	"	"	

VPH Target Analytes

Prepared by method VPH

71-43-2 Benzene	BRL	200 µg/l	200	"	"	"	"	"	
100-41-4 Ethylbenzene	4,480	200 µg/l	200	"	"	"	"	"	
1634-04-4 Methyl tert-butyl ether	BRL	200 µg/l	200	"	"	"	"	"	
91-20-3 Naphthalene	1,090	200 µg/l	200	"	"	"	"	"	
108-88-3 Toluene	1,950	200 µg/l	200	"	"	"	"	"	
1330-20-7 m,p-Xylene	17,500	400 µg/l	200	"	"	"	"	"	
95-47-6 o-Xylene	7,640	200 µg/l	200	"	"	"	"	"	

Surrogate recoveries:

615-59-8 2,5-Dibromotoluene (FID)	100	70-130 %	"	"	"	"	"	"	
615-59-8 2,5-Dibromotoluene (PID)	95.6	70-130 %	"	"	"	"	"	"	

Extractable Petroleum Hydrocarbons

EPH Aliphatic/Aromatic Ranges

Prepared by method SW846 3510C

C9-C18 Aliphatic Hydrocarbons	4.2	0.2 mg/l	1	+MADEP 5/2004 R	06-Apr-05	08-Apr-05	5040219	M.B	
C19-C36 Aliphatic Hydrocarbons	BRL	0.2 mg/l	1	"	"	"	"	"	
C11-C22 Aromatic Hydrocarbons	0.4	0.2 mg/l	1	"	"	"	"	"	
Unadjusted C11-C22 Aromatic Hydrocarbons	0.9	0.2 mg/l	1	"	"	"	"	"	
Total Petroleum Hydrocarbons	4.6	0.2 mg/l	1	"	"	"	"	"	
Unadjusted Total Petroleum Hydrocarbons	5.1	0.2 mg/l	1	"	"	"	"	"	

EPH Target PAH Analytes

Prepared by method SW846 3510C

91-20-3 Naphthalene	379	5.00 µg/l	1	"	"	"	"	"	
91-57-6 2-Methylnaphthalene	108	5.00 µg/l	1	"	"	"	"	"	
208-96-8 Acenaphthylene	BRL	5.00 µg/l	1	"	"	"	"	"	
83-32-9 Acenaphthene	BRL	5.00 µg/l	1	"	"	"	"	"	
86-73-7 Fluorene	BRL	5.00 µg/l	1	"	"	"	"	"	
85-01-8 Phenanthrene	BRL	5.00 µg/l	1	"	"	"	"	"	
120-12-7 Anthracene	BRL	5.00 µg/l	1	"	"	"	"	"	
206-44-0 Fluoranthene	BRL	5.00 µg/l	1	"	"	"	"	"	
129-00-0 Pyrene	BRL	5.00 µg/l	1	"	"	"	"	"	
56-55-3 Benzo (a) anthracene	BRL	5.00 µg/l	1	"	"	"	"	"	
218-01-9 Chrysene	BRL	5.00 µg/l	1	"	"	"	"	"	
205-99-2 Benzo (b) fluoranthene	BRL	5.00 µg/l	1	"	"	"	"	"	
207-08-9 Benzo (k) fluoranthene	BRL	5.00 µg/l	1	"	"	"	"	"	

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* Reportable Detection Limit

BRL = Below Reporting Limit

Page 10 of 20

Sample Identification

MW-4
SA26066-05

Client Project #
24124-1

Matrix
Ground Water

Collection Date/Time
01-Apr-05 13:00

Received
05-Apr-05

CAS No.	Analyte(s)	Result	*RDL/Units	Dilution	Method Ref.	Prepared	Analyzed	Batch	Analyst	Flag
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Extractable Petroleum Hydrocarbons

EPH Target PAH Analytes

Prepared by method SW846 3510C

50-32-8	Benzo (a) pyrene	BRL	5.00 µg/l	1	+MADEP 5/2004 R	06-Apr-05	08-Apr-05	5040219	M.B	
193-39-5	Indeno (1,2,3-cd) pyrene	BRL	5.00 µg/l	1	"	"	"	"	"	
53-70-3	Dibenzo (a,h) anthracene	BRL	5.00 µg/l	1	"	"	"	"	"	
191-24-2	Benzo (g,h,i) perylene	BRL	5.00 µg/l	1	"	"	"	"	"	

Surrogate recoveries:

3386-33-2	1-Chlorooctadecane	71.0	40-140 %		"	"	"	"	"	
84-15-1	Ortho-Terphenyl	68.0	40-140 %		"	"	"	"	"	
580-13-2	2-Bromonaphthalene	41.2	40-140 %		"	"	"	"	"	
321-60-8	2-Fluorobiphenyl	83.8	40-140 %		"	"	"	"	"	

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* Reportable Detection Limit

BRL = Below Reporting Limit

Sample Identification

B102B
SA26066-06

Client Project #
24124-1

Matrix
Ground Water

Collection Date/Time
01-Apr-05 14:00

Received
05-Apr-05

<i>CAS No.</i>	<i>Analyte(s)</i>	<i>Result</i>	<i>*RDL/Units</i>	<i>Dilution</i>	<i>Method Ref.</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Batch</i>	<i>Analyst</i>	<i>Flag</i>
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Volatile Organic Compounds

VPH Aliphatic/Aromatic Carbon Ranges

Prepared by method VPH

C5-C8 Aliphatic Hydrocarbons	4.62	0.150 mg/l	10	+MADEP 5/2004 Rev. 1.1	06-Apr-05	07-Apr-05	5040231	KW	
C9-C12 Aliphatic Hydrocarbons	2.25	0.0500 mg/l	10	"	"	"	"	"	"
C9-C10 Aromatic Hydrocarbons	6.91	0.0500 mg/l	10	"	"	"	"	"	"
Unadjusted C5-C8 Aliphatic Hydrocarbons	11.7	0.150 mg/l	10	"	"	"	"	"	"
Unadjusted C9-C12 Aliphatic Hydrocarbons	9.16	0.0500 mg/l	10	"	"	"	"	"	"

VPH Target Analytes

Prepared by method VPH

71-43-2 Benzene	230	10.0 µg/l	10	"	"	"	"	"	"
100-41-4 Ethylbenzene	680	10.0 µg/l	10	"	"	"	"	"	"
1634-04-4 Methyl tert-butyl ether	87.4	10.0 µg/l	10	"	"	"	"	"	"
91-20-3 Naphthalene	368	10.0 µg/l	10	"	"	"	"	"	"
108-88-3 Toluene	1,600	10.0 µg/l	10	"	"	"	"	"	"
1330-20-7 m,p-Xylene	2,560	20.0 µg/l	10	"	"	"	"	"	"
95-47-6 o-Xylene	1,910	10.0 µg/l	10	"	"	"	"	"	"

Surrogate recoveries:

615-59-8 2,5-Dibromotoluene (FID)	94.6	70-130 %		"	"	"	"	"	"
615-59-8 2,5-Dibromotoluene (PID)	92.4	70-130 %		"	"	"	"	"	"

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* Reportable Detection Limit

BRL = Below Reporting Limit

Sample Identification

B102B
SA26066-07

Client Project #
24124-1

Matrix
Ground Water

Collection Date/Time
04-Apr-05 09:45

Received
05-Apr-05

CAS No. Analyte(s) Result *RDL/Units Dilution Method Ref. Prepared Analyzed Batch Analyst Flag

Extractable Petroleum Hydrocarbons

EPH Aliphatic/Aromatic Ranges

Prepared by method SW846 3510C

C9-C18 Aliphatic Hydrocarbons	0.4	0.2 mg/l	1	+MADEP 5/2004 R	06-Apr-05	08-Apr-05	5040219	M.B
C19-C36 Aliphatic Hydrocarbons	BRL	0.2 mg/l	1	"	"	"	"	"
C11-C22 Aromatic Hydrocarbons	0.5	0.2 mg/l	1	"	"	"	"	"
Unadjusted C11-C22 Aromatic Hydrocarbons	0.6	0.2 mg/l	1	"	"	"	"	"
Total Petroleum Hydrocarbons	0.9	0.2 mg/l	1	"	"	"	"	"
Unadjusted Total Petroleum Hydrocarbons	1.0	0.2 mg/l	1	"	"	"	"	"

EPH Target PAH Analytes

Prepared by method SW846 3510C

91-20-3 Naphthalene	114	5.00 µg/l	1	"	"	"	"	"
91-57-6 2-Methylnaphthalene	30.6	5.00 µg/l	1	"	"	"	"	"
208-96-8 Acenaphthylene	BRL	5.00 µg/l	1	"	"	"	"	"
83-32-9 Acenaphthene	BRL	5.00 µg/l	1	"	"	"	"	"
86-73-7 Fluorene	BRL	5.00 µg/l	1	"	"	"	"	"
85-01-8 Phenanthrene	BRL	5.00 µg/l	1	"	"	"	"	"
120-12-7 Anthracene	BRL	5.00 µg/l	1	"	"	"	"	"
206-44-0 Fluoranthene	BRL	5.00 µg/l	1	"	"	"	"	"
129-00-0 Pyrene	BRL	5.00 µg/l	1	"	"	"	"	"
56-55-3 Benzo (a) anthracene	BRL	5.00 µg/l	1	"	"	"	"	"
218-01-9 Chrysene	BRL	5.00 µg/l	1	"	"	"	"	"
205-99-2 Benzo (b) fluoranthene	BRL	5.00 µg/l	1	"	"	"	"	"
207-08-9 Benzo (k) fluoranthene	BRL	5.00 µg/l	1	"	"	"	"	"
50-32-8 Benzo (a) pyrene	BRL	5.00 µg/l	1	"	"	"	"	"
193-39-5 Indeno (1,2,3-cd) pyrene	BRL	5.00 µg/l	1	"	"	"	"	"
53-70-3 Dibenzo (a,h) anthracene	BRL	5.00 µg/l	1	"	"	"	"	"
191-24-2 Benzo (g,h,i) perylene	BRL	5.00 µg/l	1	"	"	"	"	"

Surrogate recoveries:

3386-33-2 1-Chlorooctadecane	67.2	40-140 %	"	"	"	"	"	"
84-15-1 Ortho-Terphenyl	63.2	40-140 %	"	"	"	"	"	"
580-13-2 2-Bromonaphthalene	69.0	40-140 %	"	"	"	"	"	"
321-60-8 2-Fluorobiphenyl	85.2	40-140 %	"	"	"	"	"	"

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* Reportable Detection Limit

BRL = Below Reporting Limit

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Volatile Organic Compounds - Quality Control

Analyte(s)	Result	*RDL Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 5040231 - VPH									
Blank (5040231-BLK1)			Prepared & Analyzed: 06-Apr-05						
C5-C8 Aliphatic Hydrocarbons	BRL	0.0750 mg/l							
C9-C12 Aliphatic Hydrocarbons	BRL	0.0250 mg/l							
C9-C10 Aromatic Hydrocarbons	BRL	0.0250 mg/l							
Unadjusted C5-C8 Aliphatic Hydrocarbons	BRL	0.0750 mg/l							
Unadjusted C9-C12 Aliphatic Hydrocarbons	BRL	0.0250 mg/l							
Benzene	BRL	5.0 µg/l							
Ethylbenzene	BRL	5.0 µg/l							
Methyl tert-butyl ether	BRL	5.0 µg/l							
Naphthalene	BRL	5.0 µg/l							
Toluene	BRL	5.0 µg/l							
m,p-Xylene	BRL	10.0 µg/l							
o-Xylene	BRL	5.0 µg/l							
<i>Surrogate: 2,5-Dibromotoluene (FID)</i>	52.6	µg/l	50.0		105	70-130			
<i>Surrogate: 2,5-Dibromotoluene (PID)</i>	51.5	µg/l	50.0		103	70-130			
LCS (5040231-BS1)			Prepared & Analyzed: 06-Apr-05						
C5-C8 Aliphatic Hydrocarbons	129	mg/l	140		92.1	70-130			
C9-C12 Aliphatic Hydrocarbons	53.5	mg/l	55.0		97.3	70-130			
C9-C10 Aromatic Hydrocarbons	30.9	mg/l	30.0		103	70-130			
Unadjusted C5-C8 Aliphatic Hydrocarbons	246	mg/l	280		87.9	70-130			
Unadjusted C9-C12 Aliphatic Hydrocarbons	84.4	mg/l	85.0		99.3	70-130			
Benzene	16.8	µg/l	20.0		84.0	70-130			
Ethylbenzene	16.2	µg/l	20.0		81.0	70-130			
Methyl tert-butyl ether	19.0	µg/l	20.0		95.0	70-130			
Naphthalene	17.0	µg/l	20.0		85.0	70-130			
Toluene	16.4	µg/l	20.0		82.0	70-130			
m,p-Xylene	32.2	µg/l	40.0		80.5	70-130			
o-Xylene	16.8	µg/l	20.0		84.0	70-130			
2-Methylpentane	17.7	µg/l	20.0		88.5	70-130			
n-Nonane	15.5	µg/l	20.0		77.5	70-130			
n-Pentane	17.8	µg/l	20.0		89.0	70-130			
1,2,4-Trimethylbenzene	16.6	µg/l	20.0		83.0	70-130			
2,2,4-Trimethylpentane	17.7	µg/l	20.0		88.5	70-130			
n-Butylcyclohexane	16.3	µg/l	20.0		81.5	70-130			
n-Decane	15.2	µg/l	20.0		76.0	70-130			
<i>Surrogate: 2,5-Dibromotoluene (FID)</i>	37.3	µg/l	50.0		74.6	70-130			
<i>Surrogate: 2,5-Dibromotoluene (PID)</i>	37.5	µg/l	50.0		75.0	70-130			
LCS Dup (5040231-BSD1)			Prepared: 06-Apr-05 Analyzed: 07-Apr-05						
C5-C8 Aliphatic Hydrocarbons	141	mg/l	140		101	70-130	9.22	25	
C9-C12 Aliphatic Hydrocarbons	56.0	mg/l	55.0		102	70-130	4.72	25	
C9-C10 Aromatic Hydrocarbons	35.0	mg/l	30.0		117	70-130	12.7	25	
Unadjusted C5-C8 Aliphatic Hydrocarbons	275	mg/l	280		98.2	70-130	11.1	25	
Unadjusted C9-C12 Aliphatic Hydrocarbons	91.0	mg/l	85.0		107	70-130	7.46	25	
Benzene	18.7	µg/l	20.0		93.5	70-130	10.7	25	
Ethylbenzene	19.1	µg/l	20.0		95.5	70-130	16.4	25	
Methyl tert-butyl ether	20.4	µg/l	20.0		102	70-130	7.11	25	
Naphthalene	21.7	µg/l	20.0		108	70-130	23.8	25	
Toluene	18.9	µg/l	20.0		94.5	70-130	14.2	25	
m,p-Xylene	37.6	µg/l	40.0		94.0	70-130	15.5	25	
o-Xylene	19.4	µg/l	20.0		97.0	70-130	14.4	25	
2-Methylpentane	18.6	µg/l	20.0		93.0	70-130	4.96	25	
n-Nonane	17.9	µg/l	20.0		89.5	70-130	14.4	25	

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Volatile Organic Compounds - Quality Control

Analyte(s)	Result	*RDL Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 5040231 - VPH									
LCS Dup (5040231-BSD1)			Prepared: 06-Apr-05 Analyzed: 07-Apr-05						
n-Pentane	18.7	µg/l	20.0		93.5	70-130	4.93	25	
1,2,4-Trimethylbenzene	19.9	µg/l	20.0		99.5	70-130	18.1	25	
2,2,4-Trimethylpentane	18.9	µg/l	20.0		94.5	70-130	6.56	25	
n-Butylcyclohexane	19.7	µg/l	20.0		98.5	70-130	18.9	25	
n-Decane	19.7	µg/l	20.0		98.5	70-130	25.8	25	QR-02
Surrogate: 2,5-Dibromotoluene (FID)	49.7	µg/l	50.0		99.4	70-130			
Surrogate: 2,5-Dibromotoluene (PID)	48.5	µg/l	50.0		97.0	70-130			
Duplicate (5040231-DUP1)			Source: SA26067-04		Prepared & Analyzed: 06-Apr-05				
C5-C8 Aliphatic Hydrocarbons	BRL	0.0750 mg/l		0.00641			0.312	50	
C9-C12 Aliphatic Hydrocarbons	BRL	0.0250 mg/l		0.000272			23.4	50	
C9-C10 Aromatic Hydrocarbons	BRL	0.0250 mg/l		0.00192			3.17	50	
Unadjusted C5-C8 Aliphatic Hydrocarbons	BRL	0.0750 mg/l		0.00641			0.312	50	
Unadjusted C9-C12 Aliphatic Hydrocarbons	BRL	0.0250 mg/l		0.00219			0.456	50	
Benzene	BRL	5.0 µg/l		BRL				50	
Ethylbenzene	BRL	5.0 µg/l		BRL				50	
Methyl tert-butyl ether	BRL	5.0 µg/l		BRL				50	
Naphthalene	BRL	5.0 µg/l		BRL				50	
Toluene	BRL	5.0 µg/l		BRL				50	
m,p-Xylene	BRL	10.0 µg/l		BRL				50	
o-Xylene	BRL	5.0 µg/l		BRL				50	
Surrogate: 2,5-Dibromotoluene (FID)	44.8	µg/l	50.0		89.6	70-130			
Surrogate: 2,5-Dibromotoluene (PID)	44.3	µg/l	50.0		88.6	70-130			
Matrix Spike (5040231-MS1)			Source: SA26067-04		Prepared & Analyzed: 06-Apr-05				
Benzene	17.9	µg/l	20.0	BRL	89.5	70-130			
Ethylbenzene	17.8	µg/l	20.0	BRL	89.0	70-130			
Methyl tert-butyl ether	17.7	µg/l	20.0	BRL	88.5	70-130			
Naphthalene	15.3	µg/l	20.0	BRL	76.5	70-130			
Toluene	18.0	µg/l	20.0	BRL	90.0	70-130			
m,p-Xylene	35.2	µg/l	40.0	BRL	88.0	70-130			
o-Xylene	18.3	µg/l	20.0	BRL	91.5	70-130			
2-Methylpentane	15.1	µg/l	20.0	BRL	75.5	70-130			
n-Nonane	14.6	µg/l	20.0	BRL	73.0	70-130			
n-Pentane	17.6	µg/l	20.0	BRL	88.0	70-130			
1,2,4-Trimethylbenzene	18.1	µg/l	20.0	BRL	90.5	70-130			
2,2,4-Trimethylpentane	16.3	µg/l	20.0	BRL	81.5	70-130			
n-Butylcyclohexane	16.2	µg/l	20.0	0.0	81.0	70-130			
n-Decane	14.8	µg/l	20.0	0.0	74.0	70-130			
Surrogate: 2,5-Dibromotoluene (FID)	29.5	µg/l	50.0		59.0	70-130			S-04
Surrogate: 2,5-Dibromotoluene (PID)	28.5	µg/l	50.0		57.0	70-130			S-04

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* Reportable Detection Limit

BRL = Below Reporting Limit

Extractable Petroleum Hydrocarbons - Quality Control

Analyte(s)	Result	*RDL Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 0504027 - 5040219									
Calibration Check (0504027-CCV1)			Prepared: 06-Apr-05 Analyzed: 07-Apr-05						
C9-C18 Aliphatic Hydrocarbons	0.661	mg/kg wet	0.600		110	75-125			
C19-C36 Aliphatic Hydrocarbons	0.760	mg/kg wet	0.800		95.0	75-125			
C11-C22 Aromatic Hydrocarbons	2.12	mg/kg wet	1.70		125	75-125			
Naphthalene	86.9	µg/kg wet	100		86.9	80-120			
2-Methylnaphthalene	85.4	µg/kg wet	100		85.4	80-120			
Acenaphthylene	88.4	µg/kg wet	100		88.4	80-120			
Acenaphthene	90.8	µg/kg wet	100		90.8	80-120			
Fluorene	89.9	µg/kg wet	100		89.9	80-120			
Phenanthrene	94.7	µg/kg wet	100		94.7	80-120			
Anthracene	83.3	µg/kg wet	100		83.3	80-120			
Fluoranthene	107	µg/kg wet	100		107	80-120			
Pyrene	102	µg/kg wet	100		102	80-120			
Benzo (a) anthracene	129	µg/kg wet	100		129	80-120			QC-1
Chrysene	108	µg/kg wet	100		108	80-120			
Benzo (b) fluoranthene	109	µg/kg wet	100		109	80-120			
Benzo (k) fluoranthene	129	µg/kg wet	100		129	80-120			QC-1
Benzo (a) pyrene	114	µg/kg wet	100		114	80-120			
Indeno (1,2,3-cd) pyrene	97.0	µg/kg wet	100		97.0	80-120			
Dibenzo (a,h) anthracene	99.0	µg/kg wet	100		99.0	80-120			
Benzo (g,h,i) perylene	86.7	µg/kg wet	100		86.7	80-120			
Calibration Check (0504027-CCV2)			Prepared: 06-Apr-05 Analyzed: 07-Apr-05						
C9-C18 Aliphatic Hydrocarbons	0.603	mg/kg wet	0.600		100	75-125			
C19-C36 Aliphatic Hydrocarbons	0.674	mg/kg wet	0.800		84.2	75-125			
C11-C22 Aromatic Hydrocarbons	1.73	mg/kg wet	1.70		102	75-125			
Naphthalene	86.8	µg/kg wet	100		86.8	80-120			
2-Methylnaphthalene	92.9	µg/kg wet	100		92.9	80-120			
Acenaphthylene	89.4	µg/kg wet	100		89.4	80-120			
Acenaphthene	86.8	µg/kg wet	100		86.8	80-120			
Fluorene	88.1	µg/kg wet	100		88.1	80-120			
Phenanthrene	96.1	µg/kg wet	100		96.1	80-120			
Anthracene	90.1	µg/kg wet	100		90.1	80-120			
Fluoranthene	104	µg/kg wet	100		104	80-120			
Pyrene	103	µg/kg wet	100		103	80-120			
Benzo (a) anthracene	123	µg/kg wet	100		123	80-120			QC-1
Chrysene	122	µg/kg wet	100		122	80-120			QC-1
Benzo (b) fluoranthene	122	µg/kg wet	100		122	80-120			QC-1
Benzo (k) fluoranthene	120	µg/kg wet	100		120	80-120			
Benzo (a) pyrene	122	µg/kg wet	100		122	80-120			QC-1
Indeno (1,2,3-cd) pyrene	100	µg/kg wet	100		100	80-120			
Dibenzo (a,h) anthracene	104	µg/kg wet	100		104	80-120			
Benzo (g,h,i) perylene	90.2	µg/kg wet	100		90.2	80-120			
Batch 5040219 - SW846 3510C									
Blank (5040219-BLK1)			Prepared: 06-Apr-05 Analyzed: 07-Apr-05						
C9-C18 Aliphatic Hydrocarbons	BRL	0.2 mg/l							
C19-C36 Aliphatic Hydrocarbons	BRL	0.2 mg/l							
C11-C22 Aromatic Hydrocarbons	BRL	0.2 mg/l							
Unadjusted C11-C22 Aromatic Hydrocarbons	BRL	0.2 mg/l							
Total Petroleum Hydrocarbons	BRL	0.2 mg/l							
Unadjusted Total Petroleum Hydrocarbons	BRL	0.2 mg/l							
Naphthalene	BRL	2.50 µg/l							
2-Methylnaphthalene	BRL	2.50 µg/l							
Acenaphthylene	BRL	2.50 µg/l							

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* Reportable Detection Limit BRL = Below Reporting Limit

Extractable Petroleum Hydrocarbons - Quality Control

Analyte(s)	Result	*RDL Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 5040219 - SW846 3510C									
Blank (5040219-BLK1) Prepared: 06-Apr-05 Analyzed: 07-Apr-05									
Acenaphthene	BRL	2.50 µg/l							
Fluorene	BRL	2.50 µg/l							
Phenanthrene	BRL	2.50 µg/l							
Anthracene	BRL	2.50 µg/l							
Fluoranthene	BRL	2.50 µg/l							
Pyrene	BRL	2.50 µg/l							
Benzo (a) anthracene	BRL	2.50 µg/l							
Chrysene	BRL	2.50 µg/l							
Benzo (b) fluoranthene	BRL	2.50 µg/l							
Benzo (k) fluoranthene	BRL	2.50 µg/l							
Benzo (a) pyrene	BRL	2.50 µg/l							
Indeno (1,2,3-cd) pyrene	BRL	2.50 µg/l							
Dibenzo (a,h) anthracene	BRL	2.50 µg/l							
Benzo (g,h,i) perylene	BRL	2.50 µg/l							
<i>Surrogate: 1-Chlorooctadecane</i>	33.7	µg/l	50.0		67.4	40-140			
<i>Surrogate: Ortho-Terphenyl</i>	30.6	µg/l	50.0		61.2	40-140			
<i>Surrogate: 2-Bromonaphthalene</i>	20.6	µg/l	40.0		51.5	40-140			
<i>Surrogate: 2-Fluorobiphenyl</i>	27.7	µg/l	40.0		69.2	40-140			
LCS (5040219-BS1) Prepared: 06-Apr-05 Analyzed: 07-Apr-05									
C9-C18 Aliphatic Hydrocarbons	0.356	0.2 mg/l	0.600		59.3	40-140			
C19-C36 Aliphatic Hydrocarbons	0.504	0.2 mg/l	0.800		63.0	40-140			
C11-C22 Aromatic Hydrocarbons	1.66	0.2 mg/l	1.70		97.6	40-140			
Naphthalene	54.2	2.50 µg/l	100		54.2	40-140			
2-Methylnaphthalene	58.6	2.50 µg/l	100		58.6	40-140			
Acenaphthylene	64.8	2.50 µg/l	100		64.8	40-140			
Acenaphthene	67.0	2.50 µg/l	100		67.0	40-140			
Fluorene	69.4	2.50 µg/l	100		69.4	40-140			
Phenanthrene	75.4	2.50 µg/l	100		75.4	40-140			
Anthracene	72.0	2.50 µg/l	100		72.0	40-140			
Fluoranthene	79.7	2.50 µg/l	100		79.7	40-140			
Pyrene	84.0	2.50 µg/l	100		84.0	40-140			
Benzo (a) anthracene	101	2.50 µg/l	100		101	40-140			
Chrysene	91.8	2.50 µg/l	100		91.8	40-140			
Benzo (b) fluoranthene	95.4	2.50 µg/l	100		95.4	40-140			
Benzo (k) fluoranthene	102	2.50 µg/l	100		102	40-140			
Benzo (a) pyrene	98.2	2.50 µg/l	100		98.2	40-140			
Indeno (1,2,3-cd) pyrene	83.5	2.50 µg/l	100		83.5	40-140			
Dibenzo (a,h) anthracene	84.9	2.50 µg/l	100		84.9	40-140			
Benzo (g,h,i) perylene	76.7	2.50 µg/l	100		76.7	40-140			
Naphthalene (aliphatic fraction)	0.645	µg/l	100		0.645	0-200			
2-Methylnaphthalene (aliphatic fraction)	1.21	µg/l	100		1.21	0-200			
<i>Surrogate: 1-Chlorooctadecane</i>	35.4	µg/l	50.0		70.8	40-140			
<i>Surrogate: Ortho-Terphenyl</i>	35.7	µg/l	50.0		71.4	40-140			
<i>Surrogate: 2-Bromonaphthalene</i>	20.4	µg/l	40.0		51.0	40-140			
<i>Surrogate: 2-Fluorobiphenyl</i>	32.7	µg/l	40.0		81.8	40-140			
Naphthalene Breakthrough	1.18	%				0-5			
2-Methylnaphthalene Breakthrough	2.02	%				0-5			
Fractionation Check Standard (5040219-BS2) Prepared: 06-Apr-05 Analyzed: 07-Apr-05									
C9-C18 Aliphatic Hydrocarbons	0.362	0.2 mg/l	0.600		60.3	40-140			
C19-C36 Aliphatic Hydrocarbons	0.471	0.2 mg/l	0.800		58.9	40-140			
C11-C22 Aromatic Hydrocarbons	1.66	0.2 mg/l	1.70		97.6	40-140			
Naphthalene	66.8	2.50 µg/l	100		66.8	40-140			
2-Methylnaphthalene	71.1	2.50 µg/l	100		71.1	40-140			

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Extractable Petroleum Hydrocarbons - Quality Control

Analyte(s)	Result	*RDL Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 5040219 - SW846 3510C									
Fractionation Check Standard (5040219-BS2)					Prepared: 06-Apr-05 Analyzed: 07-Apr-05				
Acenaphthylene	72.4	2.50 µg/l	100		72.4	40-140			
Acenaphthene	76.7	2.50 µg/l	100		76.7	40-140			
Fluorene	78.0	2.50 µg/l	100		78.0	40-140			
Phenanthrene	84.6	2.50 µg/l	100		84.6	40-140			
Anthracene	80.6	2.50 µg/l	100		80.6	40-140			
Fluoranthene	88.8	2.50 µg/l	100		88.8	40-140			
Pyrene	91.4	2.50 µg/l	100		91.4	40-140			
Benzo (a) anthracene	113	2.50 µg/l	100		113	40-140			
Chrysene	105	2.50 µg/l	100		105	40-140			
Benzo (b) fluoranthene	94.5	2.50 µg/l	100		94.5	40-140			
Benzo (k) fluoranthene	83.4	2.50 µg/l	100		83.4	40-140			
Benzo (a) pyrene	108	2.50 µg/l	100		108	40-140			
Indeno (1,2,3-cd) pyrene	92.8	2.50 µg/l	100		92.8	40-140			
Dibenzo (a,h) anthracene	94.6	2.50 µg/l	100		94.6	40-140			
Benzo (g,h,i) perylene	84.2	2.50 µg/l	100		84.2	40-140			
Naphthalene (aliphatic fraction)	0.813	µg/l	100		0.813	0-200			
2-Methylnaphthalene (aliphatic fraction)	0.986	µg/l	100		0.986	0-200			
<i>Surrogate: 1-Chlorooctadecane</i>	34.3	µg/l	50.0		68.6	40-140			
<i>Surrogate: Ortho-Terphenyl</i>	39.2	µg/l	50.0		78.4	40-140			
<i>Surrogate: 2-Bromonaphthalene</i>	20.8	µg/l	40.0		52.0	40-140			
<i>Surrogate: 2-Fluorobiphenyl</i>	34.1	µg/l	40.0		85.2	40-140			
LCS Dup (5040219-BSD1)					Prepared: 06-Apr-05 Analyzed: 07-Apr-05				
C9-C18 Aliphatic Hydrocarbons	0.361	0.2 mg/l	0.600		60.2	40-140	1.51	25	
C19-C36 Aliphatic Hydrocarbons	0.515	0.2 mg/l	0.800		64.4	40-140	2.20	25	
C11-C22 Aromatic Hydrocarbons	1.73	0.2 mg/l	1.70		102	40-140	4.41	25	
Naphthalene	54.2	2.50 µg/l	100		54.2	40-140	0.00	20	
2-Methylnaphthalene	59.1	2.50 µg/l	100		59.1	40-140	0.850	20	
Acenaphthylene	65.8	2.50 µg/l	100		65.8	40-140	1.53	20	
Acenaphthene	68.2	2.50 µg/l	100		68.2	40-140	1.78	20	
Fluorene	71.8	2.50 µg/l	100		71.8	40-140	3.40	20	
Phenanthrene	81.1	2.50 µg/l	100		81.1	40-140	7.28	20	
Anthracene	75.5	2.50 µg/l	100		75.5	40-140	4.75	20	
Fluoranthene	85.9	2.50 µg/l	100		85.9	40-140	7.49	20	
Pyrene	89.6	2.50 µg/l	100		89.6	40-140	6.45	20	
Benzo (a) anthracene	108	2.50 µg/l	100		108	40-140	6.70	20	
Chrysene	105	2.50 µg/l	100		105	40-140	13.4	20	
Benzo (b) fluoranthene	98.1	2.50 µg/l	100		98.1	40-140	2.79	20	
Benzo (k) fluoranthene	116	2.50 µg/l	100		116	40-140	12.8	20	
Benzo (a) pyrene	104	2.50 µg/l	100		104	40-140	5.74	20	
Indeno (1,2,3-cd) pyrene	90.6	2.50 µg/l	100		90.6	40-140	8.16	20	
Dibenzo (a,h) anthracene	91.8	2.50 µg/l	100		91.8	40-140	7.81	20	
Benzo (g,h,i) perylene	82.7	2.50 µg/l	100		82.7	40-140	7.53	20	
Naphthalene (aliphatic fraction)	0.689	µg/l	100		0.689	0-200	6.60	200	
2-Methylnaphthalene (aliphatic fraction)	0.603	µg/l	100		0.603	0-200	67.0	200	
<i>Surrogate: 1-Chlorooctadecane</i>	36.5	µg/l	50.0		73.0	40-140			
<i>Surrogate: Ortho-Terphenyl</i>	36.9	µg/l	50.0		73.8	40-140			
<i>Surrogate: 2-Bromonaphthalene</i>	23.4	µg/l	40.0		58.5	40-140			
<i>Surrogate: 2-Fluorobiphenyl</i>	34.0	µg/l	40.0		85.0	40-140			
Naphthalene Breakthrough	1.26	%				0-5			
2-Methylnaphthalene Breakthrough	1.01	%				0-5			

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Notes and Definitions

QC-1 Analyte out of acceptance range.

QR-02 The RPD result exceeded the QC control limits; however, both percent recoveries were acceptable. Sample results for the QC batch were accepted based on percent recoveries and completeness of QC data.

S-04 The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.

S-GC Surrogate recovery outside of control limits. The data was accepted based on valid recovery of the remaining surrogate.

BRL Below Reporting Limit - Analyte NOT DETECTED at or above the reporting limit

dry Sample results reported on a dry weight basis

NR Not Reported

RPD Relative Percent Difference

A plus sign (+) in the Method Reference column indicates the method is not accredited by NELAC.

Laboratory Control Sample (LCS): A known matrix spiked with compound(s) representative of the target analytes, which is used to document laboratory performance.

Matrix Duplicate: An intra-laboratory split sample which is used to document the precision of a method in a given sample matrix.

Matrix Spike: An aliquot of a sample spiked with a known concentration of target analyte(s). The spiking occurs prior to sample preparation and analysis. A matrix spike is used to document the bias of a method in a given sample matrix.

Method Blank: An analyte-free matrix to which all reagents are added in the same volumes or proportions as used in sample processing. The method blank should be carried through the complete sample preparation and analytical procedure. The method blank is used to document contamination resulting from the analytical process.

Method Detection Limit (MDL): The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero and is determined from analysis of a sample in a given matrix type containing the analyte.

Reportable Detection Limit (RDL): The lowest concentration that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions. For many analytes the RDL analyte concentration is selected as the lowest non-zero standard in the calibration curve. While the RDL is approximately 5 to 10 times the MDL, the RDL for each sample takes into account the sample volume/weight, extract/digestate volume, cleanup procedures and, if applicable, dry weight correction. Sample RDLs are highly matrix-dependent.

Surrogate: An organic compound which is similar to the target analyte(s) in chemical composition and behavior in the analytical process, but which is not normally found in environmental samples. These compounds are spiked into all blanks, standards, and samples prior to analysis. Percent recoveries are calculated for each surrogate.

Validated by:
Hanibal C. Tayeh, Ph.D.
Nicole Brown

The following outlines the condition of all VPH samples contained within this report upon laboratory receipt.

Matrix	<input checked="" type="checkbox"/> Aqueous	<input type="checkbox"/> Soil	<input type="checkbox"/> Sediment	<input type="checkbox"/> Other	
Containers	<input checked="" type="checkbox"/> Satisfactory	<input type="checkbox"/> Broken	<input type="checkbox"/> Leaking		
Sample Preservative	Aqueous (acid-preserved)	<input type="checkbox"/> N/A	<input checked="" type="checkbox"/> pH \leq 2	<input type="checkbox"/> pH $>$ 2	Comment
	Soil or Sediment	<input checked="" type="checkbox"/> N/A <input type="checkbox"/> Samples not received in Methanol or air-tight container			ml Methanol/g soil <input type="checkbox"/> 1:1 +/-25% <input type="checkbox"/> Other:
		<input type="checkbox"/> Samples received in Methanol: <input type="checkbox"/> covering soil/sediment <input type="checkbox"/> not covering soil/sediment			
<input type="checkbox"/> Samples received in air-tight container:					
Temperature	<input type="checkbox"/> Received on ice	<input type="checkbox"/> Received at 4 \pm 2 $^{\circ}$ C	<input checked="" type="checkbox"/> Other: / $^{\circ}$ C		

Were all QA/QC procedures followed as required by the VPH method? Yes No

Were any significant modifications made to the VPH method as specified in section 11.3? No *see below

Were all performance/acceptance standards for required QA/QC procedures achieved? Yes No

* Yes, if PID and FID surrogate recoveries are listed as n/a, then that sample was run via GCMS using all QC criteria specified in the method

The following outlines the condition of all EPH samples contained within this report upon laboratory receipt.

Matrix	<input checked="" type="checkbox"/> Aqueous	<input type="checkbox"/> Soil	<input type="checkbox"/> Sediment	<input type="checkbox"/> Other	
Containers	<input checked="" type="checkbox"/> Satisfactory	<input type="checkbox"/> Broken	<input type="checkbox"/> Leaking		
Aqueous Preservative	<input type="checkbox"/> N/A	<input checked="" type="checkbox"/> pH \leq 2	<input type="checkbox"/> pH $>$ 2	<input type="checkbox"/> pH adjusted to $<$ 2 in lab	Comment
Temperature	<input type="checkbox"/> Received on ice	<input type="checkbox"/> Received at 4 \pm 2 $^{\circ}$ C	<input checked="" type="checkbox"/> Other: / $^{\circ}$ C		

Were all QA/QC procedures followed as required by the EPH method? Yes No

Were any significant modifications made to the EPH method as specified in Section 11.3? No

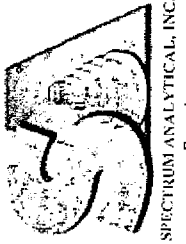
Were all performance/acceptance standards for required QA/QC procedures achieved? Yes No

I attest 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.

Authorized by:



Hanibal C. Tayeh, Ph.D.
President/Laboratory Director



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Featuring
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CHAIN OF CUSTODY RECORD

Page 1 of 1

Report To: REMSERK, Inc.
35 Winthrop Street
Winchester, MA 01890

Invoice To: same

IWHSCOURING

Project No.: 24124-1

Site Name: Boss's

Location: 125 South St, Winchester State: MA

Project Mgr.: Thomas Simmons

P.O. No.: _____

RQN: _____

1=Na₂S₂O₃ 2=HCl 3=H₂SO₄ 4=HNO₃ 5=NaOH 6=Ascorbic Acid
7=CH₃OH 8=NaHSO₄ 9= _____ 10= _____

DW=Drinking Water GW=Groundwater WW=Wastewater
O=Oil SW=Surface Water SO=Soil SL=Sludge A=Air
X1= _____ X2= _____ X3= _____

G=Grab C=Composite

Lab Id:	Sample Id:	Date:	Time:	Type	Matrix
<u>B101-01</u>	<u>B101-MW</u>	<u>4/1/05</u>	<u>10:45</u>	<u>6</u>	<u>6W</u>
<u>B103-01</u>	<u>B103-MW</u>	<u>4/1/05</u>	<u>12:15</u>	<u>2</u>	<u>6W</u>
<u>B104-01</u>	<u>B104-MW</u>	<u>4/1/05</u>	<u>12:45</u>	<u>2</u>	<u>6W</u>
<u>MW-1</u>	<u>MW-1</u>	<u>4/1/05</u>	<u>1:45</u>	<u>2</u>	<u>6W</u>
<u>MW-9</u>	<u>MW-9</u>	<u>4/1/05</u>	<u>1:00</u>	<u>2</u>	<u>6W</u>
<u>B102B</u>	<u>B102B</u>	<u>4/1/05</u>	<u>2:00</u>	<u>2</u>	<u>6W</u>
<u>B102B</u>	<u>B102B</u>	<u>4/1/05</u>	<u>9:45</u>	<u>2</u>	<u>6W</u>

Containers:

of VOA Vials _____
 # of Amber Glass _____
 # of Clear Glass _____
 # of Plastic _____

Analyses:

QA Reporting Notes:
(check if needed)

State specific reporting standards
If applicable, please list below:

Provide MCP CAM Report
 Were all field QC requirements met
 as per MADEP CAM Section 2.0?
 Yes No
 (Response required for CAM report)

Relinquished by: Thomas Simmons

Received by: Bill Phartyg

Date: 4/5/05

Time: 1045

EDD Format _____

Condition upon receipt: Iced Ambient °C _____