

But I cannot get
it back

SCANNED

REMEDATION & ENVIRONMENTAL
MANAGEMENT SERVICES, INC.



NIA-C

**PHASE II COMPREHENSIVE SITE ASSESSMENT
12 SWANTON STREET
WINCHESTER, MA
RTN 3-18598**

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

RECEIVED

MAY 06 2005

DEP
NORTHEAST REGIONAL OFFICE

PREPARED BY:
Remediation & Environmental Management Services, Inc.
35 Winthrop Street
Winchester, MA 01890
781-721-4455
May 5, 2005



Letter of Transmittal

TO: MA DEP NERO-BWSC
 1 Winter Street
 9th Floor
 Boston, MA 02108

DATE: 05/05/05

PROJECT: 12 Swanton St., Winchester

RS #: RTN 3-18598

ATTN: _____

RECEIVED
MAY 06 2005

WE TRANSMIT:

herewith

in accordance with your request

DEP
NORTHEAST REGIONAL OFFICE

FOR YOUR:

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

THE FOLLOWING:

COPIES	DATE	DESCRIPTION
2	05/05/05	Phase II Comprehensive Site Assessment Report
2	05/05/05	BWSC-108 with LSP opinion and copy of letter to Winchester Public Officials.

COMMENTS:

Please return the copies of the BWSC 108 form, the report title page, and this transmittal letter to REMSERV, Inc. in the self-addressed, stamped envelope provided.

COPIES TO:

Bossi Realty Trust



May 5, 2005

MA DEP NERO - BWSC
1 Winter Street
9th Floor
Boston, MA 02108

RE: Phase II Comprehensive Site Investigation LSP Opinion
12 Swanton Street
Winchester, MA 01890
RTN: 3-18598

Dear Ladies and Gentlemen:

This letter will serve as the basis for an LSP Opinion required under Section F. of the BWSC 108 Transmittal Form regarding the veracity of the material facts, data and other information attached. REMSERV, Inc. attests to the veracity of the information contained and attached to this document is accurate and factual.

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

Sincerely,
REMSERV, Inc.

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

Tom Simmons, LSP



May 5, 2005

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

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

RE: Notice of Phase II Comprehensive Site Investigation
12 Swanton Street
Winchester, MA 01890
RTN: 3-19598

Dear Gentlemen:

The purpose of this letter is to inform you that on May 5, 2005, a Phase II Comprehensive Site Investigation Report was filed for a petroleum release with the MA DEP Northeast Regional Office. The Phase II Report identifies that a condition of No Significant Risk has not yet been achieved at the subject property, and further response actions are necessary. The Phase II Report identifies that No Imminent hazard exists at the site. There are no restrictions to the site use in order to prevent exposures to residual petroleum contaminated soil located at the property.

If you have any questions, or would like to obtain a copy of the Phase II, 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 "T. Simmons". The signature is written in a cursive, flowing style.

Thomas P. Simmons

Cc: MA DEP NERO



Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BWSC108 *J.K.*

**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)

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)

RECEIVED

MAY 06 2005

DEP

NORTHEAST REGIONAL OFFICE

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 Comprehensive Site Assessment Report** pursuant to 310 CMR 40.0835.
(An interim Phase II Report does not satisfy the response action deadline requirements in 310 CMR 40.0500)
5. Submit a **final Phase II Comprehensive Site Report and Completion Statement**, pursuant to 310 CMR 40.0836.
Specify the outcome of the Phase II Comprehensive Site Assessment: (check one)
 - a. Comprehensive Remedial Actions are necessary at the site to achieve a Response Action Outcome. A Phase III study for the Identification, evaluation, and selection of Comprehensive Remedial Action Alternatives, pursuant to 310 CMR 40.0850, is necessary.
 - b. The requirements of a Class A Response Action Outcome have been met, and a completed Response Action Outcome Statement and Report (BWSC104) will be submitted to DEP.
 - c. The requirements of a Class B Response Action Outcome have been met and a completed Response Action Outcome Statement and Report (BWSC104) will be submitted to DEP.
6. Submit a **Revised Phase II Comprehensive Site 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.

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



**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 **Termination of a Remedy Operation Status**, pursuant to 310 CMR 40.0893(5).
17. 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.
18. Submit a **Revised Phase V Inspection & Monitoring Report and Completion Statement**, pursuant to 310 CMR 40.0894.
19. 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)



**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

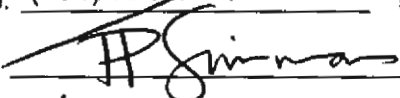
2. First Name: THOMAS

3. Last Name: SIMMONS

4. Telephone: (781) 721-4455

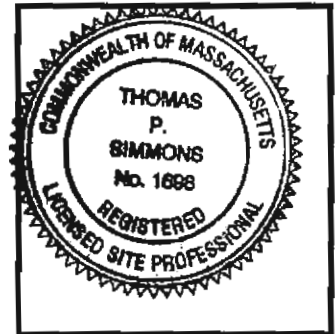
5. Ext.: _____

6. FAX: (781) 721-4456

7. Signature: 

8. Date: 05/02/05
(mm/dd/yyyy)

9. LSP Stamp:





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)

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. 21E, 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.



**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/ls 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: 04-25-05
(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 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:)

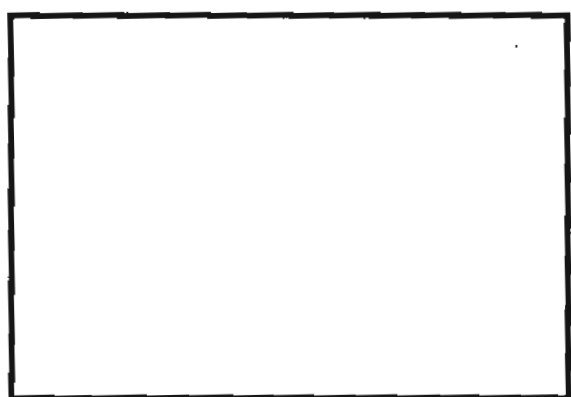
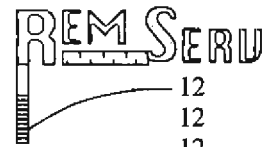




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Appendices

Appendix I	Boring Logs and Monitoring Well Reports
Appendix II	Analytical Data Sheets



1.0 Introduction

REMSERV, Inc., has completed a Phase II Comprehensive Site Assessment for Bossi's Auto Repair, an automotive repair facility in Winchester, MA (RTN 3-18598), as authorized by Bossi Realty Trust. The Phase II was completed in accordance with the provisions of the Phase II Comprehensive Site Assessment requirements outlined in the Massachusetts Contingency Plan 310 CMR 40.0833 (1) (a) and (b). The objective of the Phase II Assessment was to identify the nature and extent of petroleum contamination at the property and to assess the potential risk of harm posed by the release to health, safety, public welfare and the environment. The results of the Phase II have been used to document that no Imminent Hazard exists at the site. However, further response actions are necessary to achieve a Class A-2 Response Action Outcome (RAO) at the site.

2.0 Site Description

The geographic UTM coordinates are Zone 19, 4702910 meters north and 324875 meters east (1). These coordinates denote the approximate center of the property (Figure 1). Figure 2 presents a Site Plan depicting relevant property features and abutters.

2.1 Current and Historical Land Use

The site is occupied by an automotive repair and used car sales facility. The site formerly dispensed gasoline and diesel fuel. The property consists of one 1,806 square foot building on an 0.31 acre lot (12). The site is located at 12 Swanton Street in Winchester, Massachusetts (Figure 1). The building is connected to the Winchester municipal water supply system. The sanitary sewer is connected to the Winchester municipal/Massachusetts Water Resource Authority (MWRA) sewer system. Nearby residents are also on the Winchester municipal water and sanitary system (7).

2.2 Site Utilities

Six (6) underground storage tanks (USTs) were removed from the site in May of 1999 under permits from the Winchester Fire Department, including: four (4) gasoline USTs, one (1) 250-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 (7). The site is connected to the Winchester municipal sewer system (7).

2.3 Property Abutters

The property abutters are as follows (Figure 4):

North: Swanton Street. Residential properties are located on the other side of Swanton Street from the site.

South: A commercial parking lot. Residential properties are located on the other side of the parking lot from the site.

East: A commercial building, including a convenience store, a laundromat and a photographic developing facility. Washington Street is located on the other side of this commercial property from the site,

West: A commercial building, including a dry cleaning facility and an Italian restaurant.



2.4 Natural Resources

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 2,021 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, 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 1,160 feet to the east (Figure 1). Three (3) reservoirs located within Middlesex Fells provide drinking water to the town of Winchester (7).

2.5 Topography

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 1,224 feet east of the site. The area to the west slopes gently to the Aberjona River approximately 2,021 feet west of the site (Figure 1).

3.0 Release History

On July 8, 1999, the MA DEP Northeast Regional Office was notified of a 72-hour reportable condition at the site when a soil headspace reading exceeding 100 parts per million (ppm) was obtained from soil samples collected from within 10 feet of an underground storage tank (UST) outer wall. Six (6) USTs had been removed from the site in May 1999, resulting in an approximate 20 cubic yard soil stockpile. Four (4) of the USTs were located in the front of the building and contained gasoline. One (1) of the USTs was located at the front of the building and contained waste oil. One (1) of the USTs was located at the rear of the building and contained heating oil. The DEP issued a Notice of Responsibility (NOR) dated November 19, 1999 to Bossi Realty Trust for a gasoline release associated with the UST system.

3.1 Regulatory History

The following is an annotated regulatory site history:

- On July 8, 1999, a release of petroleum was identified at the property based on elevated PID readings obtained from soils stockpiled at the site. The soil stockpile had been generated from the removal of six (6) USTs in May of 1999.
- On September 5, 1999, oral notification was provided to the MA DEP by Subsurface Remediation Technologies, Inc. (SRT). The DEP assigned Release Tracking Number (RTN) 3-18598. The MA DEP issued a Notice of Responsibility to Bossi Realty Trust on November 19, 1999.
- On November 7, 2000, the MA DEP issued a Notice of Noncompliance (NON) to Bossi Realty Trust for failure to submit a Release Notification Form (RNF), an Immediate Response Action (IRA) Status Report, and a Response Action Outcome (RAO) Statement or Tier Classification.



- On December 18, 2000, Respondent submitted an RNF and an IRA Plan in accordance with 310 CMR 40.0330 and 40.0424.
- On April 4, 2001, Respondent submitted an IRA Completion Statement, Phase I Initial Site Investigation Report, and Tier Classification in accordance with 310 CMR 40.0427, 40.0480, and 40.0500.
- As of April 4, 2003 Respondent is in violation of 310 CMR 40.0560(2)(b) for failing to submit to DEP a Phase II Report and, if applicable, a Phase III Remedial Action Plan. Such submittals were due within two years of the effective date of Respondent's initial Tier II Classification.
- As of April 4, 2004 Respondent is in violation of 310 CMR 40.0560(2)(c) for failing to submit to DEP a Phase IV Remy Implementation Plan. A Phase IV Plan was due within three years of the effective date of Respondent's initial Tier II Classification.
- On May 24, 2004, the DEP issued a Notice of NON for failure to complete and file a Phase II Report, a Phase III Remedial Action Plan and a Phase IV Plan within three years of the Tier II Classification.
- On January 24, 2005, REMSERV, Inc. submitted a Phase II Scope of Work along with a schedule for implementing the Phase II, the Phase III Feasibility Analysis, the Phase IV Remedial Implementation Plan and the Phase IV Completion Statement for achieving a Remy Operation Status or Response Action Outcome.

3.2 IRA Activities

SRT and Webb Engineering Associates, Inc. (Webb) undertook Immediate Response Action (IRA) activities to address the impacts to site soil and ground water from the petroleum release.

3.2.1 Sampling and Disposal of Stockpiled Soil

The UST excavation generated approximately 20 cubic yards of contaminated soil, which was stockpiled on site. SRT collected a composite sample from the 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 MA DEP Bill of Lading (BOL) (13).

3.2.2 Soil Assessment Activities

On October 13, 2000, Webb observed the advancement of four (4) soil borings at the site by Soil Exploration of Leominster, MA. The borings were all completed at depths ranging from 16 to 19 feet, between six (6) and eight (6) feet below the water table. Soil samples were screened with a photoionization detector (PID) using the jar headspace method. One (1) soil sample from each boring was submitted to Groundwater Analytical in Buzzards Bay, MA for Extractable Petroleum Hydrocarbons (EPH) analysis (13).

3.2.3 Ground Water Monitoring Well Installation and Sampling

All of the soil borings advanced on October 13, 2000 were completed as ground water monitoring wells (MW-1 through MW-4). MW-2 was never sampled, as it was destroyed by a tow truck shortly after it was installed. On October 24, 2000, Webb collected ground water samples from MW-1, MW-3 and MW-4.



Webb also used an oil/water interface probe to gauge water levels and check for the presence of Light Non-Aqueous Phase Liquids (LNAPL) in the wells. No LNAPL was identified in any of the wells. Three (3) ground water samples were submitted for laboratory analyses of Volatile Petroleum Hydrocarbons (VPH), EPH and targeted Volatile Organic Compounds (VOCs) (13).

3.3 Soil and Ground Water Analytical Results

REMSERV, Inc. reviewed the soil and ground water analytical results for the samples collected by Webb Engineering, Inc. Webb recorded elevated PID readings in soil samples collected from MW-3 (15 to 17 feet below ground surface) and MW-4 (15 to 15.5 feet). Four (4) soil samples were submitted for VEPH analyses to Groundwater Analytical, Inc. Three (3) soil samples were submitted from 10 to 12 feet below ground surface including the sample from MW-3 which did not exhibit the greatest PID reading. The soil sample from MW-4 collected from 15 to 15.5 feet was also submitted for VEPH analyses and exhibit C5-C8 aliphatics and C9-C10 aromatics concentrations that exceeded the S-1 and S-3 standards published by the MA DEP. The MW-4 sample also exceeded the total xylenes S-1 standard. No other soil samples exceeded the S-1 standard for any VEPH fractions or target analytes (13).

Ground water concentrations for C5-C8 aliphatics, C9-C12 aliphatics, and C9-C10 aromatics were identified in excess of the GW-2 and GW-3 standards in MW-3 and MW-4. Monitoring wells MW-3 and MW-4 also exceeded the GW-2 standard for C9-C18 aliphatics, toluene and total xylenes. The concentrations of ethylbenzene in MW-3 and MW-4 exceeded the GW-3 standard. The concentration of C5-C8 aliphatics in MW-1 exceeded the GW-2 standard. The depth to ground water was recorded at 13.20 feet to 13.70 feet in October 2000 (14).

3.4 Phase I Initial Site Investigation and Tier Classification

Webb Engineering completed a Phase I Initial Site Investigation Report dated April 4, 2001. Using the facts and data generated during the Phase I Initial Site Investigation, Webb Engineering completed the DEP Numerical Ranking System Scoresheet to develop a numerical score for the purpose of Tier Classification. The numerical score was 138. Scores of less than 350 are classified Tier II (14).

4.0 Phase II Scope of Work

REMSERV, Inc. developed and initiated a Phase II Comprehensive Site Assessment Scope of Work as a guide for completing additional assessment activities. The purpose of the Phase II Assessment was to:

- determine the nature and extent of soil and ground water contamination;
- determine the risk of harm posed by the disposal site to health, safety, public welfare and the environment; and
- collect sufficient data to assess whether a condition of No Significant Risk has been achieved at the site to support a Class A-2 Response Action Outcome.

4.1 Soil Sampling and Analysis/Monitoring Well Installation

On February 28, 2005, Expedition Drilling of Atkinson, NH completed six (6) soil borings (B101, B102, B102A, B102B, B103, 104) at the site to assess the extent of petroleum contaminated soils. The borings were advanced using a Mobil B53 ATV equipped with a 4 1/4 inch hollow stem auger and a 1 7/8 split spoon sampler. Samples were collected using a 140 lb hammer to drive the 2-foot long sampler into the ground. Soil borings B101, B102B, B103, and B104 were completed as 2-inch diameter ground water monitoring wells. The soil boring logs and monitoring well reports are provided in Appendix I.



A representative from REMSERV, Inc. was present to collect samples from the soil borings and oversee the monitoring well installation. Soil samples were field screened for the presence of total volatile organic compounds (TVOCs) using a Thermo Environmental 580B Photoionization Detector (PID) calibrated to a benzene standard. The 580B PID was equipped with a 10.0 eV bulb. The PID readings are provided on the individual boring logs, and in Section 6.1

Four (4) soil samples from the borings (B101 S4 13-15, B102 S1B 11.5-12, B103 S1 13-15, B104 S1 13-15) were submitted to Spectrum Analytical in Agawam, MA for Volatile Petroleum Hydrocarbons (VPH) and EPH analyses. The soil samples were placed in 2-oz glass jars preserved with methanol for VPH, and in 8-oz amber glass jars for EPH. The samples were chilled and delivered to the laboratory by a courier under Chain of Custody. The soil data has been tabulated and compared to applicable MCP Method 1 Risk Characterization Standards. The soil analytical results are summarized in Section 6.2, and in Table 1. The analytical data sheets are attached in Appendix II.

4.2 Groundwater Sampling and Analysis

In April 1, 2005, REMSERV, Inc. gauged water levels and collected ground water samples from the four (4) monitoring wells installed in February 2005 (B101-MW, B102B-MW, B103-MW, B104-MW) and from two (2) previously installed monitoring wells (MW-1, MW-4).

Prior to sampling, each well was gauged for the presence of light non-aqueous phase liquids (LNAPL) using a Heron H.01L Interface Meter. The Heron probe tip was decontaminated with methanol prior to entry into each well. The depth to water was gauged between 9.99 to 11.35 feet from ground surface. LNAPL was not detected in any of the monitoring wells.

Groundwater was purged and sampled from each well using a Geopump 2 peristaltic pump with ¼" ID polyethylene tubing and dedicated flexible tubing. Well volumes were calculated for each well, and a minimum of three (3) well volumes was purged from each well prior to sample collection, in accordance with Environmental Protection Agency (EPA) guidelines. For each well, two (2) groundwater samples were collected in 40 ml VOA vials preserved with HCl. The VOA vials were filled completely to avoid oxidative degradation of samples. One (1) sample from each well was collected in 1-liter amber glass jars preserved with HCl.

The samples were chilled and submitted to Spectrum Analytical in Agawam, MA for Volatile Petroleum VPH analyses (VOA vials) and EPH analyses (amber glass jars). The groundwater data has been tabulated and compared to applicable MCP Method 1 Risk Characterization Standards. Please refer to Section 6.3 and Table 2 for a summary of the groundwater data. Copies of the original laboratory reports are provided in Appendix II.

5.0 Site Geology

5.1 Surficial Geology

As part of the Phase II, REMSERV, Inc. personnel observed the installation of soil borings and monitoring wells at the site. The boring and monitoring well locations were selected to represent the areas of suspected contamination. Borings B101 through B104 was advanced to refusal. B101 was terminated at a depth of 16.5 feet below ground surface, and soil samples were collected between five (5) and 16.5 feet. Borings B102 and B102A were terminated at shallow depths due to refusal. Boring B102B was advanced to 12 feet before meeting refusal. A soil sample was collected from 10 to 12 feet in B102B. Boring B103 was terminated at 15 feet and a soil sample was collected from 13 to 15 feet. Boring B104 was terminated at 16 feet and soil samples were collected from 13 to 16 feet.



Based on the Webb Engineering and REMSERV, Inc. observations, the site geology from ground surface ranges from coarse to fine sand to silty fine sand, some to little silt, some to little gravel, and little to trace clay. The Webb site investigation characterized the site soils as silty fine sand and gravel fill to depths of approximately six (6) to eight (8) feet overlying dense glacial till (13). REMSERV, Inc. observed a layer of tan medium to fine sand with little silt and little coarse sand from five (5) to 10 feet in B101. The same soil type exhibited little gravel and trace clay at a depth of eight (8) to 10 feet in this boring. Soils below 13 feet in all REMSERV, Inc. borings consisted of brown to black coarse to fine sand and silty sand with little to trace clay and some to trace gravel.

5.2 Bedrock Geology

The bedrock beneath the site is mapped as part of the Milford-Dedham Zone (10,11). The bedrock in the vicinity of the site includes gray granite to granodiorite, quartzite, schist, cal-silicate quartzite, amphibolite, metamorphosed mafic to felsic flow, and volcanoclastic and hypabyssal intrusive rocks (10,11).

5.3 Regional Hydrogeology

The site is located in the Mystic River Drainage Basin (6). Three (3) water supply reservoirs owned by the town of Winchester are located within a mile east of the site and are topographically and hydrologically upgradient of the site. Storm water from the site is drained through catch basins located on Swanton Street, which discharge to the Aberjona River located west of the site.

5.4 Site Hydrogeology

The depth to ground water within the disposal site was gauged between 9.99 feet and 11.35 feet below ground surface in an April 1, 2005 ground water sampling event. A rod and level survey was conducted using a Sokkia C22 automatic level on April 1, 2005. The elevations were surveyed relative to an arbitrary datum of 100 feet assigned to the B101-MW PVC north rim. The depths to ground water were converted to ground water elevations and were contoured to reflect the slope of the water table surface and establish the approximate direction of ground water flow. The water table slopes to the west at a gradient of approximately 0.0225 foot/foot (Figure 2).

Hydraulic conductivity testing was not conducted as part of the Phase II Scope of Work but published values for coarse to fine sand aquifers are approximately 100 gpd/ft² (3, 4).

$$V_s = \frac{K_h dh}{\eta_e dl}$$

where;

V_s = seepage velocity

K_h = horizontal hydraulic conductivity = 100 gpd/ft²

η_e = effective porosity = 0.25

dh/dl = hydraulic gradient = 0.0225 foot/foot

A ground water flow velocity of 9 gallons per day (gpd) was calculated utilizing the above formula with the water table gradient measured at the site and published K values.



6.0 Disposal Site Characteristics

6.1 Soil Headspace Screening Results

Eleven soil samples collected during the REMSERV, Inc. Phase II subsurface boring program were field screened for the presence of TVOCs. None of the PID readings obtained from soil samples collected from 0 to 12 feet below ground surface exceeded 0.4 parts per million (ppm). The PID readings from soils between 13 and 16.5 feet below ground surface ranged from 13.5 ppm (B101 S5A 16-16.5) to 520 ppm (B103 S1 13-15). The PID screening results are provided on the individual boring logs in Appendix I.

6.2 Nature and Extent of On-Site Soil Contamination

The four (4) soil samples were analyzed for volatile and extractable petroleum hydrocarbons (VPH and EPH) according to the MA DEP methodology.

Soil VPH Fractions

The concentrations of the VPH fraction C5-C8 aliphatics ranged from below laboratory detection limits (BDL) in B102 S1B 11.5-12 to 1,130 mg/kg in B104 S1 13-15. The concentrations of C9-C12 aliphatics ranged from BDL (B102 S1B 11.5-12) to 350 mg/kg (B104 S1 13-15). The concentrations of C9-C10 aromatics ranged from BDL (B102 S1B 11.5-12) to 680 mg/kg (B103 S1 13-15).

Soil VPH Target Analytes

Soil boring sample B101 S4 13-15 contained the VPH target analytes toluene (0.14 mg/kg) and naphthalene (0.33 mg/kg). No VPH target analytes were detected in B102 S1B 11.5-12. B103 S1 13-15 contained benzene (1.75 mg/kg), toluene (39.6 mg/kg), ethylbenzene (24.2 mg/kg), xylenes (127.8 mg/kg) and naphthalene (9.55 mg/kg). B104 S1 13-15 contained toluene (6 mg/kg), ethylbenzene (2.7 mg/kg), xylenes (11.72 mg/kg) and naphthalene (5.8 mg/kg).

Soil EPH Fractions

The concentrations of the EPH fraction C9-C18 aliphatics ranged from BDL (B101 S4 13-15, B102 S1B 11.5-12) to 129 mg/kg (B104 S1 13-15). The EPH fraction C19-C36 aliphatics was not detected in any of the soil boring samples analyzed. C11-C22 aromatics concentrations ranged from BDL (B101 S4 13-15, B102 S1B 11.5-12) to 57.3 mg/kg (B104 S1 13-15).

Soil EPH Target Analytes

The EPH target analyte naphthalene was detected in soil boring samples B103 S1 13-15 (3.9 mg/kg) and B104 S1 13-15 (0.64 mg/kg). The EPH target analyte 2-methylnaphthalene was detected in B101 S4 13-15 (0.16 mg/kg), B103 S1 13-15 (4 mg/kg) and B104 S1 13-15 (1.66 mg/kg).

6.3 Nature and Extent of On-Site Groundwater Contamination

The six (6) ground water samples were analyzed for volatile and extractable petroleum hydrocarbons according to the MA DEP methodology. The bolded values below indicate contaminant concentrations above site applicable ground water standards.



Ground Water VPH Fractions

VPH fractions were detected in all of the six (6) monitoring wells samples submitted for laboratory analysis. The concentrations of C5-C8 aliphatics ranged from 750 ug/L (MW-1) to 22,400 ug/L (MW-4). The concentrations of C9-C12 aliphatics ranged from 160 ug/L (MW-1) to 15,200 ug/L (B104-MW). The concentrations of C9-C10 aliphatics ranged from 300 ug/L (MW-1) to 16,200 ug/L (MW-4).

Ground Water VPH Target Analytes

VPH target analytes were detected in all of the six (6) monitoring wells samples submitted. Benzene was detected in concentrations ranging from 11 ug/L (MW-1) to 230 ug/L (B102B-MW). Concentrations of toluene ranged from 7 ug/L (B101-MW) to 4,560 ug/L (B103-MW). Ethylbenzene concentrations ranged from 27 ug/L (MW-1) to 4,480 ug/L (MW-4). Xylenes concentrations ranged from 10 ug/L (MW-1) to 25,140 ug/L (MW-4). MTBE was detected in B102B-MW (87 ug/L) and B104-MW (39 ug/L). Naphthalene concentrations ranged from 11 ug/L (MW-1) to 1,090 ug/L (MW-4).

Ground Water EPH Fractions and Target Analytes

C9-C18 aliphatics was detected in all of the ground water samples except for MW-1, in concentrations ranging from 300 ug/L (B101-MW) to 4,200 ug/L (MW-4). The EPH fraction C19-C36 aliphatics was not detected in any of the ground water samples. C11-C22 aromatics was detected in all of the ground water samples except for MW-1, in concentrations ranging from 400 ug/L (B104-MW, MW-4) to 1,600 ug/L (B103-MW).

The EPH target analytes naphthalene and 2-methylnaphthalene were detected in all of the ground water samples except for MW-1. The concentrations of naphthalene ranged from 45 ug/L (B101-MW) to 379 ug/L (MW-4). The concentrations of 2-methylnaphthalene ranged from 31 ug/L (B102B-MW) to 108 ug/L (MW-4). All other EPH target analytes were below laboratory detection limits in each ground water sample analyzed.

7.0 Exposure Assessment

REMSERV, Inc. has completed an evaluation of potential receptors and migration pathways to the petroleum release. A complete exposure pathway consists of a source area, a migration pathway, an exposure point, an exposure route and a receptor. The exposure pathway components are discussed in the following sections. The exposure pathway is site and contaminant specific.

Soil and groundwater contamination are present at the site. The February 2005 soil PID screening and analytical data identified the depth of contamination from 13 to 16.5 feet below ground surface. The site contaminants are attributed to a petroleum release.

Site buildings and pavement cover the entire property. The property is not fenced except for the southern boundary and the southern portion of the western boundary. The surrounding land is a mixture of commercial and residential property and public roadways. Drinking water is provided by municipal systems. There are no onsite uses of groundwater. REMSERV, Inc. reviewed the Winchester Board of Health's list of private well registrations in Winchester, and there is no record of private wells within 500 feet of the site.

The potential exists for contaminant migration by volatilization, leaching, and groundwater transport. Dermal exposure would be unlikely given the depth to contamination at 13 feet. The fate and transport characteristics of petroleum hydrocarbons indicate that they may migrate as dissolved contaminants in



groundwater and/or as vapor-phase concentrations in soil gas. Potential contaminant migration routes and exposure pathways are discussed below.

7.1 Contaminant Characteristics

Gasoline is a complex mixture of many petroleum compounds. Therefore, there is no one compound that defines the 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 the gasoline by separating the mixture into three fractions of hydrocarbons. VPH analyses include benzene, toluene, ethylbenzene, total xylenes, and naphthalene as the target analytes. These compounds 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 if dissolved in ground water and as soil vapor. The bio-attenuation and breakdown of these contaminants occur primarily under aerobic conditions. The aromatic VPH range gasoline components are more readily biodegraded under aerobic conditions.

The C9-C18 aliphatics hydrocarbon range is characterized by moderate solubility, moderate vapor pressure (moderate Henry's constants) and a moderate affinity for soil attenuation in soils high in organic content. C9-C18 aliphatics have a moderate migration potential if dissolved in ground water and/or in soil vapor. The bio-attenuation and breakdown of the C9-C18 aliphatics occurs under aerobic conditions. For comparison, C9-C18 aliphatics are less volatile than gasoline contaminants.

7.2 Potential Migration Pathways

Gasoline contaminants and the EPH fraction C9-C18 aliphatics can migrate in one or more physical states. Potential migration pathways may include migration as vapor in soils above the water table, as dissolved contaminants in ground water, and as separate phase contaminants in soils above and below the water table. Well gauging using an oil/water interface probe has not identified separate phase petroleum at the site. The primary potential migration pathways include migration as dissolved contaminants in ground water and as vapors in overburden soils.

7.2.1 Air

There is presently no vapor exposure pathway to on-site workers. Although contamination was identified in soil and ground water, the depth to ground water and the absence of a basement in the site building make inhalation of airborne vapors unlikely. In addition, background (0 to 0.4 ppm) field PID readings were recorded in soil samples collected from ground surface to an approximate depth of 13 feet below ground surface.

7.2.2 Soil

At present, there are no known or suspected soil exposure pathways or soil direct contact exposure points. Soil contaminants are not readily accessible to employees or customers since they are buried at depths greater than 13 feet beneath asphalt pavement.

7.2.3 Ground Water

At present, there are no known or suspected ground water migration pathways or exposure points because there are no on-site or off-site uses of ground water. Therefore ground water ingestion is unlikely. The



monitoring wells are bolted shut and fitted with expandable locking caps. The off-site impacts from dissolved contaminants identified in ground water in western portions of the property have not been assessed to date.

7.2.4 Surface Water

At present, there are no known or suspected migration pathways or exposure points through surface water. The Aberjona River, the surface water body nearest to the site, is unlikely to have been impacted by the petroleum release, based on the distance of the river from the site.

7.3 Potential Human Receptors

The workers at the property represent the potential receptors to the site-related contamination. As the ground water monitoring wells are bolted shut and the site is entirely paved, it is not likely that on-site workers are potential receptors at a monitoring well point. The depths to ground water ranging from 9.99 to 11.35 and the absence of shallow contamination make it unlikely that utility workers would be receptors.

7.4 Potential Environmental Receptors

The closest environmental receptor to the site is the Aberjona River, which discharges to the Mystic River and ultimately to Boston Harbor. The Aberjona River is located approximately 2,021 feet west of the site, and is topographically and hydrologically downgradient of the site. There are no wetlands at the site. There are no vernal pools or estimated habitats for rare wildlife in the site vicinity (15) (Figure 1).

8.0 Method 1 Risk Characterization

An MCP risk characterization consists of assessments of four distinct types of risk: 1) risk to human health; 2) risk to safety; 3) risk to the public welfare; and 4) risk to the environment (310 CMR 40.0900). Risk characterization is used to establish whether a level of "No Significant Risk" ("NSR") exists or has been achieved at a disposal site. The criteria used in this determination are described in 310 CMR 40.0900. There are two (2) basic approaches to risk characterization under the MCP; (1) the Method 1 approach compares Exposure Point Concentrations (EPCs) with applicable standards and; (2) the Method III approach quantifies cumulative health risks. A third type of risk characterization (Method II) allows a user to modify default values used in the Method 1 (such as soil porosity), thereby adjusting Method 1 values to limited site-specific circumstances.

8.1 Method 1 Approach

A Method 1 risk characterization approach compares site-specific exposure point concentrations (EPCs) to standards in soil and groundwater [310 CMR 40.0970 - 40.0989]. The Method 1 approach has been undertaken as part of the Phase II CSA.

8.2 Current and Foreseeable Site Activities and Uses

Although the site is presently used as an automotive repair facility, this risk characterization evaluates current and potential future uses of the site that do not exclude potential future residential uses and activities.



8.3 Soil Categorization

The DEP has developed soil categories based on the exposure potential to receptors (adults and children). The exposure potential is based on a combination of soil accessibility (depth, ground cover), and the frequency and intensity of the use of the site by adults and children (310 CMR 40.0933(9), #WSC/ORS-95-141, 2.1.4). The MCP outlines three types of soil classifications, all of which may apply to different areas of a site.

The frequency of use describes how often a receptor makes use of and has access to the disposal Site. The frequency of use is examined for both children under 15 years of age and adults. The intensity of use evaluates the site activity and uses that have the potential to disturb soil and result in direct contact or inhalation of dust-born contaminant exposure of the receptor to the disposal site. Intensity is described as either "high" or "low". The soil accessibility is described as accessible, potentially accessible or isolated. Accessible soil is located within three (3) feet of ground surface and is not completely covered with pavement. Potentially accessible soil is located to 15 feet from ground surface in areas that are completely paved, or between three (3) and 15 feet below ground surface in unpaved areas. Isolated soil is located at a depth greater than 15 feet from ground surface or located beneath a building or other permanent structure without dirt floors.

The soils at the property comprise the S-3 soil category identified in the 310 CMR 40.0033(9). The potential receptor characteristics at the site include adult workers and customers, and contractors engaged in utility repair.

8.4 Groundwater Categorization

The MCP describes three ground water categories that may be applied to a site. The GW-1 category includes those ground waters within a potentially productive aquifer, an Interim Wellhead Protection Area, in a Zone II of a public water supply, within 500 feet of a private drinking water well, in a Zone A of a Class A surface water body, or greater than 500 feet from a public water distribution pipeline. The GW-2 category is an area of groundwater located within 30 feet of an occupied building at an average depth of less than 15 feet from ground surface. Category GW-3 is ground water that has the potential to discharge to surface water. This category pertains to all groundwater in the Commonwealth of Massachusetts. The GW-2 standard also applies to the site, as the depth to ground water within 30 lateral feet of the site building is less than 15 feet from ground surface.

8.5 Established Background

REMSERV Inc. compared the maximum detected concentration of Contaminants of Concern identified in site soils to available MA DEP "natural" background concentrations (MA DEP 2002). MA DEP identified "natural" background concentrations as generally representing the high end (i.e., 90th percentile) of the concentration range observed for individual compounds in Massachusetts's soil.

8.6 Assumptions Concerning Activity and Use Limitations

Specific land uses and activities, which are reasonably foreseeable, may be eliminated from further consideration in risk characterization through the implementation of an Activity and Use Limitation ("AUL"). An AUL is a declaration of the acceptable and unacceptable future land uses and activities at the site. An AUL is not required if the site is suitable for unrestricted land use in the future (i.e., all activities and land uses are permitted and consistent with a level of "No Significant Risk"). This risk characterization assumes unrestricted land uses and activities, consistent with potential future residential use of the site. This risk characterization makes no assumption regarding the prior implementation of an AUL at the site.



8.7 Hazard Identification

Hazard identification describes the nature of a substance that causes it to be of regulatory concern and identifies the effects of substances determined to cause adverse effects in humans. The U.S. EPA has characterized substances, commonly encountered at hazardous waste sites, as to whether they are likely to have carcinogenic and non-carcinogenic effects in humans. The relative hazard of each Contaminant of Concern is fully discussed by the U.S. EPA (2002a,b) and MA DEP (1995a), and will not be further addressed within this risk characterization. The following sections identify Contaminants of Concern that are to be carried through the risk characterization.

8.8 Identification of Contaminants of Concern

REMSERV Inc. tentatively identifies Contaminants of Concern at the site as all compounds detected in the laboratory analyses of soil and groundwater.

8.9 Elimination of Contaminants of Concern

Contaminants of Concern may be eliminated from consideration in the risk characterization if they meet one of the following three criteria (MADEP 1995a).

- Present at low frequency of detection and in low concentration;
- Present at a concentration which is consistent with "background" concentrations for the area and there is no evidence that their presence is related to present or past activities at the site;
- Present as a field or laboratory contaminant, subject to criteria provided by the U.S. EPA (1992a).

REMSERV, Inc. did not eliminate any identified Contaminants of Concern from further consideration in the risk characterization. REMSERV, Inc. did not eliminate Contaminants of Concern from the risk characterization based on their frequency of detection, presence as laboratory contaminants, or based on a comparison between maximum detected soil concentrations and MA DEP identified "natural" background concentrations.

8.10 Exposure Point Concentrations (EPCs)

REMSERV, Inc. calculates soil and groundwater EPCs in a manner consistent with MA DEP guidance (MADEP 1995a).

8.10.1 Exposure Point Concentrations (EPCs) in Soil

Analytical soil results collected by REMSERV, Inc. include data from four (4) different soil boring samples taken from depths between 11.5 and 15 feet from ground surface at the site (Figure 2). These samples were chosen for analysis based on PID readings indicating that soil contamination was greatest at these depths. The Webb Engineering subsurface investigation conducted in October 2000 yielded soil analytical results from four (4) soil borings samples from between 12 and 16 feet below ground surface

The exposure point is the location at which contaminants may contact a potential receptor. REMSERV, Inc. used the soil analytical data obtained from all deep soil boring samples collected as part of the Webb Engineering and REMSERV, Inc. subsurface explorations to calculate an EPC for each Contaminant of Concern detected. The soil EPC for each Contaminant of Concern is an arithmetic average of the concentrations detected in each soil sample analyzed. For the purpose of the EPC calculations, a value of 0 was assigned to each Contaminant of Concern that was below laboratory detection limits (BDL). A soil



EPC was not calculated for any Contaminants of Concern not detected in site soils. The EPCs calculated for each Contaminant of Concern detected are as follows:

VPH Fractions and Target Analytes:

- C5-C8 aliphatics: 555 mg/kg
- C9-C12 aliphatics: 82.45 mg/kg
- C9-C10 aromatics: 413 mg/kg
- Benzene: 0.25 mg/kg
- Toluene: 73.68 mg/kg
- Ethylbenzene: 28.13 mg/kg
- Xylenes: 140 mg/kg
- Naphthalene: 3.92 mg/kg

EPH Fractions and Target Analytes:

- C9-C18 aliphatics: 65.29 mg/Kg
- C11-C22 aromatics: 27.24 mg/Kg
- Naphthalene: 4.19 mg/kg
- 2-Methylnaphthalene: 3.98 mg/kg

8.10.2 Ground Water Exposure Point Concentrations (EPCs)

Ground water exposure points are typically associated with ingestion or adsorption of contaminated drinking water (GW-1), inhalation of indoor air containing elevated contaminant due to contaminant off-gassing from a ground water plume (GW-2) or concentrations at a surface water body which may produce deleterious effects in the indigenous flora and fauna (GW-3).

The exposure potential for direct contact or ingestion of dissolved contaminants is not complete based on the absence of a public or private drinking water well in the vicinity of the disposal site area. There is presently no vapor exposure pathway to on-site workers or patients from off-gassing from the ground water contaminant plume based on the depth to ground water and the absence of a basement in the site building.

8.11 Method 1 Risk Characterization

The laboratory analytical data from the REMSERV, Inc. subsurface investigation has identified soil and ground water EPCs in exceedance of MCP Method 1 standards for VPH and EPH fractions.

Soil EPCs Comparison to Method 1 Standards

The soil EPC for the VPH fraction C5-C8 aliphatics exceeded the site applicable S-1 and S-3 standards. The soil EPC for the VPH fraction C9-C10 aromatics exceeded the site applicable S-1 standard. All other VPH and EPH fractions and target analytes had soil EPCs below the site applicable S-1 and S-3 standards.

Ground Water EPCs Comparison to Method 1 Standards

Concentrations of the VPH fractions C5-C8 aliphatics and C9-C12 aliphatics exceeded the site applicable GW-2 standards in five (5) of the six (6) monitoring wells samples. C5-C8 aliphatics concentrations also exceeded the site applicable GW-3 standard in B102B-MW, B103-MW, B104-MW and MW-4. The C9-C10 aromatics concentrations exceeded the site applicable GW-2 standard in four (4) of the wells. The concentration of the VPH target analyte xylenes exceeded the site applicable standard GW-2 standard in



B103-MW and MW-4. The concentration of the VPH target analyte ethylbenzene exceeded the site applicable standard GW-3 standard in MW-4. The VPH target analyte concentrations in all other monitoring wells sampled were below site applicable standards.

The concentrations of the EPH fraction C9-C18 aliphatics in B103-MW and MW-4 exceeded the site applicable GW-2 standard. All other EPH fractions and target analytes were below site applicable standards in all ground water samples analyzed. All VPH and EPH contaminant concentrations were below the site applicable GW-2 and GW-3 standards in MW-1.

The VPH and EPH concentrations detected in B101-MW and B102B-MW, near the western property boundary, suggest that off-site contaminant migration may have occurred. Although downgradient contaminant concentrations have been detected in exceedance of the GW-3 standard, it is unlikely that the contamination could impact the nearest surface water body (the Aberjona River), based on the distance of the river from the site.

This MCP Method 1 risk characterization demonstrates that a condition of "No Significant Risk" of harm to human health has not yet been achieved. The MCP soil and groundwater standard exceedances demonstrate a significant risk of harm to human health at the site and suggests that further assessment is required to determine whether remediation is necessary at the site in order to achieve a Class A-3 RAO.

8.12 Risk to Public Welfare

An MCP Method 1 characterization of the risk to public welfare was performed as described in MA DEP guidance (MADEP 1995a). The following factors were considered in the characterization of public health risk:

- Site, receptor, and exposure information;
- Existence of nuisance conditions;
- Loss of property value;
- Unilateral restriction of another's property use;
- Monetary or non-physical costs which may accrue from the degradation of public or private resources due to material release; and
- Comparison of contaminant concentrations to upper concentration limit ("UCL") values listed in the MCP [310 CMR 40.0996].

No nuisance conditions were identified at the site as a result of a release or threat of release of hazardous materials to the subject site. Ambient and indoor air is currently and will, in the reasonably foreseeable future, remain free from persistent and noxious odors. Because site groundwater may not be used for drinking water purposes, it can be considered inaccessible. Therefore, there is no accessible drinking water from which to evaluate site-related noxious tastes and odors. There are no apparent nuisance conditions, impact to livestock, loss of property value, unilateral restriction of property use, or any monetary or nonphysical costs associated with historical contaminant release at the site. Contaminant of Concern EPCs did not exceed the relevant upper concentration limits ("UCLs") in any soil samples.

8.13 Risk to Safety

As required under Subpart I of the MCP [310 CMR 40.0941(2)] a qualitative characterization of risk to safety was conducted for the site. The purpose of evaluating the risk of harm to safety is to identify conditions which have resulted or may result in a release of oil and/or hazardous material currently or in the foreseeable future that will pose a threat of physical harm of bodily injury to people. The risk to safety is primarily based on a characterization of hazardous material flammability and ignitability, corrosivity,



reactivity, and infectious materials related to the release of hazardous materials at the site. Site contaminants are not present in sufficient concentrations to present a significant risk for flammability and ignitability, corrosivity, and reactivity. Furthermore, contaminants identified at the site are not considered to be "infectious" materials. The absence of elevated PID readings in the shallow soil samples indicate that a significant risk of safety associated with indoor air impacts does not exist. Based on these considerations, a condition of "No Significant Risk" regarding risk to safety has been achieved.

8.14 Risk to the Environment

REMSERV Inc. conducted a MCP Method 1 environmental risk characterization in a manner consistent with MA DEP guidance (MA DEP 1995a, 1996). In such a characterization, the MCP stipulates that the risk of harm to biota and habitats shall be characterized by evaluating ecological parameters using a two-stage approach. The objective of Stage I is to identify and document whether conditions warrant a Stage II risk characterization, either because of significant exposure pathways or because environmental harm is readily apparent. If required, additional assessment takes the form of a Stage II risk characterization, which focuses on an assessment of the potential ecological effects of site contaminants.

The initial task in the Stage I characterization of environmental risks is to identify exposure pathways through which Contaminants of Concern may migrate to sensitive habitat or receptors. Consistent with a Method 1 risk characterization approach, REMSERV, Inc. compared MCP GW-3 standards to groundwater EPCs and determined that three (3) Contaminants of Concern exceeded their applicable GW-3 standards.

The DEP Guidance for Disposal Site Risk Characterization (Interim Final Policy WSC/ORS-95-141)(2) indicates that a Stage I screening consists of two steps: (1) exposure pathway identification and (2) effects based screening.

The exposure pathway screening is based on the presence of a complete exposure pathway. The exposure pathway is the link between the contaminant and the group of environmental receptors that may come into contact with the contaminant. Any incomplete exposure pathways should be eliminated from further evaluation in the environmental risk characterization. If there are no significant exposures likely, the exposure pathway can be eliminated from further consideration.

Based on groundwater flow patterns observed to date, the nearest water body to the site (the Aberjona River) appears to be downgradient of contaminant source areas. However, REMSERV, Inc. has seen no visual evidence of:

- stressed biota attributable to the release at the disposal site, including, without limitation, fish kills or abiotic conditions;
- visible presence of oil, tar, or other non-aqueous phase hazardous material in soil within three feet of the ground surface over an area equal to or greater than two acres, or over an area equal to or greater than 1,000 square feet in sediment within one foot of the sediment surface;

Although ethylbenzene, C5-C8 aliphatics and C9-C10 aromatics were detected above GW-3 standards, REMSERV, Inc. expects that natural degradation processes such as adsorption, volatilization, and biodegradation will attenuate hydrocarbon contaminants before they reach the Aberjona River or any other nearby surface water bodies. For these reasons, the disposal Site conditions do not provide a basis for carrying the environmental risk characterization beyond the Stage I Screening.

This MCP Method I risk characterization finds that a condition of "No Significant Risk" of harm to health, safety, public welfare and the environment has not yet been achieved.



9.0 Conclusions

A Phase II Comprehensive Site Assessment has been completed for the site located at 12 Swanton Street in Winchester, MA (RTN 3-18598). On July 8, 1999, the MA DEP was notified of a 72-hour reportable condition at the site when a soil headspace reading exceeding 100 parts per million (ppm) was obtained from soil samples obtained from within 10 feet of a UST outer wall. The elevated PID readings had been obtained during a May 1999 removal of six (6) USTs at the site, including four (4) gasoline tanks, one (1) waste oil tank, and one (1) heating oil tank. The UST removal had generated an approximate 20 cubic yard stockpile of contaminated soil.

SRT and Webb Engineering Associates, Inc. (Webb) undertook Immediate Response Action (IRA) activities to address the impacts to site soil and ground water from the petroleum release. The IRA Scope of Work included the sampling and disposal of stockpiled contaminated soil, the completion of four (4) soil borings and ground water monitoring wells at the site and laboratory analyses of soil and ground water samples. The soil and ground water samples were submitted for VPH and EPH analyses. The laboratory analyses for a soil sample collected from 15 to 15.5 feet detected concentrations of the VPH target analyte xylenes exceeding the S-1 standard, and concentrations of the VPH fractions C5-C8 aliphatics and C9-10 aromatics exceeding the S-1 and S-3 standards. All other VPH and EPH soil analytical results were below the site applicable S-1 and S-3 standards.

Ground water concentrations for C5-C8 aliphatics, C9-C12 aliphatics, and C9-C10 aromatics were identified in excess of the GW-2 and GW-3 standards in MW-3 and MW-4. Monitoring wells MW-3 and MW-4 also exceeded the GW-2 standard for C9-C18 aliphatics, toluene and total xylenes. The concentrations of ethylbenzene in MW-3 and MW-4 exceeded the GW-3 standard. The concentration of C5-C8 aliphatics in MW-1 exceeded the GW-2 standard.

The purpose of the Phase II Comprehensive Site Assessment was to assess the nature and extent of site soil and ground water contamination, assess the risk of harm posed by the disposal site to health, safety, public welfare and the environment, and collect sufficient data to assess whether a condition of No Significant Risk has been achieved at the site. As part of the Phase II, REMSERV, Inc, observed the advancing of six (6) soil borings at the site and the completion of four (4) of the borings as ground water monitoring wells. The Phase II included the analyses of four (4) soil samples and four (4) ground water samples for VPH and EPH analyses.

The REMSERV, Inc. soil analytical results also identified VPH contamination in excess of the site applicable S-1 and S-3 standards. The ground water analytical results identified VPH and EPH contamination in exceedance of the site GW-2 and GW-3 applicable standards. The 2005 contaminant concentrations are less than the Webb Engineering analytical results from October 2000 (Table 1, Table 2). A comparison between the VPH contaminant levels identified in the Webb soil boring MW-4 from October 2000, and the VPH contaminant levels identified in the REMSERV, Inc. soil samples taken from the vicinity of MW-4 at similar depths, show a decrease in VPH soil contamination. Ground water samples collected by REMSERV, Inc. from MW-1 and MW-4 in April 2005 showed decreases in VPH contamination when compared to the MW-1 and MW-4 ground water samples collected by Webb in October 2000.

Even though the soil and ground water contaminants have decreased in concentration due to naturally occurring processes, a condition of No Significant Risk has not yet been achieved. Therefore the site conditions do not meet the requirements for a Class A-3 Response Action Outcome. REMSERV, Inc. will proceed with a Phase III Feasibility Analysis as outlined in a letter submitted to the MA DEP on January 24, 2005. The results of the Phase III will be used to determine the most appropriate remedial approach to



bring the site into compliance with the MCP in accordance with the schedule agreed to by Bossi Realty Trust and the MA DEP.

10.0 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. MASS GIS Bedrock Lithologic Datalayer
11. "Bedrock Map of Massachusetts", E-An Zen editor, 1982.
12. <http://winchester.patriotproperties.com>
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's Auto Repair
12 Swanton Street
Winchester, MA

Sample ID	Sampling Date	Sample Depth (feet)	PID	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)	C5-C8 Aliphatics (mg/kg)	C9-C12 Aliphatics (mg/kg)	C9-C10 Aromatics (mg/kg)	C9-C18 Aliphatic Hydrocarbons (mg/kg)	C19-C36 Aliphatic Hydrocarbon (mg/kg)	C11-C22 Aromatic Hydrocarbons (mg/kg)	
Method 1 S-1	---	---	---	40	500	500	100	NS	NS	500	100	100	500	100	1,000	100	1,000	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	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	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	BDL
*MW-2 (10'-12')	10/13/00	12	0	NA	NA	NA	NA	NA	NA	NA	NA	BDL	BDL	NA	NA	NA	NA	BDL	BDL	BDL
*MW-3 (10'-12')	10/13/00	12	826	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	2	2.2	1.4	BDL	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	BDL	120
B101 S4 13-15	02/28/05	15	376	BDL	0.14	BDL	BDL	BDL	BDL	BDL	0.33	BDL	0.16	16.4	6.08	8.66	BDL	BDL	BDL	BDL
B102 S1B 11.5-12	02/28/05	12	0	BDL	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	3.9	4	639	217	680	43.3	BDL	BDL	40.6
B104-S1 13-15	02/28/05	12	72.6	BDL	6	2.7	BDL	2.62	9.1	11.72	5.8	0.64	1.66	1,130	350	216	129	BDL	BDL	57.3
EPC	---	---	---	0.25	73.68	28.13	1	---	---	140	10.81	4.19	3.98	555	82.45	413	65.29	---	---	27.24

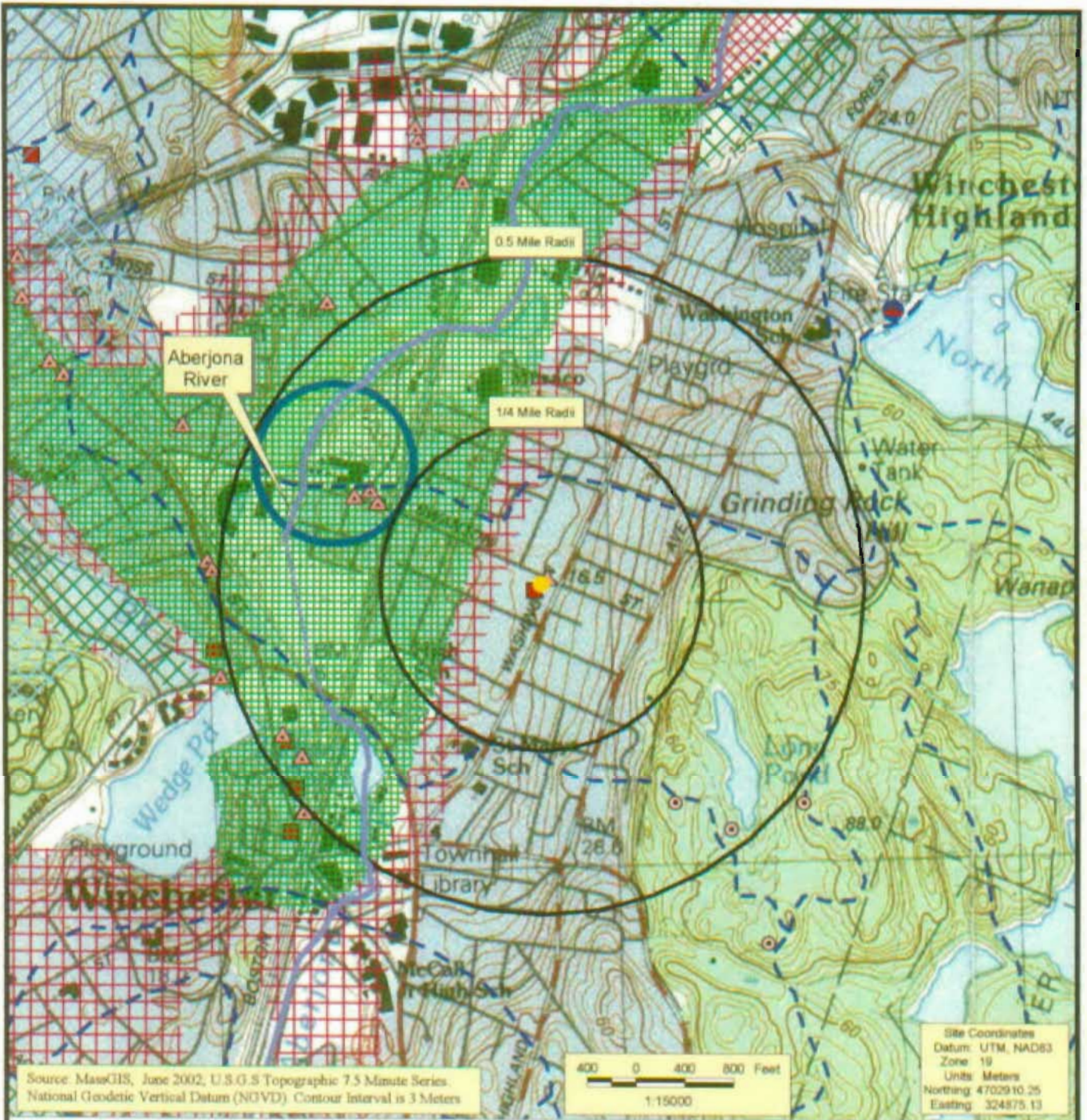
LEGEND

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

TABLE 2 -GROUNDWATER ANALYTICAL RESULTS
 Bossi's Auto Repair
 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)	C5-C8 Aliphatics (ug/L)	C9-C12 Aliphatics (ug/L)	C9-C10 Aromatics (ug/L)	C9-C18 Aliphatics (ug/L)	C19-C36 Aliphatics (ug/L)	C11-C22 Aromatics (ug/L)
GW-1 Stnd.	---	---	---	---	5	1,000	700	NS	NS	10,000	70	20	20	10	400	4,000	200	4,000	5,000	200
GW-2 Stnd.	---	---	---	---	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 Stnd.	---	---	---	---	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
B101-MW	4/1/05	100.00	9.99	90.01	BDL	7	59	212	12	224	BDL	92	45	96	1,110	1,110	4,230	300	BDL	1,000
B102B-MW	4/1/05	100.97	11.35	89.62	230	1,600	680	2,560	1,910	4,470	87	368	114	31	4,620	2,250	6,910	400	BDL	500
B103-MW	4/1/05	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	1,600
B104-MW	4/1/05	101.68	10.77	90.91	37	338	843	2,080	780	2,860	39	181	88	48	8,890	15,200	3,750	400	BDL	400
*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
	4/1/05		10.87	---	11	12	27	BDL	10	10	BDL	11	BDL	BDL	750	160	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
	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
*MW-4	4/1/05		10.43	---	BDL	1,950	4,480	17,500	7,640	25,140	BDL	1,090	379	108	22,400	5,800	16,200	4,200	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 standards.
 Note: All concentrations and standards reported in ug/L



Source: MassGIS, June 2002, U.S.G.S Topographic 7.5 Minute Series
National Geodetic Vertical Datum (NOVD) Contour Interval is 3 Meters

Site Coordinates
Datum: UTM, NAD83
Zone: 19
Units: Meters
Northing: 4702910.25
Easting: 324875.13

Legend

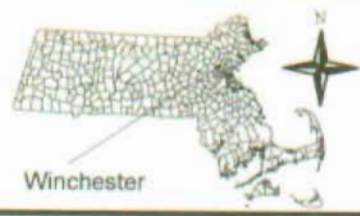
- 12 Swanton Street, Winchester, MA
- DEP Tier Classified Oil or Hazardous Material Sites
- ▲ DEP Underground Storage Tank
- Certified Vernal Pools
- NHESP-Estimated Habitats for Rare Wildlife (*NHESP 1999-2001 Estimated Habitats of Rare Wildlife: Use with Wetlands Protection Act*)
- Solid Waste Facility

- 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

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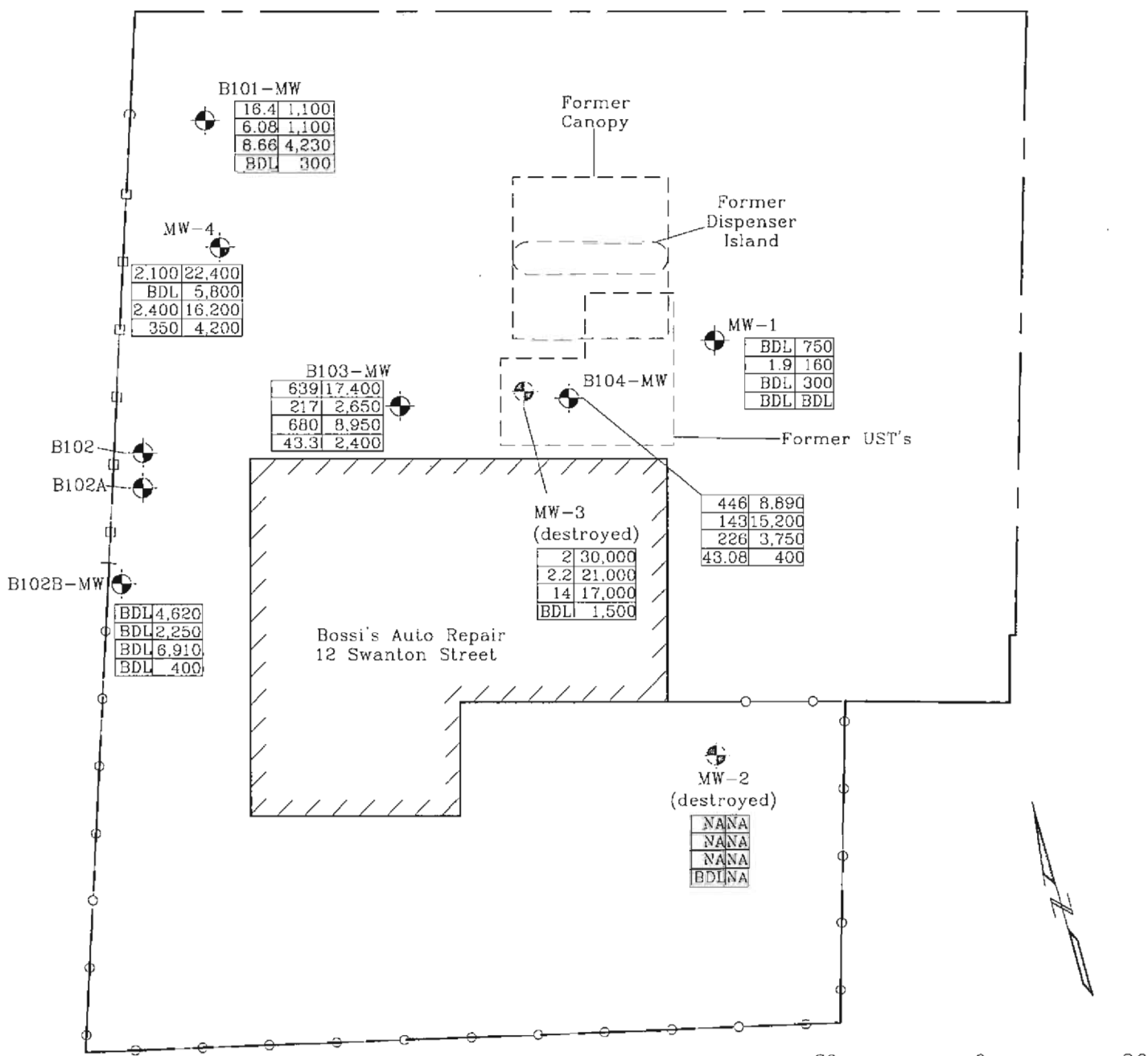
SITE LOCUS MAP
Phase II Comprehensive Site Assessment

Bossi's Auto Repair
12 Swanton Street
Winchester, MA

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

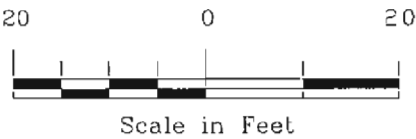
February 2005 Figure 1

Swanton Street



LEGEND

- B101-MW Monitoring Well
- B102 Soil Boring
- MW-1 Monitoring Well (previously installed)
- Property Boundary
- Fence
- Guard Rail



Soil (mg/kg)	Groundwater (ug/L)
C5-C8 Aliphatics	
C9-C12 Aliphatics	
C9-C10 Aromatics	
C9-C18 Aliphatics	

Contaminant Concentrations

Note:
BDL Below Detection Limits
NA Not Analyzed

SITE PLAN
Contaminant Concentrations

Phase II Comprehensive Site Assessment
Bossi's Auto Repair
12 Swanton Street
Winchester, MA

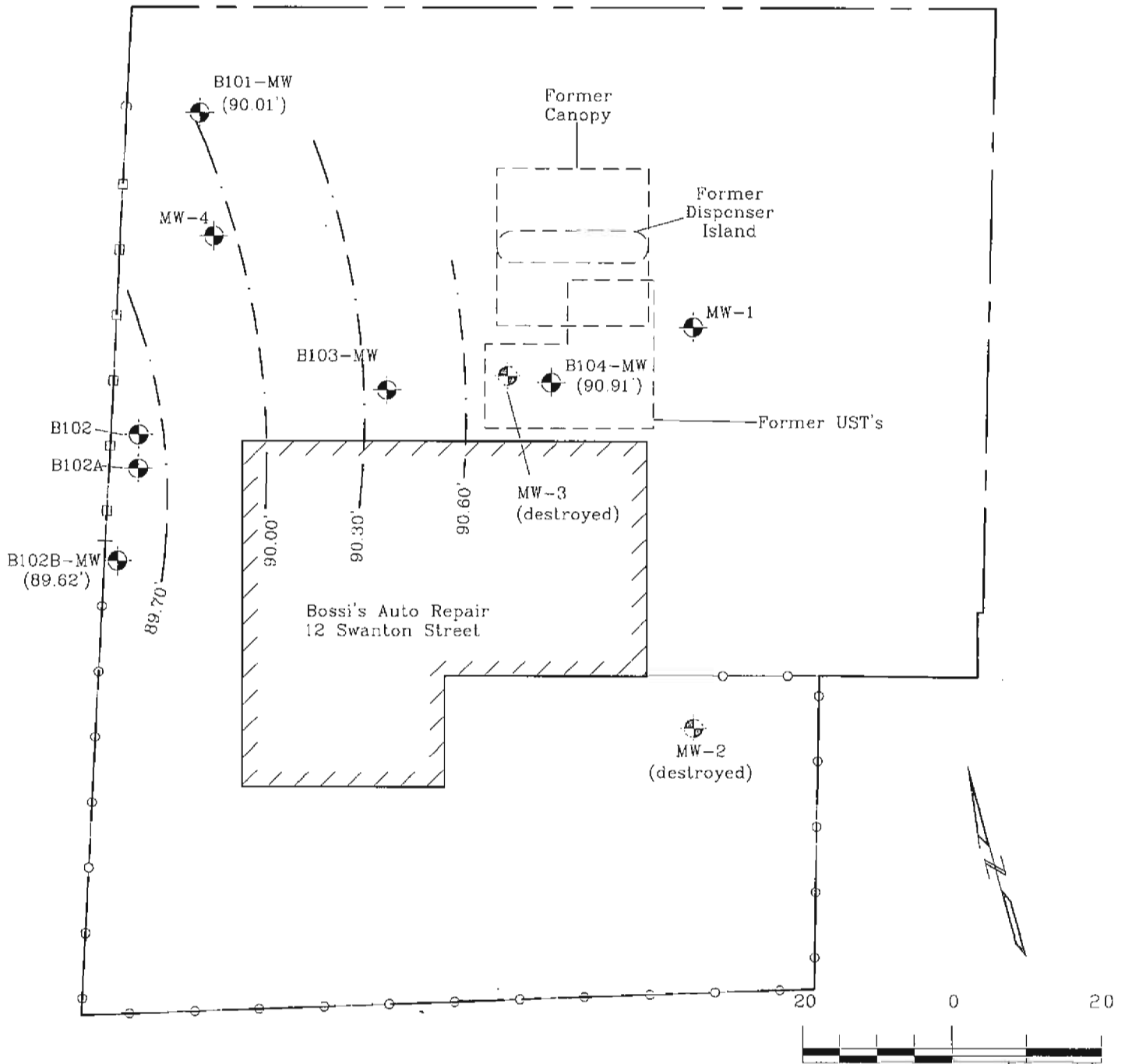
REM SERU
REMEDICATION & ENVIRONMENTAL
MANAGEMENT SERVICES, INC.
35 WINTHROP STREET
WINCHESTER, MASSACHUSETTS
Phone: (781) 721-4455 Fax: (781) 721-4456

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

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

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Swanton Street



LEGEND

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

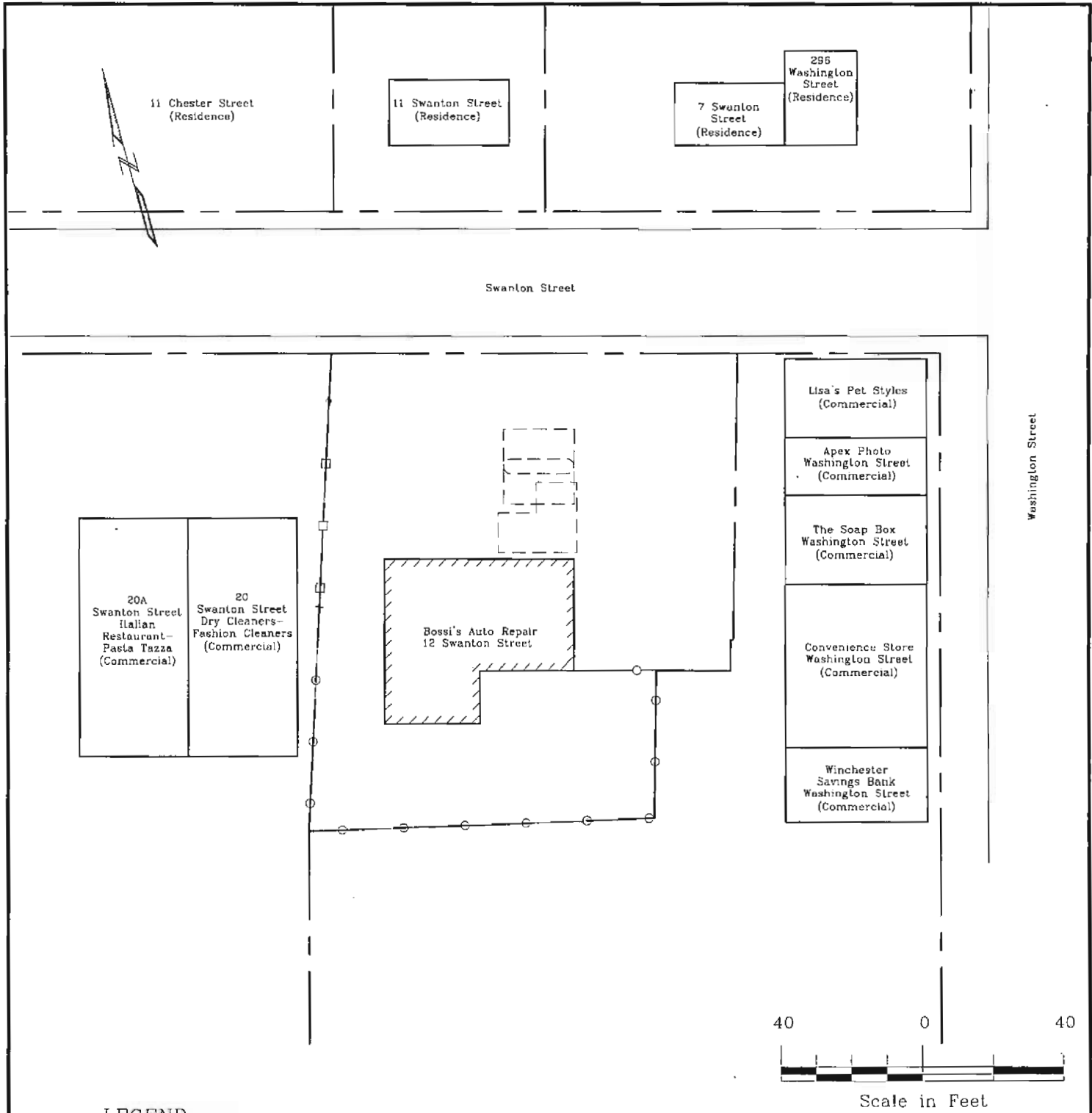
GROUNDWATER CONTOUR MAP

Phase II Comprehensive Site Assessment
 Bossi's Auto Repair
 12 Swanton Street
 Winchester, MA

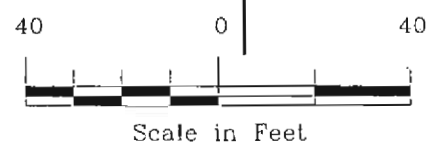
REM SERU
 REMEDIATION & ENVIRONMENTAL
 MANAGEMENT SERVICES, INC.
 35 WINTHROP STREET
 WINCHESTER, MASSACHUSETTS
 Phone: (781) 721-4455 Fax: (781) 721-4456

Figure 3
Project: 24124-1
Date: February 2005
Scale: 1" = 20'
Approved by: TPS/RLL
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 II Comprehensive Site Assessment
 Bossi's Auto Repair
 12 Swanton Street
 Winchester, MA

<p>REM SERU REMEDIATION & ENVIRONMENTAL MANAGEMENT SERVICES, INC. 35 WINTHROP STREET WINCHESTER, MASSACHUSETTS Phone: (781) 721-4455 Fax: (781) 721-4456</p>	Figure 4
	Project: 24134-1
	Date: February 2005
	Scale: 1" = 40'
Approved by: TPS/RLI	
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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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) 15-16' gray coarse to fine SAND, some fine gravel (mild petro odor)
	S5	9 14 47 50	18			0/156	16-16.5' very dense brown fine SAND trace gravel (no petro) advance auger to 16.2 ft. - met with refusal
20							Bottom of Exploration at 16.5 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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DEPTH FT.	SAMPLE				REMARKS	PID Back/Read	SOIL AND ROCK DESCRIPTIONS
	Type & No.	Blows /6 In.	Pen In.	Rec In.			
0-5							- ASPHALT - auger to 3 ft. - met with refusal, moved rig to 5 ft. to the southwest
5-10							NO SAMPLES TO 10 ft.
10-15	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.
15-20							Auger Refusal at 11.5 ft. Bottom of Exploration at 12 ft.
20-25							
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

Date Start: 2/28/05

TEST BORING LOG

Ground Elevation (Ft): _____ Datum: _____

Date Finish: 2/28/05

PAGE
1 of 1

B103

Ground Water El. (Ft.): _____ Date: _____

Drilled By: S. Garside
Logged By: TPS

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: 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 B104

DEPTH FT.	SAMPLE				REMARKS	PID Back/Read	SOIL AND ROCK DESCRIPTIONS
	Type & No.	Blows /6 In.	Pen In.	Rec In.			
5							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							

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

E:\CLIENTS\Bossi\Boring_Logs\MW\B104.dwg

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	LOCATION	See Plan
CHECKED BY	TPS		
		DRILLER	S. Garside
		DATE	02/25/05

<u>DEPTH</u>	<u>0.0 ft</u>	<u>GROUND EL. ft (approximate)</u>	
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	DRILLER	S. Garside
OBSERVED BY	TPS	DATE	02/25/05
CHECKED BY	TPS	TOP OF PVC	101.04'
		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	DRILLER	S. Garside
OBSERVED BY	TPS	DATE	02/25/05
CHECKED BY	TPS	TOP OF PVC	101.68'
		LOCATION	See Plan

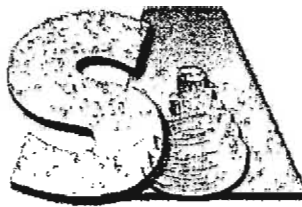
DEPTH	0.0 ft	GROUND EL.	ft (approximate)
GENERAL SOIL CONDITIONS (not to scale)		SURFACE SEAL	Cement Grout
		TYPE (indicate any additional seals)	0.5 ft.
		THICKNESS	
		SURFACE CASING	Roadway Box
		TYPE	3 in.
		INNER DIAMETER	10 in.
		DEPTH OF BOTTOM	
		RISER PIPE	Sch. 40 PVC
		TYPE	2 in. nominal
		Size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

16 ft.

NOTES: 1. Survey Datum:

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

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

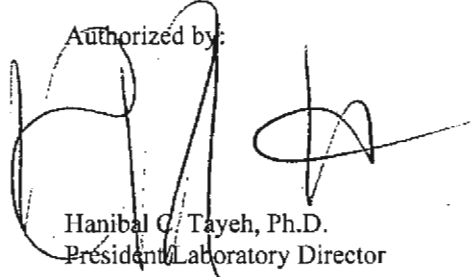
Project: Bossi's-12 Swanton St-MA
Project #: [none]

<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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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

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
Volatile Organic Compounds										
	VOC Extraction	Field extracted	N/A	1	VOC	01-Mar-05	01-Mar-05	5030088	ES	
<u>VPH Aliphatic/Aromatic Carbon Ranges</u>			Prepared by method VPH							VOC10
	C5-C8 Aliphatic Hydrocarbons	16.4	1.34 mg/kg dry	100	+MADEP 5/2004 Rev. I.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	"	"	"	"	"	
<u>VPH Target Analytes</u>			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	"	"	"	"	"	
<u>Surrogate recoveries:</u>										
615-59-8	2,5-Dibromotoluene (FID)	118	70-130 %		"	"	"	"	"	
615-59-8	2,5-Dibromotoluene (PID)	104	70-130 %		"	"	"	"	"	
Extractable Petroleum Hydrocarbons										
<u>EPH Aliphatic/Aromatic Ranges</u>			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	"	"	"	"	"	
<u>EPH Target PAH Analytes</u>			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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* 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
Volatile Organic Compounds										
	VOC Extraction	Field extracted	N/A	1	VOC	01-Mar-05	01-Mar-05	5030088	ES	
<u>VPH Aliphatic/Aromatic Carbon Ranges</u> 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	"	"	"	"	"	
<u>VPH Target Analytes</u> 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	"	"	"	"	"	
<u>Surrogate recoveries:</u>										
615-59-8	2,5-Dibromotoluene (FID)	115	70-130 %		"	"	"	"	"	
615-59-8	2,5-Dibromotoluene (PID)	102	70-130 %		"	"	"	"	"	
Extractable Petroleum Hydrocarbons										
<u>EPH Aliphatic/Aromatic Ranges</u> 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	"	"	"	"	"	
<u>EPH Target PAH Analytes</u> 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	"	"	"	"	"	

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* 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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* 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-03 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

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	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 IdentificationB104 S1 13-15
SA24677-04Client Project #
[none]Matrix
SoilCollection Date/Time
28-Feb-05 00:00Received
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 HydrocarbonsEPH 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

Page 8 of 17

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 %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	%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	
Surrogate: 2,5-Dibromotoluene (FID)	54.0	µg/kg wet	50.0		108	70-130			
Surrogate: 2,5-Dibromotoluene (PID)	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	
Surrogate: 2,5-Dibromotoluene (FID)	52.2	µg/kg dry	50.0		104	70-130			
Surrogate: 2,5-Dibromotoluene (PID)	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			
Surrogate: 2,5-Dibromotoluene (FID)	54.3	µg/kg dry	50.0		109	70-130			
Surrogate: 2,5-Dibromotoluene (PID)	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			QC-1
Benzo (k) fluoranthene	95.2	µg/kg wet	100		95.2	80-120			
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	Limit	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			
Acenaphthenc	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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General Chemistry Parameters - Quality Control

Analyte(s)	Result	*RDL Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
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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* Reportable Detection Limit BRL = Below Reporting Limit

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 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

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SPECTRUM ANALYTICAL, INC.
Featuring
HANIBAL 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
 - 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: Rensselaer, Inc.
35 Winkthrop St.
Winchester, MA 01890

Invoice To: Same
WHS00382601P

Project No.: _____
Site Name: Rossi's
Location: 12 Siskinjan St. State: MA
Sampler(s): TPS

Project Mgr.: TPS P.O. No.: _____ R.O.N.: _____

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

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

G=Grab C=Composite

Lab Id.	Sample Id.	Date:	Time:	Type	Matrix	Preservative	# of VOA Vials	# of Amber Glass	# of Clear Glass	# of Plastic	MA DEP VPH	MA DEP EPH	Analyses:	Notes:
AB	<u>6PTOT</u>	<u>03-28-05</u>		<u>G</u>	<u>SO</u>	<u>X19 X</u>	<u>1</u>	<u>1</u>			<u>✓</u>	<u>✓</u>		
AB	<u>B1015+13-15-02-28</u>	<u>05</u>		<u>G</u>	<u>SO</u>	<u>X19 X</u>	<u>1</u>	<u>1</u>			<u>✓</u>	<u>✓</u>		
AB	<u>B10251211.5-12</u>			<u>G</u>	<u>SO</u>	<u>X19 X</u>	<u>1</u>	<u>1</u>			<u>✓</u>	<u>✓</u>		
AB	<u>B1035113-15</u>			<u>G</u>	<u>SO</u>	<u>X19 X</u>	<u>1</u>	<u>1</u>			<u>✓</u>	<u>✓</u>		
AB	<u>B1045113-15</u>			<u>G</u>	<u>SO</u>	<u>X19 X</u>	<u>1</u>	<u>1</u>			<u>✓</u>	<u>✓</u>		

Additional Instructions: _____

Relinquished By: TPS
Rensselaer, Inc.

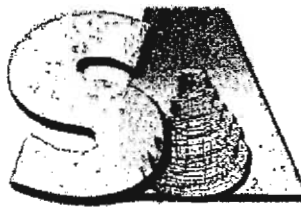
Received By: Rensselaer, Inc.

Date: 03-01-05 Time: 11:35
3/1/05 14:50

Fax results when available to (781) 721-4456
 E-mail results when available to ksule@comcast.net

8924677 @ M4

Report Date:
08-Apr-05 15:23



SPECTRUM ANALYTICAL, INC.
Featuring
HANIBAL TECHNOLOGY

- Final Report
 Re-Issued Report
 Revised Report

Laboratory Report

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

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

<u>Laboratory ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Date Sampled</u>	<u>Date Received</u>
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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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:

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

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ENVIRONMENTAL ANALYSES

Sample IdentificationB101-MW
SA26066-01Client Project #
24124-1Matrix
Ground WaterCollection Date/Time
01-Apr-05 10:45Received
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	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 HydrocarbonsEPH 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

Page 2 of 20

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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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 Identification

B103-MW
SA26066-02

Client Project #
24124-1

Matrix
Ground Water

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

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 Compounds

VPH 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 Hydrocarbons

EPH 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

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

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	5.26 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 Identification
 B104-MW
 SA26066-03

Client Project #
 24124-1

Matrix
 Ground Water

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

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	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 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	0.4	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

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

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	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 Identification

MW-1
SA26066-04

Client Project #
24124-1

Matrix
Ground Water

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

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	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 Hydrocarbons

EPH 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

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	1-Chlorooctadecane	67.2	40-140 %		"	"	"	"	"	"
84-15-1	Ortho-Terphenyl	63.6	40-140 %		"	"	"	"	"	"
580-13-2	2-Bromonaphthalene	71.5	40-140 %		"	"	"	"	"	"
321-60-8	2-Fluorobiphenyl	80.5	40-140 %		"	"	"	"	"	"

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* Reportable Detection Limit BRL = Below Reporting Limit

Sample IdentificationMW-4
SA26066-05Client Project #
24124-1Matrix
Ground WaterCollection Date/Time
01-Apr-05 13:00Received
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	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 HydrocarbonsEPH 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

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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

<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	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 IdentificationB102B
SA26066-06Client Project #
24124-1Matrix
Ground WaterCollection Date/Time
01-Apr-05 14:00Received
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	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

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Sample IdentificationB102B
SA26066-07Client Project #
24124-1Matrix
Ground WaterCollection Date/Time
04-Apr-05 09:45Received
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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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	0.5	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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* 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 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							
Surrogate: 1-Chlorooctadecane	33.7	µg/l	50.0		67.4	40-140			
Surrogate: Ortho-Terphenyl	30.6	µg/l	50.0		61.2	40-140			
Surrogate: 2-Bromonaphthalene	20.6	µg/l	40.0		51.5	40-140			
Surrogate: 2-Fluorobiphenyl	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			
Surrogate: 1-Chlorooctadecane	35.4	µg/l	50.0		70.8	40-140			
Surrogate: Ortho-Terphenyl	35.7	µg/l	50.0		71.4	40-140			
Surrogate: 2-Bromonaphthalene	20.4	µg/l	40.0		51.0	40-140			
Surrogate: 2-Fluorobiphenyl	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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* 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									
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-BS1)					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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* Reportable Detection Limit BRL = Below Reporting Limit

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 ≤ 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 ± 2 °C	<input checked="" type="checkbox"/> Other: /	°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 ≤ 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 ± 2 °C	<input checked="" type="checkbox"/> Other: /	°C	

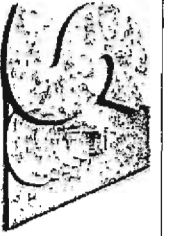
Were all QA/QC procedures followed as required by the EPH method? Yes No
 Were any significant modifications made to the EPH method as specified in Section 11.3? No
 Were all performance/acceptance standards for required QA/QC procedures achieved? Yes No

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.
Framming
HAMBURG TECHNOLOGY

CHAIN OF CUSTODY RECORD

Page 1 of 1

SM Alcolin
RCS

Special Handling:
 Standard TAT - 7 to 10 business days
 Rush TAT - Date Needed: 4/15/05
All TATs subject to laboratory approval.
Min. 24-hour notification needed for rushes.
Samples disposed of after 60 days unless otherwise instructed.

Report To: REMSEY, Inc.
35 Winchester Street
Winchester, MA 01890

Invoice To: Same
100 Houghton St

Project Mgr: Thomas Simons

P.O. No.: _____
RON: _____

Project No.: 24124-1
Site Name: Bessis
Location: 125 Swanton St, Winchester State: MA
Sampler(s): Per

1=Na₂SO₄ 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	Preservative	# of VOA Vials	# of Amber Glass	# of Clear Glass	# of Plastic	Analyses:	QA Reporting Notes: (check if needed)
B101-C1	B101-MW	4/11/05	10:15	6	GW	2	2	1	2	1	VPH	<input type="checkbox"/> Provide MCP CAM Report Were all field QC requirements met as per MADEP CAM Section 2.0? <input type="checkbox"/> Yes <input type="checkbox"/> No (Response required for CAM report)
B103-MW	B103-MW	4/11/05	12:15	6	GW	2	2	1	2	1	VV	
B104-MW	B104-MW	4/11/05	12:45	6	GW	2	2	1	2	1	VV	
B105-MW	B105-MW	4/11/05	1:45	6	GW	2	2	1	2	1	VV	
B106-MW	B106-MW	4/11/05	1:00	6	GW	2	2	1	2	1	VV	
B107-MW	B107-MW	4/11/05	2:00	6	GW	2	2	1	2	1	V	
B108-MW	B108-MW	4/14/05	9:45	6	GW	2	2	1	2	1	V	

Fax results when available to (781) 781-4456

E-mail to _____

EDD Format: _____

Condition upon receipt: Iced Ambient °C _____

Relinquished by: [Signature] Received by: [Signature] Date: 4/5/05 Time: 1045

Relinquished by: [Signature] Received by: [Signature] Date: 4/5/05 Time: 1510