



CORPORATE ENVIRONMENTAL ADVISORS, INC.

SCANNED



Delivery Confirmation

August 9, 2005

Commonwealth of Massachusetts
Department of Environmental Protection- Western Region
436 Dwight Street
Suite 500
Springfield, Massachusetts 01103

**RE: Immediate Response Action Status Report #1
Sunoco Station
88-90 South Maple Street
Westfield, Massachusetts
DUNS: 0374-5593
MA DEP RTN: 1-15718
CEA File No. 5795-05**



Dear Sir or Madam:

On behalf of Sunoco, Inc. (R & M), (Sunoco), Corporate Environmental Advisors, Inc. (CEA) presents this Immediate Response Action (IRA) Status Report #1 for the property located at 88-90 South Maple Street, Westfield, Massachusetts (hereinafter the "site"), prepared in accordance with 310 CMR 40.0424 of the Massachusetts Contingency Plan (MCP).

This IRA Status Report has been prepared following the 72-hour Reportable Condition identified on April 12, 2005 upon obtaining knowledge of tightness test results for dispenser piping associated with an underground storage tank (UST). Based on available information provided by Sunoco, the dispenser lines were placed under pressure for tightness testing on April 12, 2005 and the regular unleaded line failed the tightness test. This Threat of Release condition was verbally reported to the Massachusetts Department of Environmental Protection (MA DEP) at 9:40 a.m. on April 15, 2005 within 72-hours of obtaining knowledge of the reporting condition pursuant to 310 CMR 40.0314(2) of the MCP.

If you have any questions regarding this submittal, please do not hesitate to contact our office at (508) 835-8822.

Sincerely,
Corporate Environmental Advisors, Inc.

Patrick J. Brown
Environmental Scientist I

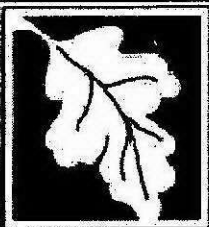
Scott E. VanderSea, LSP, LEP
Principal Hydrogeologist

Cc: William J. Brochu, Sunoco, Inc. (R&M), 4 Bellows Rd., P.O. Box 1262, Westborough, MA 01581
Yvonne M. Monti, Sunoco, Inc. (R&M), Quaker Park, 4th Floor, 1001 E. Hector St., Conshohocken, PA 19428

www.cea-inc.com

CORPORATE HEADQUARTERS: HARTWELL BUSINESS PARK • 127 HARTWELL STREET • WEST BOYLSTON, MA 01583 • PHONE: 508-835-8822 • FAX: 508-835-8812

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Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BWSC105

**IMMEDIATE RESPONSE ACTION (IRA) TRANSMITTAL
FORM** Pursuant to 310 CMR 40.0424 - 40.0427 (Subpart D)

Release Tracking Number

1

15718

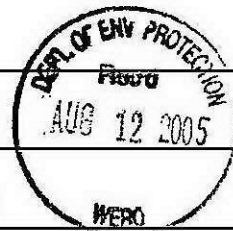
A. RELEASE OR THREAT OF RELEASE LOCATION:

1. Release Name/Location Aid: Sunoco Station

2. Street Address: 88-90 South Maple Street

3. City/Town: Westfield

4. ZIP Code: 01085-0000



☐ 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. Check here if this location is Adequately Regulated, pursuant to 310 CMR 40.0110-0114. Specify Program (check one):

☐ a. CERCLA ☐ b. HSWA Corrective Action ☐ c. Solid Waste Management
☐ d. RCRA State Program (21C Facilities)

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

1. List Submittal Date of Initial IRA Written Plan (if previously submitted): _____
(mm/dd/yyyy)

☐ 2. Submit an Initial IRA Plan.

☐ 3. Submit a Modified IRA Plan of a previously submitted written IRA Plan.

☐ 4. Submit an Imminent Hazard Evaluation. (check one)

☐ a. An Imminent Hazard exists in connection with this Release or Threat of Release.

☐ b. An Imminent Hazard does not exist in connection with this Release or Threat of Release.

☐ c. It is unknown whether an Imminent Hazard exists in connection with this Release or Threat of Release, and further assessment activities will be undertaken.

☐ d. It is unknown whether an Imminent Hazard exists in connection with this Release or Threat of Release. However, response actions will address those conditions that could pose an Imminent Hazard.

☐ 5. Submit a request to Terminate an Active Remedial System or Response Action(s) Taken to Address an Imminent Hazard.

☒ 6. Submit an IRA Status Report.

☐ 7. Submit an IRA Completion Statement.

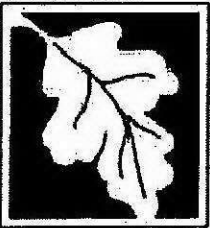
a. Check here if future response actions addressing this Release or Threat of Release notification condition will be conducted as part of the Response Actions planned or ongoing at a Site that has already been Tier Classified under a different Release Tracking Number (RTN). When linking RTNs, rescoring via the NRS is required if there is a reasonable likelihood that the addition of the new RTN(s) would change the classification of the site.

b. Provide Release Tracking Number of Tier Classified Site (Primary RTN): ☐ - ☐

These additional response actions must occur according to the deadlines applicable to the Primary RTN. Use the Primary RTN when making all future submittals for the site unless specifically relating to this Immediate Response Action.

☐ 8. Submit a Revised IRA Completion Statement.

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



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C. RELEASE OR THREAT OF RELEASE CONDITIONS THAT WARRANT IRA:

1. Identify Media Impacted and Receptors Affected: (check all that apply)

- ☐ a. Air ☐ b. Basement ☐ c. Critical Exposure Pathway ☐ d. Groundwater ☐ e. Residence
☐ f. Paved Surface ☐ g. Private Well ☐ h. Public Water Supply ☐ i. School ☐ j. Sediments
☒ k. Soil ☐ l. Storm Drain ☐ m. Surface Water ☐ n. Unknown ☐ o. Wetland ☐ p. Zone 2
☐ q. Others Specify: _____

2. Identify Oils and Hazardous Materials Released: (check all that apply)

- ☐ a. Oils ☐ b. Chlorinated Solvents ☐ c. Heavy Metals
☐ d. Others Specify: Gasoline

D. DESCRIPTION OF RESPONSE ACTIONS: (check all that apply, for volumes list cumulative amounts)

- | | |
|--|---|
| ☒ 1. Assessment and/or Monitoring Only | ☐ 2. Temporary Covers or Caps |
| ☐ 3. Deployment of Absorbent or Containment Materials | ☐ 4. Temporary Water Supplies |
| ☐ 5. Structure Venting System | ☐ 6. Temporary Evacuation or Relocation of Residents |
| ☐ 7. Product or NAPL Recovery | ☐ 8. Fencing and Sign Posting |
| ☐ 9. Groundwater Treatment Systems | ☐ 10. Soil Vapor Extraction |
| ☐ 11. Bioremediation | ☐ 12. Air Sparging |
| ☐ 13. Excavation of Contaminated Soils | |

☐ a. Re-use, Recycling or Treatment ☐ i. On Site Estimated volume in cubic yards _____

☐ ii. Off Site Estimated volume in cubic yards _____

ii.a. Receiving Facility: _____ Town: _____ State: _____

ii.b. Receiving Facility: _____ Town: _____ State: _____

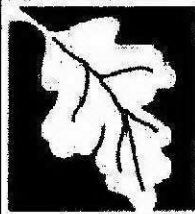
iii. Describe: _____

☐ b. Store ☐ i. On Site Estimated volume in cubic yards _____

☐ ii. Off Site Estimated volume in cubic yards _____

ii.a. Receiving Facility: _____ Town: _____ State: _____

ii.b. Receiving Facility: _____ Town: _____ State: _____



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D. DESCRIPTION OF RESPONSE ACTIONS (cont.): (check all that apply, for volumes list cumulative amounts)

☐ c. Landfill

☐ i. Cover Estimated volume in cubic yards _____

Receiving Facility: _____ Town: _____ State: _____

☐ ii. Disposal Estimated volume in cubic yards _____

Receiving Facility: _____ Town: _____ State: _____

☐ 14. Removal of Drums, Tanks or Containers:

a. Describe Quantity and Amount: _____

b. Receiving Facility: _____ Town: _____ State: _____

c. Receiving Facility: _____ Town: _____ State: _____

☐ 15. Removal of Other Contaminated Media:

a. Specify Type and Volume: _____

b. Receiving Facility: _____ Town: _____ State: _____

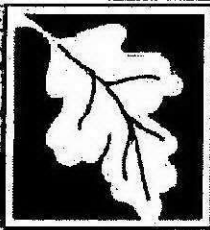
c. Receiving Facility: _____ Town: _____ State: _____

☐ 16. Other Response Actions:

Describe: _____

☐ 17. Use of Innovative Technologies:

Describe: _____



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E. 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 of this form indicates that an **Immediate Response Action 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) complies(y) with the identified provisions of all orders, permits, and approvals identified in this submittal;

> if Section B of this form indicates that an **Imminent Hazard Evaluation** is being submitted, this Imminent Hazard Evaluation was developed in accordance with the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000, and the assessment activity(ies) undertaken to support this Imminent Hazard Evaluation comply(ies) with the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000;

> if Section B of this form indicates that an **Immediate Response Status Report** 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;

> if Section B of this form indicates that an **Immediate Response Action Completion Statement** or a request to **Terminate an Active Remedial System or Response Action(s) Taken to Address an Imminent Hazard** 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.

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 #: 3978

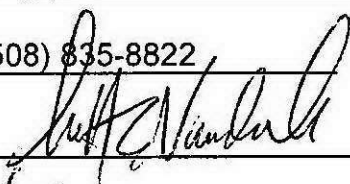
2. First Name: Scott E.

3. Last Name: VanderSea

4. Telephone: (508) 835-8822

5. Ext.: 259

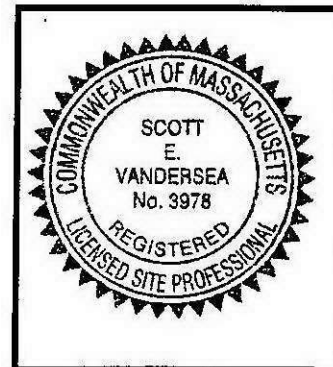
6. FAX: (508) 835-8812

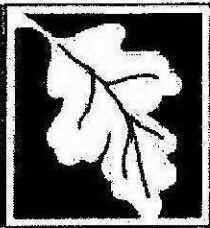
7. Signature: 

8. Date: 8/9/05

(mm/dd/yyyy)

9. LSP Stamp:





Massachusetts Department of Environmental Protection
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**IMMEDIATE RESPONSE ACTION (IRA) TRANSMITTAL
FORM** Pursuant to 310 CMR 40.0424 - 40.0427 (Subpart D)

Release Tracking Number

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F. PERSON UNDERTAKING IRA:

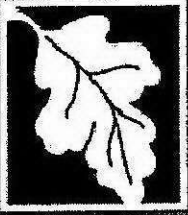
1. Check all that apply: ☐ a. change in contact name ☐ b. change of address ☐ c. change in the person undertaking response actions
2. Name of Organization: Sunoco Inc. (R & M)
3. Contact First Name: William J. 4. Last Name: Brochu
5. Street: 4 Bellows Rd., P.O. Box 1262 6. Title: Environmental Engineer
7. City/Town: Westborough 8. State: MA 9. ZIP Code: 01581-1262
10. Telephone: (978) 567-5836 11. Ext.: _____ 12. FAX: _____

G. RELATIONSHIP TO RELEASE OR THREAT OF RELEASE OF PERSON UNDERTAKING IRA:

- ☒ 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 IRA Specify Relationship: _____

H. REQUIRED ATTACHMENT AND SUBMITTALS:

- ☐ 1. Check here if any Remediation Waste, generated as a result of this IRA, will be stored, treated, managed, recycled or reused at the site following submission of the IRA Completion Statement. If this box is checked, you must submit one of the following plans, along with the appropriate transmittal form.
☐ a. A Release Abatement Measure (RAM) Plan (BWSC106) ☐ b. Phase IV Remedy Implementation Plan (BWSC108)
- ☐ 2. 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.
- ☒ 3. Check here to certify that the Chief Municipal Officer and the Local Board of Health have been notified of the implementation of an Immediate Response Action taken to control, prevent, abate or eliminate an Imminent Hazard.
- ☐ 4. Check here to certify that the Chief Municipal Officer and the Local Board of Health have been notified of the submittal of a Completion Statement for an Immediate Response Action taken to control, prevent, abate or eliminate an Imminent Hazard.
- ☐ 5. Check here if any non-updatable information provided on this form is incorrect, e.g. Release Address/Location Aid. Send corrections to the DEP Regional Office.
- ☒ 6. Check here to certify that the LSP Opinion containing the material facts, data, and other information is attached.



Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BWSC105

**IMMEDIATE RESPONSE ACTION (IRA) TRANSMITTAL
FORM** Pursuant to 310 CMR 40.0424 - 40.0427 (Subpart D)

Release Tracking Number

1

-

15718

I. CERTIFICATION OF PERSON UNDERTAKING IRA:

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

2. By: [Signature] 3. Title: Environmental Engineer
Signature

4. For: Sunoco Inc. (R & M) 5. Date: 8/8/05
(Name of person or entity recorded in Section F) (mm/dd/yyyy)

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

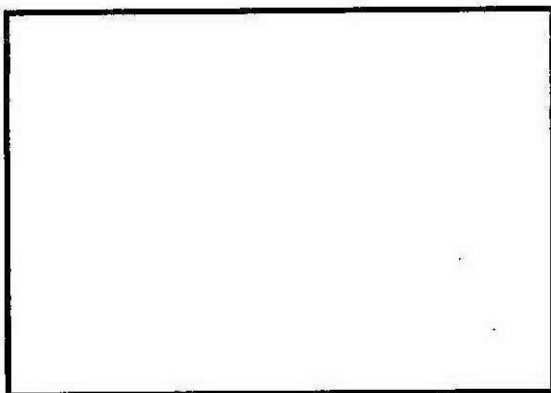
7. Street: _____

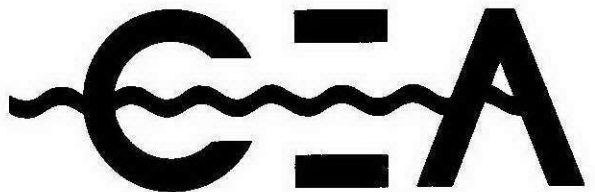
8. City/Town: _____ 9. State: _____ 10. ZIP Code: _____

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

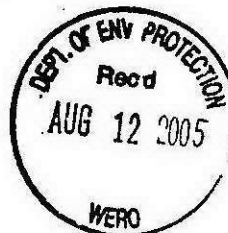
YOU ARE SUBJECT TO AN ANNUAL COMPLIANCE ASSURANCE FEE OF UP TO \$10,000 PER BILLABLE YEAR FOR THIS DISPOSAL SITE. YOU MUST LEGIBLY COMPLETE ALL RELEVANT SECTIONS OF THIS FORM OR DEP MAY RETURN THE DOCUMENT AS INCOMPLETE. IF YOU SUBMIT AN INCOMPLETE FORM, YOU MAY BE PENALIZED FOR MISSING A REQUIRED DEADLINE.

Date Stamp (DEP USE ONLY:)





CORPORATE ENVIRONMENTAL ADVISORS, INC.



**Immediate Response Action (IRA)
Status Report #1**

Sunoco Station
88-90 South Maple Street
Westfield, Massachusetts 01085
DUNS: 0374-5593
RTN: 1-15718

August 9, 2005

Prepared for:

Sunoco, Inc. (R & M)
4 Bellows Road, P.O. Box 1262
Westborough, Massachusetts 01581-1262

Prepared by:

Corporate Environmental Advisors, Inc.
127 Hartwell Street
West Boylston, Massachusetts 01583

Ref. No. 5795-05-002

www.cea-inc.com

CORPORATE HEADQUARTERS: HARTWELL BUSINESS PARK • 127 HARTWELL STREET • WEST BOYLSTON, MA 01583 • PHONE: 508-835-8822 • FAX: 508-835-8812

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Figure 2	Site Layout with groundwater contours
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Appendix C	Public Notification



**IMMEDIATE RESPONSE ACTION
STATUS REPORT #1
SUNOCO STATION
88-90 SOUTH MAPLE STREET
WESTFIELD, MASSACHUSETTS
DUNS: 0374-5593
RTN: 1-15718**

1.0 INTRODUCTION

On behalf of Sunoco, Inc. (R & M), (Sunoco), Corporate Environmental Advisors, Inc. (CEA) presents this Immediate Response Action (IRA) Status Report #1 for the property located at 88-90 South Maple Street, Westfield, Massachusetts (hereinafter the "site"), prepared in accordance with 310 CMR 40.0425 of the Massachusetts Contingency Plan (MCP).

This IRA Status Report #1 summarizes the activities for the period of April 12 through August 15, 2005. The IRA Status Report has been prepared following the 72-hour Reportable Condition identified on April 12, 2005 upon obtaining knowledge of tightness test results for dispenser piping associated with an underground storage tank (UST). Based on available information provided by Sunoco, the dispenser lines were placed under pressure for tightness testing on April 12, 2005 and the regular unleaded line failed the tightness test. This Threat of Release condition was verbally reported to the Massachusetts Department of Environmental Protection (MA DEP) at 9:40 on April 15, 2005 within 72-hours of obtaining knowledge of the reporting condition pursuant to 310 CMR 40.0314(2) of the MCP. The location of the site is shown on **Figure 1, Site Locus**. Pertinent site features are shown on **Figure 2, Site Layout**. A summary of current site conditions, IRA activities performed to date, objectives, plans and a schedule for proposed IRA activities are described below.

Party Assuming Responsibility for the Immediate Response Action:

Mr. William Brochu
Sunoco, Inc. (R & M)
4 Bellows Road, P.O. Box 1262
Westborough, Massachusetts 01581
Phone 800 777 6444 ext 1357

LSP of Record for IRA Activities:

Mr. Scott E. VanderSea, LSP # 3978
Corporate Environmental Advisors, Inc.
127 Hartwell Street
West Boylston, Massachusetts 01583
Phone 508 835 8822



2.0 DESCRIPTION OF RELEASE, SITE CONDITIONS AND SURROUNDING RECEPTORS

The site is a retail gasoline sales facility located at 88-90 South Maple Street in Westfield, Massachusetts. Based on available information, three underground storage tanks are currently located at the site. On April 12, 2005, tightness testing was conducted on the UST piping associated with underground storage tanks by Crompco Corporation (Crompco) on behalf of Sunoco. The existing gasoline USTs are located on the southwest portion of the site behind the convenience store and pump islands are located to the right and left of the convenience store.

2.1 UST System Tightness Testing

The April 12, 2005 tightness testing results indicated the regular unleaded UST dispenser line failed when placed under pressure for tightness testing. Therefore, a Threat of Release requiring DEP notification within 72-hours of obtaining knowledge was identified at approximately 2:30 p.m. on April 12, 2005, in accordance with 310 CMR 40.0314(2) of the MCP. A copy of the April 12, 2005 and April 13, 2005 tightness testing results were previously submitted in the IRA Plan. Notification to the MA DEP is documented below in **Section 2.2**.

2.2 Notification and Verbally Approved IRA Activities

On April 15, 2005 at 9:40 p.m., verbal notification was provided to the MA DEP-Western Region (WERO) by Sunoco for the 72-hour reportable condition in accordance with 310 CMR 40.0314(2) of the MCP. The DEP issued Release Tracking Number (RTN) 1-15718 and provided verbal authorization to repair the dispenser line, excavate up to 100 yards of petroleum contaminated soils during the repairs, and conduct assessment activities as necessary to determine the extent of release to the environment.

On April 19, 2005, MA DEP issued a *Notice of Responsibility (NOR)*. The NOR established an Interim Deadline that the approved IRA assessment actions must be completed at the subject site within one (1) year (by April 15, 2006) of the notification date.

On June 14, 2005, a Release Notification Form (RNF), Bureau of Waste Site Cleanup Form (BWSC-103) was submitted to MA DEP for RTN 1-15718 on behalf of Sunoco.

2.3 Potential Receptors

The site is located in a commercial and residential area of Westfield. Residential properties abut the site to the east, and across South Maple Street to the north and northeast. A wooded area abuts the site to the south. Commercial properties are located along South Maple and Mill Street to the west of the site.

According to the MA DEP Site Scoring Map provided in **Figure 3**, dated June 14, 2005, the site is not located within an Interim Wellhead Protection Area (IWPA), Approved Zone 2, Zone A of a Class A Surface Water Body, or within a Potential Drinking Water Source Area (PDWSA). No known private drinking water supply wells are located within 500 feet of the site. The site is supplied with municipal water by the City of Westfield.

The closest potential receptor is Little River located within approximately 200-feet south of the site. Protected Open Space is located within approximately 1,000-feet to the south, and within approximately a half-mile to the west and east of the site. The site is located within a FEMA 100-year floodplain, to the south and southeast.

2.4 Applicable Reportable Concentrations

Two Reporting Categories, one more stringent, have been established for both soil and groundwater. The Applicable Reporting Category is dependent upon surrounding land use, potential receptors and the proximity of drinking water resource areas.

Soil

According to 310 CMR 40.0361 of the MCP, Reporting Category RCS-1 shall apply to all soil samples obtained:

- At or within 500 feet of a residential dwelling, residentially-zoned property, school, playground, recreational area or park; or
- Within the geographic boundaries of a Current or Potential Drinking Water Source Area.

Reporting Category RCS-2 shall apply to all other areas not categorized as RCS-1. Since there are residential properties located within 500 feet, Reporting Category RCS-1 applies to the site.

Groundwater

According to 310 CMR 40.0362 of the MCP, Reporting Category RCGW-1 applies to all groundwater samples collected within a Current or Potential Drinking Water Source Area. Reporting Category RCGW-2 applies to all other areas outside of RCGW-1.

According to the MA DEP Site Scoring Map provided in **Figure 3**, dated August 1, 2005, the site is not located within an Interim Wellhead Protection Area (IWPA), Approved Zone 2, Zone A of a Class A Surface Water Body, or within a Potential Drinking Water Source Area (PDWSA). No known private drinking water supply wells are located within 500 feet of the site. The site is supplied with municipal water by the City of Westfield. Therefore, only Reporting Category RCGW-2 applies to the site.

2.5 Applicable Method 1 Groundwater Categories

Three Groundwater Categories have been established in the MCP for the purpose of describing three types of OHM exposure. Groundwater Category GW-3 is protective of surface water quality since it is presumed that all groundwater discharges to surface water. Groundwater Category GW-2 is considered to be a potential source of OHM impact to indoor air. Groundwater Category GW-1 is that which may serve as a source of drinking water, now or in the future. More than one category may apply to groundwater at Disposal Sites.

According to the BWSC Site Scoring Map, the site is not located in an Interim Wellhead Protection Area (IWPA), Potential Drinking Water Source area, DEP approved Zone II, or within a Zone A of a Class A Surface Water Body. There are no known private drinking water supply wells within 500 feet of the site. The site is supplied with municipal water by the City of Westfield. Therefore, Groundwater Category GW-1 does not apply to the site. Average depth to groundwater at the site is less than 15 feet below grade; therefore GW-2 applies to the site. Therefore, groundwater at this site is classified as GW-2 and GW-3.

2.6 Initial IRA Assessment Activities Completed

2.6.1 UST Product Line Excavation and Repair

Upon obtaining knowledge of the failed UST line tightness test result on April 12, 2005, Sunoco immediately removed the unleaded dispenser lines and USTs from service. The location of the line leak was identified through helium tracer testing on April 13 and 14, 2005, and the line was excavated and repaired on April 14 and 15, 2005.

On April 14 and 15, 2005, CEA supervised the excavation and repair of the dispenser piping. Soil was excavated from a trench that was approximately nine-feet long and three and a half feet wide. During the excavation of piping, soil samples were collected from the excavation and field screened using the DEP jar-headspace method and an HNU Model PI 101 photo-ionization detector (PID), calibrated to an isobutylene standard for total organic vapor (TOV) concentrations. Soil samples were collected from the limits of excavation to determine if a release of oil and/or hazardous materials (OHM) requiring notification under the MCP had occurred at the property. TOV concentrations measured in soil samples collected from the UST excavation were greater than 100 ppm. Approximately 2-cubic yards of petroleum-impacted soil were temporarily stockpiled on plastic on-site, pending confirmatory laboratory analysis for off-site recycling. On April 21, 2005, CEA was onsite to supervise additional soil excavation with in the same area excavated on April 14, 2005, however no soil was excavated during the site visit.

On April 27, 2005, the excavation was lengthened and expanded to expose the regular and ultra gasoline dispenser lines, to check for potential leaks and to install cathodic protection. A total of approximately 5 cubic yards of petroleum impacted soil was generated between April 15 and 27, 2005. On April 28, 2005, the trench was backfilled clean material and finished to surface grade with a concrete pad.

2.6.2 Post-Excavation Soil Sampling and Analysis

On April 14 and April 27, 2005, post-excavation composite soil samples were obtained from the excavation limits for confirmatory laboratory analysis. Soil samples Sample-1 through Sample-4 were collected on April 14, 2005. On April 27, 2005, soil represented by Sample-1 and Sample-2 was excavated and soil sample "1 S-B-2'" was collected. Sample-3 was excavated and "2 S-B-2'" was collected. Soil samples 4 S-B-2' and 5 S-COMP-2' were also collected. Soil samples were field preserved, placed on ice and submitted to Accutest Laboratories, Inc. (Accutest) of Marlborough, Massachusetts under Chain of Custody Protocol. All confirmatory soil samples were analyzed for volatile petroleum hydrocarbon (VPH) fractions and target analytes via the DEP Method. Confirmatory soil sample locations are depicted on **Figure 2, Site Layout**. The results of VPH analysis are summarized in **Table 1** and discussed below.

Upon completion of soil excavation and sampling activities on April 28, 2005, the excavation was backfilled with clean fill material, compacted and restored to grade.

2.6.3 Soil Analytical Results

Referring to **Table 1**, low detectable VPH concentrations were reported above applicable laboratory Reporting Limits (RL) in soil samples Sample 1, 2, 4, 1 S-B-2', 4 S-B-2' and 5 S-COMP-2'. VPH (C5-C8 aliphatics, C9-C10 aromatics), toluene and total xylenes were detected above Method 1 Risk Characterization (M1RC) S-1/GW-2 & 3 standards in soil samples Sample 3 and 2 S-B-2'. Post-excavation soil sample locations are depicted on **Figure 2, Site Layout**. VPH laboratory analytical results are summarized in **Table 1**. A copy of the soil laboratory analytical report was previously submitted in the IRA Plan.

2.7 UST Line Tightness Test Results – Post Repair

Following repairs, the regular and ultra unleaded lines were tightness tested on April 29, 2005. Leak detectors were also tested. All tests were reported as passing.

3.0 IRA OBJECTIVES AND PLAN

3.1 IRA Objectives

The objective of the IRA is to determine whether or not immediate response actions are necessary at this site to prevent, eliminate or minimize damage to health, safety, public welfare or the environment. IRA activities conducted so far (refer to Section 3.1.2) indicates that a release to the environment has occurred. Results of additional assessment activities will be evaluated to determine what additional response actions are warranted, whether further assessment of potential impacts to the environment, abutting and/or nearby residential or commercial properties is necessary, and if any Critical Exposure Pathways or Imminent Hazards exist.

3.2 IRA Plan

On June 22, 2005, an IRA Plan was submitted to MA DEP for RTN 1-15718. In addition to the verbally-approved IRA activities discussed in Sections 2.2 and 3.0 and performed in April 2005, the following IRA activities are proposed as part of the IRA Plan in accordance with 310 CMR 40.0424:

- Upgrade the existing UST associated dispenser piping to double walled fiberglass piping.
- During excavation, soils will be screened with an HNu photoionization detector. Soils exhibiting greater than 80-100 ppm on the HNu will be segregated and stockpiled for off-site recycling. It is anticipated that the total volume of petroleum contaminated soil generated for off-site recycling will not exceed 100 cubic yards during the IRA. Post excavation soil samples will be retained and submitted for VPH analysis.
- If groundwater and/or NAPL is encountered during excavation activities, and dewatering activities are necessary for construction work, a groundwater recovery sump will be installed below the observed depth to groundwater. A pump will be placed in the sump to pump groundwater (and NAPL) from the excavation into a frac-tank for settling before being treated through a bag filter assembly and two 500 to 1,000-pound capacity (GACA) piped in series and discharged. Treated effluent will be discharged in accordance with a National Pollutant Discharge Elimination System (NPDES) Permit exclusion.
- Gauge and survey previously installed monitoring wells to determine current groundwater flow direction. Collect and analyze groundwater samples from select existing monitoring wells for VPH and target analytes via the DEP Method to determine current groundwater quality. Install additional monitoring wells/soil borings if necessary to characterize soil/groundwater quality and flow direction.
- Determine whether Critical Exposure Pathways (CEPs), conditions of Substantial Release Migration (SRM) or Imminent Hazards exist.

4.0 SIGNIFIGANT NEW SITE INFORMATION

4.1 Elevation Survey

To determine groundwater elevations and establish groundwater flow direction, existing monitoring wells were surveyed on August 1, 2005, using an electronic theodolite accurate to 0.01 foot. An on-site spot elevation using USGS mean sea level (MSL) was selected and assigned an elevation of 100.00 feet above MSL, and referenced as a bench mark. The bench mark elevation is located at the northern corner of the building. The elevations of the existing groundwater monitoring wells, measured to the top of PVC well casing, were surveyed referencing this benchmark.

4.2 Groundwater Gauging

On August 1, 2005, depth to groundwater in existing monitoring wells MW-1, MW-3B, MW-4, MW-5, and MW-6 were gauged using an electronic interface probe accurate to within 0.01 feet. Depth to groundwater ranged from 11.91 feet below surface grade from the top of PVC well casing in monitoring well MW-6 to 12.91 feet below surface grade in MW-5. No NAPL was detected in any wells gauged. The results of groundwater gauging are summarized in **Appendix A**.

4.3 Groundwater Flow Direction

As previously documented, referring to the historic site plan dated March 30, 1990, groundwater contours indicated groundwater flow was in a southeasterly direction across the site. Groundwater gauging data obtained on August 1, 2005 was used to construct groundwater elevation contours. Based on the August 1, 2005 gauging data, the apparent groundwater flow direction is estimated to be southwesterly across the site. August 1, 2005 groundwater contours are depicted on **Figure 2, Site Layout w/ Groundwater Contours**.

4.4 Groundwater Sampling and Analysis

On August 1, 2005, groundwater samples were collected from existing monitoring wells MW-1, MW-4, MW-5, and MW-6. A groundwater sample was not available from monitoring well MW-3B. Prior to sampling, each well was purged of approximately three well volumes to ensure representative groundwater samples were obtained. Groundwater samples were collected using dedicated, disposable, polyethylene bailers. The groundwater samples were placed on ice and transported to Spectrum Analytical of Agawam, Massachusetts (Spectrum) under Chain of Custody protocol for VPH analysis via the DEP method, extractable petroleum hydrocarbons (EPH) via the MADEP EPH methodology, RCRA Metals, and volatile organic compounds (VOCs) via EPA Method 8260B.

4.4.1 Groundwater Analytical Results

Groundwater analytical results for samples collected on August 1, 2005, reported all concentrations VPH, EPH, VOCs and Metals below laboratory reporting limits (RLs) in all samples, except concentrations of Barium, Methyl tert-butyl ether (MTBE) and Naphthalene. Barium concentrations were reported above laboratory RLs in samples MW-4 and MW-6. MTBE concentrations were reported above laboratory RLs in sample MW-1. Naphthalene concentrations were reported above laboratory RLs in sample MW-6. All concentrations of VPH, EPH, VOCs and Metals were detected below applicable RCGW-2 Reportable Concentrations and applicable Method 1 GW-2 and GW-3 standards. Groundwater analytical results are summarized in **Tables 2, 3, 4 & 5**. A copy of the August 2005 laboratory analytical report is provided in **Appendix B**.

5.0 REMEDIATION WASTE MANAGEMENT

Petroleum contaminated soils generated as part of IRA activities conducted for RTN 1-15718 were characterized using laboratory analysis. On August 8, 2005 approximately of 5-cubic yards of petroleum-impacted soil was transported under a Massachusetts BOL to Ted Ondrick Company, LLC. (Ondrick) of Chicopee, Massachusetts for asphalt batch recycling. The BOL documentation will be forwarded to the DEP upon receipt from the recycling facility.

6.0 FEDERAL, STATE AND LOCAL PERMITS

A NPDES permit exclusion may be necessary to discharge treated groundwater necessary as part of the piping upgrades outlined in Section 3.2.

7.0 IRA STATUS REPORT

Pursuant to 310 CMR 40.0425(1), an IRA status report for RTN 1-15718 will be submitted to the MA DEP every 6-months until an Immediate Response Action Completion (IRAC) report is filed. IRA Status reports will document the following information pertaining to the site:

- Status of assessment and/or remediation activities;
- Any significant new site information or data;
- Details or plans for the management of remedial waste;
- Any other information required by the MA DEP; and,
- An LSP opinion whether the IRA is being conducted in conformance with the IRA Plan and any conditions of approval established by DEP.

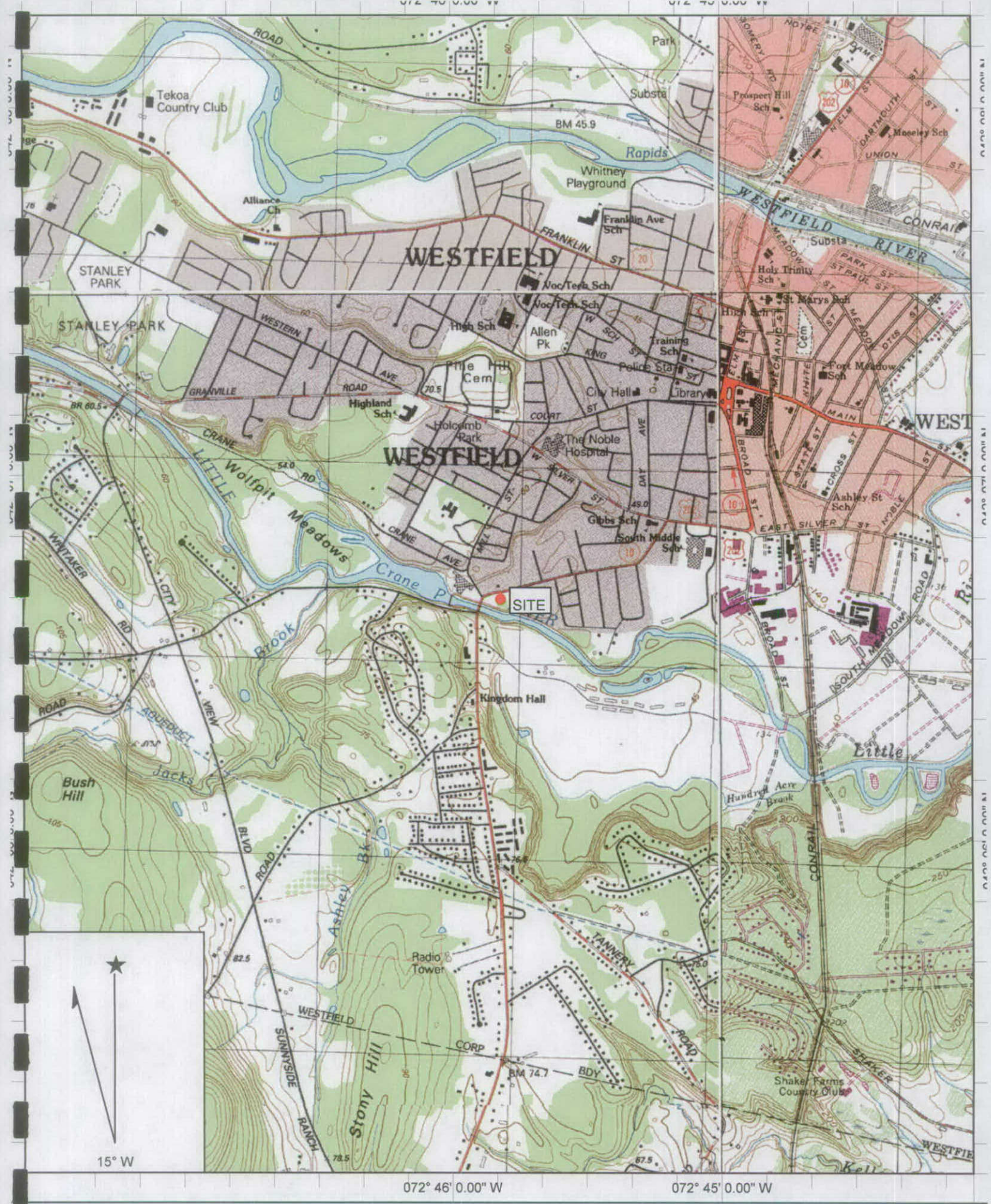
7.1 DEP Interim deadline Conditions

In accordance with the *Notice of Responsibility and Interim Deadline; Conditions for Assessment-only Immediate Response Actions* issued to Sunoco on April 19, 2005 for RTN 1-15718, the approved IRA assessment actions must be completed at the subject site within one year of the notification date (by April 15, 2006) for the release or threat of release. Pursuant to the DEP Interim Deadline, an IRA Completion Statement or Modified IRA Plan/IRA Status Report addressing proposed remedial IRA actions must be submitted to DEP no later than one year after the notification date, unless a Response Action Outcome Statement or Downgradient Property Status are submitted to DEP.

8.0 PUBLIC NOTIFICATION

Copies of the letters sent to the Westfield Chief Municipal Officer (CMO) and Public Health Department as official notification that this Immediate Response Action Plan is being filed with MA DEP is attached as **Appendix C**.

Figures



Name: SOUTHWICK
Date: 6/17/2005
Scale: 1 inch equals 2000 feet

Location: 042° 06' 40.0" N 072° 45' 49.7" W
Caption: Site Locus
Westfield Sunono
88-90 South Maple Street, Westfield, MA 01085

LITTLE

RIVER



CEA CORPORATE ENVIRONMENTAL
ADVISORS, INC.

Assessments - Remediation - Emergency Response
127 HARTWELL ST. W.BOYLSTON, MA.

SCALE: NOT TO SCALE
DATE: 8/5/05
APP. BY: SEV
DR. BY: K. HAZEL
JOB NO.: 5795-05

SITE LAYOUT W/GROUNDWATER CONTOURS

SUNOCO, INC.
88 SOUTH MAPLE ST. WESTFIELD, MA.
FIGURE-2

NOTE: 8/1/05 GAUGING DATA

WELL NO.	GW ELEV.
MW-1	86.31
MW-3B	85.82
MW-4	85.95
MW-5	86.61
MW-6	85.29

MA DEP - Bureau of Waste Site Cleanup

Site Scoring Map: 500 feet & 0.5 Mile Radii

SITE NAME:

Westfield Sunoco
88 South Maple Street
WESTFIELD, MA 01085
420640n 724548ew



Site Location

The information shown on this map is the best available at the date of printing. Please refer to the data source descriptions document.

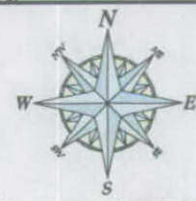


Massachusetts Executive Office of Environmental Affairs - 2005



Roads: Limited Access, Divided, Major Road, Connector, Street, Track, Trail
Boundaries: Town, County, DEP Region; Train; Powerline; Pipeline; Aqueduct
Basins: Major, Sub; Streams: Perennial, Intermittent, Man Made Shores, Dams
Potentially Productive Aquifers: Medium, High Yield
Non-Potential Drinking Water Source Area: Medium, High Yield

EPA Sole Source Aquifer; FEMA 100-year floodplain
Public Water Supplies: Ground, Surface, Non Community
Approved Zone2; IVPA; Surface Water Supply Zone A
Hydrography: Water Features, Public Surface Water Supply
Wetlands: Fresh, Salt, NHESP Wetlands Habitat
Protected Open Space; ACEC
DEP Permitted Solid Waste Facilities; Certified Vernal Pools



SCALE 1:15000

0 1/2 1 KILOMETERS

August 01, 2005

Tables

Table 1
Summary of Soil Analytical Data - VPH and Target Analytes
Sunoco Station
88-90 South Maple Street
Westfield, Massachusetts
RTN 1-15718

Sample ID	Sample Date	Sample Depth (feet)	Screening Result (ppmv)	C5-C8 Aliphatics (mg/kg)	C9-C12 Aliphatics (mg/kg)	C9-C10 Aromatics (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	Naphthalene (mg/kg)	MTBE (mg/kg)
M1RC Standards S-3 / GW-2		--	--	500	5,000	500	100	500	2,500	500	1,000	200
M1RC Standards S-3 / GW-3		--	--	500	5,000	500	200	2,500	500	2,500	1,000	200
Upper Concentration Limits		--	--	5,000	20,000	5,000	2,000	10,000	10,000	10,000	10,000	5,000
Sample 1 **	4/14/2005*	2'	2	4.9	<2.4	<2.4	<0.12	0.64	0.12	0.48	<0.12	3.79
Sample 2 **	4/14/2005*	2'	100	9.7	4.3	8.4	<0.11	0.90	0.30	1.63	<0.11	2.89
Sample 3 **	4/14/2005*	2'	140	3,410	1,300	1,040	28.6	545	124	421	19.9	205
Sample 4	4/14/2005*	2'	10	4.5	2.4	<2.1	<0.11	0.38	<0.11	0.39	<0.11	0.62
1 S-B-2'	4/27/2005	2'	104	9.63	<3.1	<3.1	<0.15	0.20	<0.15	0.17	0.17	7.35
2 S-B-2'	4/27/2005	2'	144	4,790	2,190	2,380	30.3	1,050	416	1,454	40.1	204
4 S-B-2'	4/27/2005	2'	53	8.2	<3.0	<3.0	<0.15	0.8	0.15	0.64	0.17	3.1
5 S-COMP-2'	4/27/2005	2'	235	4.75	<3.6	<3.6	<0.18	<0.18	<0.18	0.18	<0.18	0.21
Notes: Shaded values indicate concentrations above M1RC S-1 Standards. Bold values indicate concentrations above M1RC S-3 Standards. * All Soil Samples taken on 4-14-2005 were not analyzed for % solids ** Soil samples taken on 4-14-2005 were excavated on 4-27-2005												

Table 2
Summary of Groundwater Analytical Data - VPH and Target Analytes
Sunoco Station
88-90 South Maple Street
Westfield, Massachusetts
RTN 1-15718

Well ID	Sample Date	C5-C8 Aliphatics (ug/l)	C9-C12 Aliphatics (ug/l)	C9-C10 Aromatics (ug/l)	Benzene (ug/l)	Toluene (ug/l)	Ethylbenzene (ug/l)	Total Xylenes (ug/l)	Total BTEX (ug/l)	Naphthalene (ug/l)	MTBE (ug/l)
M1RC Standards GW-2		1,000	1,000	5,000	2,000	6,000	30,000	6,000	—	6,000	50,000
M1RC Standards GW-3		4,000	20,000	4,000	7,000	50,000	4,000	50,000	—	6,000	50,000
RCGW-2		1,000	1,000	4,000	2,000	6,000	4,000	6,000	—	6,000	50,000
MW-1	08/01/05	<75	<25	<25	<5.0	<5.0	<5.0	<15	0	5.0	<5.0
MW-4	08/01/05	<75	<25	<25	<5.0	<5.0	<5.0	<15	0	<5.0	<5.0
MW-5	08/01/05	<75	<25	<25	<5.0	<5.0	<5.0	<15	0	<5.0	<5.0
MW-6	08/01/05	<150	<50	<50	<10	<5.0	<5.0	<15	0	<5.0	1,570

Notes:

N/A = Not Applicable and/or Not Analyzed
ND = Not detected above laboratory method detection limits.
Bold = Concentration greater than RCGW-1 Standards
Shaded = Concentration greater than RCGW-2 Standards

Table 3
Summary of Groundwater Analytical Data - VOCs
Sunoco Station
88-90 South Maple Street
Westfield, Massachusetts
RTN 1-15718

Sample ID	MW-4	MW-6	Reportable GW-2	Method 1 Standards GW-2	Method 1 Standards 3 GW
Volatile Organic Compounds (ug/l)					
Acetone	<10.0	<50.0	5,000	50,000	50,000
Acrylonitrile	<1.0	<5.0	N/A	N/A	N/A
Benzene	<1.0	<5.0	2,000	2,000	7,000
Bromobenzene	<1.0	<5.0	N/A	N/A	N/A
Bromochloromethane	<1.0	<5.0	N/A	N/A	N/A
Bromodichloromethane	<1.0	<5.0	50,000	N/A	50,000
Bromoform	<1.0	<5.0	800	800	50,000
Bromomethane	<2.0	<10.0	2	2	50,000
2-Butanone (MEK)	<10.0	<50.0	N/A	N/A	N/A
n-Butylbenzene	<1.0	<5.0	N/A	N/A	N/A
sec-Butylbenzene	<1.0	<5.0	N/A	N/A	N/A
tert-Butylbenzene	<1.0	<5.0	N/A	N/A	N/A
Carbon Disulfide	<5.0	<25.0	N/A	N/A	N/A
Carbon Tetrachloride	<1.0	<5.0	20	20	50,000
Chlorobenzene	<1.0	<5.0	500	1,000	500
Chloroethane	<2.0	<10.0	N/A	N/A	N/A
Chloroform	<1.0	<5.0	400	400	10,000
Chloromethane	<2.0	<10.0	N/A	N/A	N/A
2-Chlorotoluene	<1.0	<5.0	N/A	N/A	N/A
4-Chlorotoluene	<1.0	<5.0	N/A	N/A	N/A
1,2-Dibromo-3-chloropropane	<2.0	<10.0	N/A	N/A	N/A
Dibromochloromethane	<1.0	<5.0	5,000	N/A	50,000
1,2-Dibromoethane (EDB)	<1.0	<5.0	20	3	50,000
1,2-Dichlorobenzene	<1.0	<5.0	8,000	10,000	8,000
1,3-Dichlorobenzene	<1.0	<5.0	8,000	10,000	8,000
1,4-Dichlorobenzene	<1.0	<5.0	8,000	30,000	8,000
Dichlorodifluoromethane	<2.0	<10.0	N/A	N/A	N/A
1,1-Dichloroethane	<1.0	<5.0	9,000	9,000	50,000
1,2-Dichloroethane	<1.0	<5.0	20	20	50,000
1,1-Dichloroethene	<1.0	<5.0	1	1	50,000
cis-1,2-Dichloroethene	<1.0	<5.0	30,000	30,000	50,000
trans-1,2-Dichloroethene	<1.0	<5.0	20,000	20,000	50,000
1,2-Dichloropropane	<1.0	<5.0	9	9	30,000
1,3-Dichloropropane	<1.0	<5.0	N/A	N/A	N/A
2,2-Dichloropropane	<1.0	<5.0	N/A	N/A	N/A
1,1-Dichloropropene	<1.0	<5.0	N/A	N/A	N/A
cis-1,3-Dichloropropene	<1.0	<5.0	9	5	2,000
trans-1,3-Dichloropropene	<1.0	<5.0	5	5	2,000
Ethylbenzene	<1.0	<5.0	4,000	30,000	4,000
Hexachlorobutadiene	<1.0	<5.0	40	1	90
2-Hexanone	<10.0	<50.0	N/A	N/A	N/A
Isopropylbenzene	<1.0	<5.0	N/A	N/A	N/A
4-Isopropyltoluene	<1.0	<5.0	N/A	N/A	N/A
MTBE	1,690	<5.0	50,000	50,000	50,000
4-Methyl-2-Pentanone (MIBK)	<10.0	<50.0	N/A	N/A	N/A
Methylene Chloride	<1.0	<50.0	50,000	50,000	50,000
Napthalene	<1.0	<5.0	6,000	6,000	6,000
n-Propylbenzene	<1.0	<5.0	N/A	N/A	N/A
Styrene	<1.0	<5.0	900	900	50,000
1,1,1,2-Tetrachloroethane	<1.0	<5.0	6	6	50,000
1,1,2,2-Tetrachloroethane	<1.0	<5.0	20	20	20,000
Tetrachloroethene	<1.0	<5.0	3,000	3,000	5,000
Toluene	<1.0	<5.0	6,000	6,000	50,000
1,2,3-Trichlorobenzene	<1.0	<5.0	N/A	N/A	N/A
1,2,4-Trichlorobenzene	<1.0	<5.0	500	10,000	500
1,1,1-Trichloroethane	<1.0	<5.0	4,000	4,000	50,000
1,1,2-Trichloroethane	<1.0	<5.0	20,000	20,000	50,000
Trichloroethene	<1.0	<5.0	300	300	20,000
Trichlorofluoromethane	<1.0	<5.0	N/A	N/A	N/A
1,2,3-Trichloropropane	<1.0	<5.0	N/A	N/A	N/A
1,2,4-Trimethylbenzene	<1.0	<5.0	N/A	N/A	N/A
1,3,5-Trimethylbenzene	<1.0	<5.0	N/A	N/A	N/A
Vinyl Chloride	<1.0	<5.0	2	2	40,000
Total Xylenes	<3.0	<15.0	6,000	6,000	50,000
Tetrahydrofuran	<10.0	<50.0	N/A	N/A	N/A
Ethyl ether	<1.0	<5.0	N/A	N/A	N/A
Tert-amyl methyl ether	<1.0	<5.0	N/A	N/A	N/A
Ethyl tert-butyl ether	<1.0	<5.0	N/A	N/A	N/A
Di-isopropyl ether	<1.0	<5.0	N/A	N/A	N/A
butyl alcohol	<10.0	<50.0	N/A	N/A	N/A
1,4-Dioxane	<20.0	<100	N/A	N/A	N/A

Notes:
 Bold values indicate concentrations above RC GW-1 Standards.
 Shaded values indicate concentrations above RC GW-2 Standards.
 NA = Not Available

Table 4

[illegible]

Notes:

Bold values indicate concentrations above M1RC GW-3 Standards.

Shaded values indicate concentrations above MCP Reportable Concentrations.

N/A Indicates not applicable

!- = Not analyzed

Table 5
Summary of Groundwater Analytical Results: Metals
Sunoco Station
88-90 South Maple Street
Westfield, Massachusetts
RTN 1-15718

Sample ID	Sample Date	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver
RCGW-2		400	30,000	10	2,000	30	1	80	7
GW-2		NA	NA	NA	NA	NA	NA	NA	NA
GW-3		400	30,000	10	2,000	30	1	80	7
MW-4 <i>(GW-2 & 3)</i>	8/1/2005	<4	134	<1.2	<2.5	<3.8	<0.2	<7.5	<5
MW-6 <i>(GW-2 & 3)</i>	8/1/2005	<4	109	<1.2	<2.5	<3.8	<0.2	<7.5	<5
Notes: RCGW-2 = MCP Reportable Concentrations Bold = Exceeds Method RCGW-2 <i>Italicized</i> = Exceeds Method 1 GW-3 Standards NSVD = Well casing elevation not surveyed NA = Not applicable									

APPENDIX A

Groundwater Gauging Data

Groundwater Gauging Data
Sunoco Station
88-90 South Maple Street
Westfield, Massachusetts
RTN 1-15718

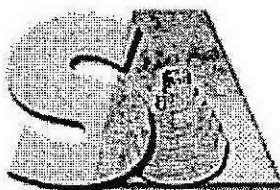
Well ID	Monitoring Date	Casing Elevation (feet)	Depth to Water (feet)	LPH Thickness (feet)	Groundwater Elevation (feet)
MW-3B	08/01/05	98.72	12.90	---	85.82
MW-4	08/01/05	98.46	12.51	---	85.95
MW-5	08/01/05	99.02	12.41	---	86.61
MW-6	08/01/05	97.20	11.91	---	85.29
Notes: Benchmark is white mark at southwest corner and is assigned an elevation of 100'. NM = Not Measured. DRY = No measureable amount of water in well.					

APPENDIX B

Groundwater Analytical Data

Report Date:
05-Aug-05 15:32

☒ Final Report



SPECTRUM ANALYTICAL, INC.

Featuring

HANIBAL TECHNOLOGY

Laboratory Report

CEA, Inc.
127 Hartwell Street
West Boylston, MA 01583
Attn: Scott Vandersea

Project: Sunoco Inc (M&M)-88 S. Maple St-Westfield
Project #: CEA#5795-05-02

<u>Laboratory ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Date Sampled</u>	<u>Date Received</u>
SA31813-01	MW-1	Ground Water	01-Aug-05 11:15	02-Aug-05 16:46
SA31813-02	MW-4	Ground Water	01-Aug-05 11:45	02-Aug-05 16:46
SA31813-03	MW-5	Ground Water	01-Aug-05 11:30	02-Aug-05 16:46
SA31813-04	MW-6	Ground Water	01-Aug-05 12:00	02-Aug-05 16:46

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 23 pages of analytical data including Chain of Custody document(s).

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



Authorized by:

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

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

CASE NARRATIVE:

The data set for work order SA31813 complies with internal QC criteria for the methods performed. The samples were received @ 4.0 degrees Celsius. An infrared thermometer with a tolerance of +/- 2.0 degrees Celsius was used immediately upon receipt of the samples.

MADEP has published a list of analytical methods (CAM) which provides a series of recommended protocols for the acquisition, analysis and reporting of analytical data in support of MCP decisions. "Presumptive Certainty" can be established only for those methods published by the MADEP in the MCP CAM. The compounds and/or elements reported were specifically requested by the client on the Chain of Custody and in some cases may not include the full analyte list as defined in the method.

According to WSC-CAM 5/2004 Rev.4, Table 11 A-1, recovery for some VOC analytes have been deemed potentially difficult. Although recovery may still be within the recommended 70%-130% range, the analytical range has been set based on historical control limits. Please refer to "Notes and Definitions" for all sample/analyte qualifiers. Qualifiers will note any exceedance levels and items specific to sample analysis/matrix.

Sample IdentificationMW-1
SA31813-01Client Project #
CEA#5795-05-02Matrix
Ground WaterCollection Date/Time
01-Aug-05 11:15Received
02-Aug-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	BRL	0.0750 mg/l	1	+MADEP 5/2004 Rev. 1.1	04-Aug-05	04-Aug-05	5080318	KS
C9-C12 Aliphatic Hydrocarbons	BRL	0.0250 mg/l	1	"	"	"	"	"
C9-C10 Aromatic Hydrocarbons	BRL	0.0250 mg/l	1	"	"	"	"	"
Unadjusted C5-C8 Aliphatic Hydrocarbons	BRL	0.0750 mg/l	1	"	"	"	"	"
Unadjusted C9-C12 Aliphatic Hydrocarbons	BRL	0.0250 mg/l	1	"	"	"	"	"

VPH Target Analytes

Prepared by method VPH

71-43-2	Benzene	BRL	5.0 µg/l	1	"	"	"	"
100-41-4	Ethylbenzene	BRL	5.0 µg/l	1	"	"	"	"
1634-04-4	Methyl tert-butyl ether	BRL	5.0 µg/l	1	"	"	"	"
91-20-3	Naphthalene	5.0	5.0 µg/l	1	"	"	"	"
108-88-3	Toluene	BRL	5.0 µg/l	1	"	"	"	"
1330-20-7	m,p-Xylene	BRL	10.0 µg/l	1	"	"	"	"
95-47-6	o-Xylene	BRL	5.0 µg/l	1	"	"	"	"

Surrogate recoveries:

615-59-8	2,5-Dibromotoluene (FID)	105	70-130 %	"	"	"	"	"
615-59-8	2,5-Dibromotoluene (PID)	98.4	70-130 %	"	"	"	"	"

Sample Identification
MW-4
SA31813-02

Client Project #
CEA#5795-05-02

Matrix
Ground Water

Collection Date/Time
01-Aug-05 11:45

Received
02-Aug-05

CAS No.	Analyte(s)	Result	*RDL/Units	Dilution	Method Ref.	Prepared	Analyzed	Batch	Analyst	Flag
Volatile Organic Compounds										
<u>Volatile Organic Compounds</u>										
			Prepared by method	Volatiles						
67-64-1	Acetone	BRL	10.0 µg/l	1	SW 846 8260B	03-Aug-05	03-Aug-05	5080209	tim	
107-13-1	Acrylonitrile	BRL	1.0 µg/l	1	"	"	"	"	"	
71-43-2	Benzene	BRL	1.0 µg/l	1	"	"	"	"	"	
108-86-1	Bromobenzene	BRL	1.0 µg/l	1	"	"	"	"	"	
74-97-5	Bromochloromethane	BRL	1.0 µg/l	1	"	"	"	"	"	
75-27-4	Bromodichloromethane	BRL	1.0 µg/l	1	"	"	"	"	"	
75-25-2	Bromoform	BRL	1.0 µg/l	1	"	"	"	"	"	
74-83-9	Bromomethane	BRL	2.0 µg/l	1	"	"	"	"	"	
78-93-3	2-Butanone (MEK)	BRL	10.0 µg/l	1	"	"	"	"	"	
104-51-8	n-Butylbenzene	BRL	1.0 µg/l	1	"	"	"	"	"	
135-98-8	sec-Butylbenzene	BRL	1.0 µg/l	1	"	"	"	"	"	
98-06-6	tert-Butylbenzene	BRL	1.0 µg/l	1	"	"	"	"	"	
75-15-0	Carbon disulfide	BRL	5.0 µg/l	1	"	"	"	"	"	
56-23-5	Carbon tetrachloride	BRL	1.0 µg/l	1	"	"	"	"	"	
108-90-7	Chlorobenzene	BRL	1.0 µg/l	1	"	"	"	"	"	
75-00-3	Chloroethane	BRL	2.0 µg/l	1	"	"	"	"	"	
67-66-3	Chloroform	BRL	1.0 µg/l	1	"	"	"	"	"	
74-87-3	Chloromethane	BRL	2.0 µg/l	1	"	"	"	"	"	
95-49-8	2-Chlorotoluene	BRL	1.0 µg/l	1	"	"	"	"	"	
106-43-4	4-Chlorotoluene	BRL	1.0 µg/l	1	"	"	"	"	"	
96-12-8	1,2-Dibromo-3-chloropropane	BRL	2.0 µg/l	1	"	"	"	"	"	
124-48-1	Dibromochloromethane	BRL	1.0 µg/l	1	"	"	"	"	"	
106-93-4	1,2-Dibromoethane (EDB)	BRL	1.0 µg/l	1	"	"	"	"	"	
74-95-3	Dibromomethane	BRL	1.0 µg/l	1	"	"	"	"	"	
95-50-1	1,2-Dichlorobenzene	BRL	1.0 µg/l	1	"	"	"	"	"	
541-73-1	1,3-Dichlorobenzene	BRL	1.0 µg/l	1	"	"	"	"	"	
106-46-7	1,4-Dichlorobenzene	BRL	1.0 µg/l	1	"	"	"	"	"	
75-71-8	Dichlorodifluoromethane (Freon12)	BRL	2.0 µg/l	1	"	"	"	"	"	
75-34-3	1,1-Dichloroethane	BRL	1.0 µg/l	1	"	"	"	"	"	
107-06-2	1,2-Dichloroethane	BRL	1.0 µg/l	1	"	"	"	"	"	
75-35-4	1,1-Dichloroethene	BRL	1.0 µg/l	1	"	"	"	"	"	
156-59-2	cis-1,2-Dichloroethene	BRL	1.0 µg/l	1	"	"	"	"	"	
156-60-5	trans-1,2-Dichloroethene	BRL	1.0 µg/l	1	"	"	"	"	"	
78-87-5	1,2-Dichloropropane	BRL	1.0 µg/l	1	"	"	"	"	"	
142-28-9	1,3-Dichloropropane	BRL	1.0 µg/l	1	"	"	"	"	"	
594-20-7	2,2-Dichloropropane	BRL	1.0 µg/l	1	"	"	"	"	"	
563-58-6	1,1-Dichloropropene	BRL	1.0 µg/l	1	"	"	"	"	"	
10061-01-5	cis-1,3-Dichloropropene	BRL	1.0 µg/l	1	"	"	"	"	"	
10061-02-6	trans-1,3-Dichloropropene	BRL	1.0 µg/l	1	"	"	"	"	"	
100-41-4	Ethylbenzene	BRL	1.0 µg/l	1	"	"	"	"	"	
87-68-3	Hexachlorobutadiene	BRL	1.0 µg/l	1	"	"	"	"	"	
591-78-6	2-Hexanone (MBK)	BRL	10.0 µg/l	1	"	"	"	"	"	
98-82-8	Isopropylbenzene	BRL	1.0 µg/l	1	"	"	"	"	"	
99-87-6	4-Isopropyltoluene	BRL	1.0 µg/l	1	"	"	"	"	"	
1634-04-4	Methyl tert-butyl ether	BRL	1.0 µg/l	1	"	"	"	"	"	

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* Reportable Detection Limit

BRL = Below Reporting Limit

Page 3 of 23

Sample Identification
MW-4
SA31813-02

Client Project #
CEA#5795-05-02

Matrix
Ground Water

Collection Date/Time
01-Aug-05 11:45

Received
02-Aug-05

CAS No.	Analyte(s)	Result	*RDL/Units	Dilution	Method Ref.	Prepared	Analyzed	Batch	Analyst	Flag
Volatile Organic Compounds										
<u>Volatile Organic Compounds</u>			Prepared by method	Volatiles						
108-10-1	4-Methyl-2-pentanone (MIBK)	BRL	10.0 µg/l	1	SW 846 8260B	03-Aug-05	03-Aug-05	5080209	tim	
75-09-2	Methylene chloride	BRL	10.0 µg/l	1	"	"	"	"	"	
91-20-3	Naphthalene	BRL	1.0 µg/l	1	"	"	"	"	"	
103-65-1	n-Propylbenzene	BRL	1.0 µg/l	1	"	"	"	"	"	
100-42-5	Styrene	BRL	1.0 µg/l	1	"	"	"	"	"	
630-20-6	1,1,1,2-Tetrachloroethane	BRL	1.0 µg/l	1	"	"	"	"	"	
79-34-5	1,1,2,2-Tetrachloroethane	BRL	1.0 µg/l	1	"	"	"	"	"	
127-18-4	Tetrachloroethene	BRL	1.0 µg/l	1	"	"	"	"	"	
108-88-3	Toluene	BRL	1.0 µg/l	1	"	"	"	"	"	
87-61-6	1,2,3-Trichlorobenzene	BRL	1.0 µg/l	1	"	"	"	"	"	
120-82-1	1,2,4-Trichlorobenzene	BRL	1.0 µg/l	1	"	"	"	"	"	
71-55-6	1,1,1-Trichloroethane	BRL	1.0 µg/l	1	"	"	"	"	"	
79-00-5	1,1,2-Trichloroethane	BRL	1.0 µg/l	1	"	"	"	"	"	
79-01-6	Trichloroethene	BRL	1.0 µg/l	1	"	"	"	"	"	
75-69-4	Trichlorofluoromethane (Freon 11)	BRL	1.0 µg/l	1	"	"	"	"	"	
96-18-4	1,2,3-Trichloropropane	BRL	1.0 µg/l	1	"	"	"	"	"	
95-63-6	1,2,4-Trimethylbenzene	BRL	1.0 µg/l	1	"	"	"	"	"	
108-67-8	1,3,5-Trimethylbenzene	BRL	1.0 µg/l	1	"	"	"	"	"	
75-01-4	Vinyl chloride	BRL	1.0 µg/l	1	"	"	"	"	"	
1330-20-7	m,p-Xylene	BRL	2.0 µg/l	1	"	"	"	"	"	
95-47-6	o-Xylene	BRL	1.0 µg/l	1	"	"	"	"	"	
109-99-9	Tetrahydrofuran	BRL	10.0 µg/l	1	"	"	"	"	"	
60-29-7	Ethyl ether	BRL	1.0 µg/l	1	"	"	"	"	"	
994-05-8	Tert-amyl methyl ether	BRL	1.0 µg/l	1	"	"	"	"	"	
637-92-3	Ethyl tert-butyl ether	BRL	1.0 µg/l	1	"	"	"	"	"	
108-20-3	Di-isopropyl ether	BRL	1.0 µg/l	1	"	"	"	"	"	
75-65-0	Tert-Butanol / butyl alcohol	BRL	10.0 µg/l	1	"	"	"	"	"	
123-91-1	1,4-Dioxane	BRL	20.0 µg/l	1	"	"	"	"	"	
<u>Surrogate recoveries:</u>										
460-00-4	4-Bromofluorobenzene	98.0	70-130 %		"	"	"	"	"	
2037-26-5	Toluene-d8	96.6	70-130 %		"	"	"	"	"	
17060-07-0	1,2-Dichloroethane-d4	108	70-130 %		"	"	"	"	"	
1868-53-7	Dibromofluoromethane	102	70-130 %		"	"	"	"	"	
<u>VPH Aliphatic/Aromatic Carbon Ranges</u>			Prepared by method	VPH						
C5-C8 Aliphatic Hydrocarbons	BRL	0.0750 mg/l	5		+MADEP 5/2004 Rev. 1.1	04-Aug-05	04-Aug-05	5080318	KS	
C9-C12 Aliphatic Hydrocarbons	BRL	0.0250 mg/l	5		"	"	"	"	"	
C9-C10 Aromatic Hydrocarbons	BRL	0.0250 mg/l	5		"	"	"	"	"	
Unadjusted C5-C8 Aliphatic Hydrocarbons	BRL	0.0750 mg/l	5		"	"	"	"	"	
Unadjusted C9-C12 Aliphatic Hydrocarbons	BRL	0.0250 mg/l	5		"	"	"	"	"	
<u>VPH Target Analytes</u>			Prepared by method	VPH						
71-43-2	Benzene	BRL	5.0 µg/l	5	"	"	"	"	"	

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* Reportable Detection Limit

BRL = Below Reporting Limit

Sample Identification

MW-4

SA31813-02

Client Project #

CEA#5795-05-02

Matrix

Ground Water

Collection Date/Time

01-Aug-05 11:45

Received

02-Aug-05

CAS No.	Analyte(s)	Result	*RDL/Units	Dilution	Method Ref.	Prepared	Analyzed	Batch	Analyst	Flag
Volatile Organic Compounds										
<u>VPH Target Analytes</u>			Prepared by method		VPH					
100-41-4	Ethylbenzene	BRL	5.0 µg/l	5	+MADEP 5/2004 Rev. 1.1	04-Aug-05	04-Aug-05	5080318	KS	
1634-04-4	Methyl tert-butyl ether	BRL	5.0 µg/l	5	"	"	"	"	"	
91-20-3	Naphthalene	BRL	5.0 µg/l	5	"	"	"	"	"	
108-88-3	Toluene	BRL	5.0 µg/l	5	"	"	"	"	"	
1330-20-7	m,p-Xylene	BRL	10.0 µg/l	5	"	"	"	"	"	
95-47-6	o-Xylene	BRL	5.0 µg/l	5	"	"	"	"	"	
Surrogate recoveries:										
615-59-8	2,5-Dibromotoluene (FID)	93.6	70-130 %		"	"	"	"	"	
615-59-8	2,5-Dibromotoluene (PID)	87.2	70-130 %		"	"	"	"	"	
Soluble Metals by EPA 6000/7000 Series Methods										
7440-22-4	Silver	BRL	0.0050 mg/l	1	SW846 6010B	03-Aug-05	04-Aug-05	5080281	RE	
7440-38-2	Arsenic	BRL	0.0040 mg/l	1	"	"	"	"	"	
7440-39-3	Barium	0.134	0.0025 mg/l	1	"	"	"	"	"	
7440-43-9	Cadmium	BRL	0.0012 mg/l	1	"	"	"	"	"	
7440-47-3	Chromium	BRL	0.0025 mg/l	1	"	"	"	"	"	
7439-92-1	Lead	BRL	0.0038 mg/l	1	"	"	"	"	"	
7782-49-2	Selenium	BRL	0.0075 mg/l	1	"	"	"	"	"	
Soluble Metals by EPA 200 Series Methods										
	Filtration	Lab Filtered	N/A	1	EPA	03-Aug-05	03-Aug-05	5080244	YP	
					200.7/3005A					
7439-97-6	Mercury	BRL	0.00020 mg/l	1	EPA	04-Aug-05	04-Aug-05	5080282	"	
					245.2/7470A					

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* Reportable Detection Limit

BRL = Below Reporting Limit

Page 5 of 23

Sample Identification
MW-5
SA31813-03

Client Project #
CEA#5795-05-02

Matrix
Ground Water

Collection Date/Time
01-Aug-05 11:30

Received
02-Aug-05

CAS No.	Analyte(s)	Result	*RDL/Units	Dilution	Method Ref.	Prepared	Analyzed	Batch	Analyst	Flag
Volatile Organic Compounds										
<u>VPH Aliphatic/Aromatic Carbon Ranges</u>			Prepared by method		VPH					
	C5-C8 Aliphatic Hydrocarbons	BRL	0.0750 mg/l	1	+MADEP 5/2004 Rev. 1.1	04-Aug-05	04-Aug-05	5080318	KS	
	C9-C12 Aliphatic Hydrocarbons	BRL	0.0250 mg/l	1	"	"	"	"	"	
	C9-C10 Aromatic Hydrocarbons	BRL	0.0250 mg/l	1	"	"	"	"	"	
	Unadjusted C5-C8 Aliphatic Hydrocarbons	BRL	0.0750 mg/l	1	"	"	"	"	"	
	Unadjusted C9-C12 Aliphatic Hydrocarbons	BRL	0.0250 mg/l	1	"	"	"	"	"	
<u>VPH Target Analytes</u>			Prepared by method		VPH					
71-43-2	Benzene	BRL	5.0 µg/l	1	"	"	"	"	"	
100-41-4	Ethylbenzene	BRL	5.0 µg/l	1	"	"	"	"	"	
1634-04-4	Methyl tert-butyl ether	BRL	5.0 µg/l	1	"	"	"	"	"	
91-20-3	Naphthalene	BRL	5.0 µg/l	1	"	"	"	"	"	
108-88-3	Toluene	BRL	5.0 µg/l	1	"	"	"	"	"	
1330-20-7	m,p-Xylene	BRL	10.0 µg/l	1	"	"	"	"	"	
95-47-6	o-Xylene	BRL	5.0 µg/l	1	"	"	"	"	"	
<u>Surrogate recoveries:</u>										
615-59-8	2,5-Dibromotoluene (FID)	89.6	70-130 %		"	"	"	"	"	
615-59-8	2,5-Dibromotoluene (PID)	82.4	70-130 %		"	"	"	"	"	

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* Reportable Detection Limit

BRL = Below Reporting Limit

Page 6 of 23

Sample Identification
MW-6
SA31813-04

Client Project #
CEA#5795-05-02

Matrix
Ground Water

Collection Date/Time
01-Aug-05 12:00

Received
02-Aug-05

CAS No.	Analyte(s)	Result	*RDL/Units	Dilution	Method Ref.	Prepared	Analyzed	Batch	Analyst	Flag
Volatile Organic Compounds										
<u>Volatile Organic Compounds</u>			Prepared by method	Volatiles						
67-64-1	Acetone	BRL	50.0 µg/l	5	SW 846 8260B	03-Aug-05	03-Aug-05	5080209	tim	
107-13-1	Acrylonitrile	BRL	5.0 µg/l	5	"	"	"	"	"	
71-43-2	Benzene	BRL	5.0 µg/l	5	"	"	"	"	"	
108-86-1	Bromobenzene	BRL	5.0 µg/l	5	"	"	"	"	"	
74-97-5	Bromochloromethane	BRL	5.0 µg/l	5	"	"	"	"	"	
75-27-4	Bromodichloromethane	BRL	5.0 µg/l	5	"	"	"	"	"	
75-25-2	Bromoform	BRL	5.0 µg/l	5	"	"	"	"	"	
74-83-9	Bromomethane	BRL	10.0 µg/l	5	"	"	"	"	"	
78-93-3	2-Butanone (MEK)	BRL	50.0 µg/l	5	"	"	"	"	"	
104-51-8	n-Butylbenzene	BRL	5.0 µg/l	5	"	"	"	"	"	
135-98-8	sec-Butylbenzene	BRL	5.0 µg/l	5	"	"	"	"	"	
98-06-6	tert-Butylbenzene	BRL	5.0 µg/l	5	"	"	"	"	"	
75-15-0	Carbon disulfide	BRL	25.0 µg/l	5	"	"	"	"	"	
56-23-5	Carbon tetrachloride	BRL	5.0 µg/l	5	"	"	"	"	"	
108-90-7	Chlorobenzene	BRL	5.0 µg/l	5	"	"	"	"	"	
75-00-3	Chloroethane	BRL	10.0 µg/l	5	"	"	"	"	"	
67-66-3	Chloroform	BRL	5.0 µg/l	5	"	"	"	"	"	
74-87-3	Chloromethane	BRL	10.0 µg/l	5	"	"	"	"	"	
95-49-8	2-Chlorotoluene	BRL	5.0 µg/l	5	"	"	"	"	"	
106-43-4	4-Chlorotoluene	BRL	5.0 µg/l	5	"	"	"	"	"	
96-12-8	1,2-Dibromo-3-chloropropane	BRL	10.0 µg/l	5	"	"	"	"	"	
124-48-1	Dibromochloromethane	BRL	5.0 µg/l	5	"	"	"	"	"	
106-93-4	1,2-Dibromoethane (EDB)	BRL	5.0 µg/l	5	"	"	"	"	"	
74-95-3	Dibromomethane	BRL	5.0 µg/l	5	"	"	"	"	"	
95-50-1	1,2-Dichlorobenzene	BRL	5.0 µg/l	5	"	"	"	"	"	
541-73-1	1,3-Dichlorobenzene	BRL	5.0 µg/l	5	"	"	"	"	"	
106-46-7	1,4-Dichlorobenzene	BRL	5.0 µg/l	5	"	"	"	"	"	
75-71-8	Dichlorodifluoromethane (Freon12)	BRL	10.0 µg/l	5	"	"	"	"	"	
75-34-3	1,1-Dichloroethane	BRL	5.0 µg/l	5	"	"	"	"	"	
107-06-2	1,2-Dichloroethane	BRL	5.0 µg/l	5	"	"	"	"	"	
75-35-4	1,1-Dichloroethene	BRL	5.0 µg/l	5	"	"	"	"	"	
156-59-2	cis-1,2-Dichloroethene	BRL	5.0 µg/l	5	"	"	"	"	"	
156-60-5	trans-1,2-Dichloroethene	BRL	5.0 µg/l	5	"	"	"	"	"	
78-87-5	1,2-Dichloropropane	BRL	5.0 µg/l	5	"	"	"	"	"	
142-28-9	1,3-Dichloropropane	BRL	5.0 µg/l	5	"	"	"	"	"	
594-20-7	2,2-Dichloropropane	BRL	5.0 µg/l	5	"	"	"	"	"	
563-58-6	1,1-Dichloropropene	BRL	5.0 µg/l	5	"	"	"	"	"	
10061-01-5	cis-1,3-Dichloropropene	BRL	5.0 µg/l	5	"	"	"	"	"	
10061-02-6	trans-1,3-Dichloropropene	BRL	5.0 µg/l	5	"	"	"	"	"	
100-41-4	Ethylbenzene	BRL	5.0 µg/l	5	"	"	"	"	"	
87-68-3	Hexachlorobutadiene	BRL	5.0 µg/l	5	"	"	"	"	"	
591-78-6	2-Hexanone (MBK)	BRL	50.0 µg/l	5	"	"	"	"	"	
98-82-8	Isopropylbenzene	BRL	5.0 µg/l	5	"	"	"	"	"	
99-87-6	4-Isopropyltoluene	BRL	5.0 µg/l	5	"	"	"	"	"	
1634-04-4	Methyl tert-butyl ether	1,690	5.0 µg/l	5	"	"	"	"	"	

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* Reportable Detection Limit

BRL = Below Reporting Limit

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Sample IdentificationMW-6
SA31813-04Client Project #
CEA#5795-05-02Matrix
Ground WaterCollection Date/Time
01-Aug-05 12:00Received
02-Aug-05

CAS No.	Analyte(s)	Result	*RDL/Units	Dilution	Method Ref.	Prepared	Analyzed	Batch	Analyst	Flag
Volatile Organic Compounds										
<u>Volatile Organic Compounds</u>			Prepared by method	Volatiles						
108-10-1	4-Methyl-2-pentanone (MIBK)	BRL	50.0 µg/l	5	SW 846 8260B	03-Aug-05	03-Aug-05	5080209	tim	
75-09-2	Methylene chloride	BRL	50.0 µg/l	5	"	"	"	"	"	
91-20-3	Naphthalene	BRL	5.0 µg/l	5	"	"	"	"	"	
103-65-1	n-Propylbenzene	BRL	5.0 µg/l	5	"	"	"	"	"	
100-42-5	Styrene	BRL	5.0 µg/l	5	"	"	"	"	"	
630-20-6	1,1,1,2-Tetrachloroethane	BRL	5.0 µg/l	5	"	"	"	"	"	
79-34-5	1,1,2,2-Tetrachloroethane	BRL	5.0 µg/l	5	"	"	"	"	"	
127-18-4	Tetrachloroethene	BRL	5.0 µg/l	5	"	"	"	"	"	
108-88-3	Toluene	BRL	5.0 µg/l	5	"	"	"	"	"	
87-61-6	1,2,3-Trichlorobenzene	BRL	5.0 µg/l	5	"	"	"	"	"	
120-82-1	1,2,4-Trichlorobenzene	BRL	5.0 µg/l	5	"	"	"	"	"	
71-55-6	1,1,1-Trichloroethane	BRL	5.0 µg/l	5	"	"	"	"	"	
79-00-5	1,1,2-Trichloroethane	BRL	5.0 µg/l	5	"	"	"	"	"	
79-01-6	Trichloroethene	BRL	5.0 µg/l	5	"	"	"	"	"	
75-69-4	Trichlorofluoromethane (Freon 11)	BRL	5.0 µg/l	5	"	"	"	"	"	
96-18-4	1,2,3-Trichloropropane	BRL	5.0 µg/l	5	"	"	"	"	"	
95-63-6	1,2,4-Trimethylbenzene	BRL	5.0 µg/l	5	"	"	"	"	"	
108-67-8	1,3,5-Trimethylbenzene	BRL	5.0 µg/l	5	"	"	"	"	"	
75-01-4	Vinyl chloride	BRL	5.0 µg/l	5	"	"	"	"	"	
1330-20-7	m,p-Xylene	BRL	10.0 µg/l	5	"	"	"	"	"	
95-47-6	o-Xylene	BRL	5.0 µg/l	5	"	"	"	"	"	
109-99-9	Tetrahydrofuran	BRL	50.0 µg/l	5	"	"	"	"	"	
60-29-7	Ethyl ether	BRL	5.0 µg/l	5	"	"	"	"	"	
994-05-8	Tert-amyl methyl ether	BRL	5.0 µg/l	5	"	"	"	"	"	
637-92-3	Ethyl tert-butyl ether	BRL	5.0 µg/l	5	"	"	"	"	"	
108-20-3	Di-isopropyl ether	BRL	5.0 µg/l	5	"	"	"	"	"	
75-65-0	Tert-Butanol / butyl alcohol	BRL	50.0 µg/l	5	"	"	"	"	"	
123-91-1	1,4-Dioxane	BRL	100 µg/l	5	"	"	"	"	"	
<u>Surrogate recoveries:</u>										
460-00-4	4-Bromofluorobenzene	98.2	70-130 %		"	"	"	"	"	
2037-26-5	Toluene-d8	98.8	70-130 %		"	"	"	"	"	
17060-07-0	1,2-Dichloroethane-d4	102	70-130 %		"	"	"	"	"	
1868-53-7	Dibromofluoromethane	95.8	70-130 %		"	"	"	"	"	
<u>VPH Aliphatic/Aromatic Carbon Ranges</u>			Prepared by method	VPH						
C5-C8 Aliphatic Hydrocarbons	BRL	0.150 mg/l	10	+MADEP 5/2004 Rev. 1.1	04-Aug-05	04-Aug-05	5080318	KS		
C9-C12 Aliphatic Hydrocarbons	BRL	0.0500 mg/l	10	"	"	"	"	"		
C9-C10 Aromatic Hydrocarbons	BRL	0.0500 mg/l	10	"	"	"	"	"		
Unadjusted C5-C8 Aliphatic Hydrocarbons	1.11	0.150 mg/l	10	"	"	"	"	"		
Unadjusted C9-C12 Aliphatic Hydrocarbons	BRL	0.0500 mg/l	10	"	"	"	"	"		
<u>VPH Target Analytes</u>			Prepared by method	VPH						
71-43-2	Benzene	BRL	10.0 µg/l	10	"	"	"	"	"	

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* Reportable Detection Limit

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Sample IdentificationMW-6
SA31813-04Client Project #
CEA#5795-05-02Matrix
Ground WaterCollection Date/Time
01-Aug-05 12:00Received
02-Aug-05

CAS No.	Analyte(s)	Result	*RDL/Units	Dilution	Method Ref.	Prepared	Analyzed	Batch	Analyst	Flag
Volatile Organic Compounds										
<u>VPH Target Analytes</u>										
				Prepared by method		VPH				
100-41-4	Ethylbenzene	BRL	10.0 µg/l	10	+MADEP 5/2004 Rev. 1.1	04-Aug-05	04-Aug-05	5080318	KS	
1634-04-4	Methyl tert-butyl ether	1,570	10.0 µg/l	10	"	"	"	"	"	
91-20-3	Naphthalene	BRL	10.0 µg/l	10	"	"	"	"	"	
108-88-3	Toluene	BRL	10.0 µg/l	10	"	"	"	"	"	
1330-20-7	m,p-Xylene	BRL	20.0 µg/l	10	"	"	"	"	"	
95-47-6	o-Xylene	BRL	10.0 µg/l	10	"	"	"	"	"	
<u>Surrogate recoveries:</u>										
615-59-8	2,5-Dibromotoluene (FID)	100	70-130 %		"	"	"	"	"	
615-59-8	2,5-Dibromotoluene (PID)	94.6	70-130 %		"	"	"	"	"	
Soluble Metals by EPA 6000/7000 Series Methods										
7440-22-4	Silver	BRL	0.0050 mg/l	1	SW846 6010B	03-Aug-05	04-Aug-05	5080281	RE	
7440-38-2	Arsenic	BRL	0.0040 mg/l	1	"	"	"	"	"	
7440-39-3	Barium	0.109	0.0025 mg/l	1	"	"	"	"	"	
7440-43-9	Cadmium	BRL	0.0012 mg/l	1	"	"	"	"	"	
7440-47-3	Chromium	BRL	0.0025 mg/l	1	"	"	"	"	"	
7439-92-1	Lead	BRL	0.0038 mg/l	1	"	"	"	"	"	
7782-49-2	Selenium	BRL	0.0075 mg/l	1	"	"	"	"	"	
Soluble Metals by EPA 200 Series Methods										
	Filtration	Lab Filtered	N/A	1	EPA 200.7/3005A	03-Aug-05	03-Aug-05	5080244	YP	
7439-97-6	Mercury	BRL	0.00020 mg/l	1	EPA 245.2/7470A	04-Aug-05	04-Aug-05	5080282	"	

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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 5080209 - Volatiles									
Blank (5080209-BLK1)			Prepared & Analyzed: 03-Aug-05						
Acetone	BRL	10.0 µg/l							
Acrylonitrile	BRL	1.0 µg/l							
Benzene	BRL	1.0 µg/l							
Bromobenzene	BRL	1.0 µg/l							
Bromochloromethane	BRL	1.0 µg/l							
Bromodichloromethane	BRL	1.0 µg/l							
Bromoform	BRL	1.0 µg/l							
Bromomethane	BRL	2.0 µg/l							
2-Butanone (MEK)	BRL	10.0 µg/l							
n-Butylbenzene	BRL	1.0 µg/l							
sec-Butylbenzene	BRL	1.0 µg/l							
tert-Butylbenzene	BRL	1.0 µg/l							
Carbon disulfide	BRL	5.0 µg/l							
Carbon tetrachloride	BRL	1.0 µg/l							
Chlorobenzene	BRL	1.0 µg/l							
Chloroethane	BRL	2.0 µg/l							
Chloroform	BRL	1.0 µg/l							
Chloromethane	BRL	2.0 µg/l							
2-Chlorotoluene	BRL	1.0 µg/l							
4-Chlorotoluene	BRL	1.0 µg/l							
1,2-Dibromo-3-chloropropane	BRL	2.0 µg/l							
Dibromochloromethane	BRL	1.0 µg/l							
1,2-Dibromoethane (EDB)	BRL	1.0 µg/l							
Dibromomethane	BRL	1.0 µg/l							
1,2-Dichlorobenzene	BRL	1.0 µg/l							
1,3-Dichlorobenzene	BRL	1.0 µg/l							
1,4-Dichlorobenzene	BRL	1.0 µg/l							
Dichlorodifluoromethane (Freon12)	BRL	2.0 µg/l							
1,1-Dichloroethane	BRL	1.0 µg/l							
1,2-Dichloroethane	BRL	1.0 µg/l							
1,1-Dichloroethene	BRL	1.0 µg/l							
cis-1,2-Dichloroethene	BRL	1.0 µg/l							
trans-1,2-Dichloroethene	BRL	1.0 µg/l							
1,2-Dichloropropane	BRL	1.0 µg/l							
1,3-Dichloropropane	BRL	1.0 µg/l							
2,2-Dichloropropane	BRL	1.0 µg/l							
1,1-Dichloropropene	BRL	1.0 µg/l							
cis-1,3-Dichloropropene	BRL	1.0 µg/l							
trans-1,3-Dichloropropene	BRL	1.0 µg/l							
Ethylbenzene	BRL	1.0 µg/l							
Hexachlorobutadiene	BRL	1.0 µg/l							
2-Hexanone (MBK)	BRL	10.0 µg/l							
Isopropylbenzene	BRL	1.0 µg/l							
4-Isopropyltoluene	BRL	1.0 µg/l							
Methyl tert-butyl ether	BRL	1.0 µg/l							
4-Methyl-2-pentanone (MIBK)	BRL	10.0 µg/l							
Methylene chloride	BRL	10.0 µg/l							
Naphthalene	BRL	1.0 µg/l							
n-Propylbenzene	BRL	1.0 µg/l							
Styrene	BRL	1.0 µg/l							
1,1,1,2-Tetrachloroethane	BRL	1.0 µg/l							
1,1,2,2-Tetrachloroethane	BRL	1.0 µg/l							
Tetrachloroethene	BRL	1.0 µg/l							
Toluene	BRL	1.0 µg/l							

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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 5080209 - Volatiles									
Blank (5080209-BLK1)			Prepared & Analyzed: 03-Aug-05						
1,2,3-Trichlorobenzene	BRL	1.0 µg/l							
1,2,4-Trichlorobenzene	BRL	1.0 µg/l							
1,1,1-Trichloroethane	BRL	1.0 µg/l							
1,1,2-Trichloroethane	BRL	1.0 µg/l							
Trichloroethene	BRL	1.0 µg/l							
Trichlorofluoromethane (Freon 11)	BRL	1.0 µg/l							
1,2,3-Trichloropropane	BRL	1.0 µg/l							
1,2,4-Trimethylbenzene	BRL	1.0 µg/l							
1,3,5-Trimethylbenzene	BRL	1.0 µg/l							
Vinyl chloride	BRL	1.0 µg/l							
m,p-Xylene	BRL	2.0 µg/l							
o-Xylene	BRL	1.0 µg/l							
Tetrahydrofuran	BRL	10.0 µg/l							
Ethyl ether	BRL	1.0 µg/l							
Tert-amyl methyl ether	BRL	1.0 µg/l							
Ethyl tert-butyl ether	BRL	1.0 µg/l							
Di-isopropyl ether	BRL	1.0 µg/l							
Tert-Butanol / butyl alcohol	BRL	10.0 µg/l							
1,4-Dioxane	BRL	20.0 µg/l							
Surrogate: 4-Bromofluorobenzene	49.3	µg/l	50.0		98.6	70-130			
Surrogate: Toluene-d8	48.7	µg/l	50.0		97.4	70-130			
Surrogate: 1,2-Dichloroethane-d4	48.2	µg/l	50.0		96.4	70-130			
Surrogate: Dibromofluoromethane	46.5	µg/l	50.0		93.0	70-130			
LCS (5080209-BS1)			Prepared & Analyzed: 03-Aug-05						
Acetone	13.5	µg/l	20.0		67.5	25-189			
Acrylonitrile	17.7	µg/l	20.0		88.5	70-130			
Benzene	19.1	µg/l	20.0		95.5	70-130			
Bromobenzene	19.8	µg/l	20.0		99.0	70-130			
Bromochloromethane	19.7	µg/l	20.0		98.5	70-130			
Bromodichloromethane	19.8	µg/l	20.0		99.0	70-130			
Bromoform	17.6	µg/l	20.0		88.0	70-130			
Bromomethane	23.0	µg/l	20.0		115	60.9-149			
2-Butanone (MEK)	13.2	µg/l	20.0		66.0	24.9-149			
n-Butylbenzene	19.4	µg/l	20.0		97.0	70-130			
sec-Butylbenzene	19.6	µg/l	20.0		98.0	70-130			
tert-Butylbenzene	19.8	µg/l	20.0		99.0	70-130			
Carbon disulfide	18.7	µg/l	20.0		93.5	70-130			
Carbon tetrachloride	18.2	µg/l	20.0		91.0	70-130			
Chlorobenzene	19.4	µg/l	20.0		97.0	70-130			
Chloroethane	21.4	µg/l	20.0		107	70-135			
Chloroform	19.0	µg/l	20.0		95.0	70-130			
Chloromethane	24.2	µg/l	20.0		121	70-130			
2-Chlorotoluene	19.6	µg/l	20.0		98.0	70-130			
4-Chlorotoluene	19.0	µg/l	20.0		95.0	70-130			
1,2-Dibromo-3-chloropropane	17.4	µg/l	20.0		87.0	70-130			
Dibromochloromethane	19.8	µg/l	20.0		99.0	66.3-145			
1,2-Dibromoethane (EDB)	19.0	µg/l	20.0		95.0	70-130			
Dibromomethane	19.2	µg/l	20.0		96.0	70-130			
1,2-Dichlorobenzene	20.2	µg/l	20.0		101	70-130			
1,3-Dichlorobenzene	21.0	µg/l	20.0		105	70-130			
1,4-Dichlorobenzene	20.4	µg/l	20.0		102	70-130			
Dichlorodifluoromethane (Freon12)	26.3	µg/l	20.0		132	61.3-157			
1,1-Dichloroethane	19.3	µg/l	20.0		96.5	70-130			
1,2-Dichloroethane	19.3	µg/l	20.0		96.5	70-130			

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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 5080209 - Volatiles									
LCS (5080209-BS1)			Prepared & Analyzed: 03-Aug-05						
1,1-Dichloroethene	19.6	µg/l	20.0		98.0	70-130			
cis-1,2-Dichloroethene	19.2	µg/l	20.0		96.0	70-130			
trans-1,2-Dichloroethene	18.9	µg/l	20.0		94.5	70-130			
1,2-Dichloropropane	19.7	µg/l	20.0		98.5	70-130			
1,3-Dichloropropane	19.6	µg/l	20.0		98.0	70-130			
2,2-Dichloropropane	23.8	µg/l	20.0		119	70-130			
1,1-Dichloropropene	20.1	µg/l	20.0		100	70-130			
cis-1,3-Dichloropropene	20.6	µg/l	20.0		103	70-130			
trans-1,3-Dichloropropene	20.3	µg/l	20.0		102	70-130			
Ethylbenzene	19.2	µg/l	20.0		96.0	70-130			
Hexachlorobutadiene	21.6	µg/l	20.0		108	70-141			
2-Hexanone (MBK)	23.3	µg/l	20.0		116	70-130			
Isopropylbenzene	18.2	µg/l	20.0		91.0	70-130			
4-Isopropyltoluene	20.5	µg/l	20.0		102	70-130			
Methyl tert-butyl ether	19.2	µg/l	20.0		96.0	70-130			
4-Methyl-2-pentanone (MIBK)	15.6	µg/l	20.0		78.0	54.2-133			
Methylene chloride	20.8	µg/l	20.0		104	70-130			
Naphthalene	19.7	µg/l	20.0		98.5	70-130			
n-Propylbenzene	19.1	µg/l	20.0		95.5	70-130			
Styrene	18.8	µg/l	20.0		94.0	70-130			
1,1,1,2-Tetrachloroethane	19.5	µg/l	20.0		97.5	70-130			
1,1,2,2-Tetrachloroethane	19.1	µg/l	20.0		95.5	70-130			
Tetrachloroethene	20.6	µg/l	20.0		103	70-130			
Toluene	19.2	µg/l	20.0		96.0	70-130			
1,2,3-Trichlorobenzene	20.0	µg/l	20.0		100	70-130			
1,2,4-Trichlorobenzene	19.9	µg/l	20.0		99.5	70-130			
1,1,1-Trichloroethane	19.0	µg/l	20.0		95.0	70-130			
1,1,2-Trichloroethane	20.4	µg/l	20.0		102	70-130			
Trichloroethene	18.6	µg/l	20.0		93.0	70-130			
Trichlorofluoromethane (Freon 11)	19.9	µg/l	20.0		99.5	69-143			
1,2,3-Trichloropropane	17.9	µg/l	20.0		89.5	70-130			
1,2,4-Trimethylbenzene	19.0	µg/l	20.0		95.0	70-130			
1,3,5-Trimethylbenzene	18.8	µg/l	20.0		94.0	70-130			
Vinyl chloride	20.8	µg/l	20.0		104	70-130			
m,p-Xylene	39.2	µg/l	40.0		98.0	70-130			
o-Xylene	19.4	µg/l	20.0		97.0	70-130			
Tetrahydrofuran	20.5	µg/l	20.0		102	70-130			
Ethyl ether	20.2	µg/l	20.0		101	70-132			
Tert-amyl methyl ether	22.9	µg/l	20.0		114	70-130			
Ethyl tert-butyl ether	19.1	µg/l	20.0		95.5	70-130			
Di-isopropyl ether	18.2	µg/l	20.0		91.0	70-130			
Tert-Butanol / butyl alcohol	190	µg/l	200		95.0	70-130			
1,4-Dioxane	247	µg/l	200		124	38.4-132			
Surrogate: 4-Bromofluorobenzene	48.8	µg/l	50.0		97.6	70-130			
Surrogate: Toluene-d8	48.8	µg/l	50.0		97.6	70-130			
Surrogate: 1,2-Dichloroethane-d4	50.6	µg/l	50.0		101	70-130			
Surrogate: Dibromofluoromethane	48.8	µg/l	50.0		97.6	70-130			
LCS Dup (5080209-BSD1)			Prepared & Analyzed: 03-Aug-05						
Acetone	28.2	µg/l	20.0		141	25-189	70.5	50	QC-2
Acrylonitrile	18.7	µg/l	20.0		93.5	70-130	5.49	25	
Benzene	19.6	µg/l	20.0		98.0	70-130	2.58	25	
Bromobenzene	20.7	µg/l	20.0		104	70-130	4.93	25	
Bromochloromethane	20.2	µg/l	20.0		101	70-130	2.51	25	
Bromodichloromethane	20.4	µg/l	20.0		102	70-130	2.99	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 5080209 - Volatiles									
LCS Dup (5080209-BSD1)			Prepared & Analyzed: 03-Aug-05						
Bromoform	18.6	µg/l	20.0		93.0	70-130	5.52	25	
Bromomethane	22.7	µg/l	20.0		114	60.9-149	0.873	50	
2-Butanone (MEK)	27.2	µg/l	20.0		136	24.9-149	69.3	50	QC-2
n-Butylbenzene	20.1	µg/l	20.0		100	70-130	3.05	25	
sec-Butylbenzene	20.2	µg/l	20.0		101	70-130	3.02	25	
tert-Butylbenzene	20.6	µg/l	20.0		103	70-130	3.96	25	
Carbon disulfide	18.6	µg/l	20.0		93.0	70-130	0.536	25	
Carbon tetrachloride	18.5	µg/l	20.0		92.5	70-130	1.63	25	
Chlorobenzene	19.8	µg/l	20.0		99.0	70-130	2.04	25	
Chloroethane	21.7	µg/l	20.0		108	70-135	0.930	50	
Chloroform	19.6	µg/l	20.0		98.0	70-130	3.11	25	
Chloromethane	24.9	µg/l	20.0		124	70-130	2.45	25	
2-Chlorotoluene	19.8	µg/l	20.0		99.0	70-130	1.02	25	
4-Chlorotoluene	20.0	µg/l	20.0		100	70-130	5.13	25	
1,2-Dibromo-3-chloropropane	17.2	µg/l	20.0		86.0	70-130	1.16	25	
Dibromochloromethane	20.4	µg/l	20.0		102	66.3-145	2.99	50	
1,2-Dibromoethane (EDB)	19.6	µg/l	20.0		98.0	70-130	3.11	25	
Dibromomethane	19.5	µg/l	20.0		97.5	70-130	1.55	25	
1,2-Dichlorobenzene	20.4	µg/l	20.0		102	70-130	0.985	25	
1,3-Dichlorobenzene	22.0	µg/l	20.0		110	70-130	4.65	25	
1,4-Dichlorobenzene	20.8	µg/l	20.0		104	70-130	1.94	25	
Dichlorodifluoromethane (Freon 12)	26.9	µg/l	20.0		134	61.3-157	1.50	50	
1,1-Dichloroethane	19.6	µg/l	20.0		98.0	70-130	1.54	25	
1,2-Dichloroethane	19.6	µg/l	20.0		98.0	70-130	1.54	25	
1,1-Dichloroethene	20.0	µg/l	20.0		100	70-130	2.02	25	
cis-1,2-Dichloroethene	19.6	µg/l	20.0		98.0	70-130	2.06	25	
trans-1,2-Dichloroethene	19.2	µg/l	20.0		96.0	70-130	1.57	25	
1,2-Dichloropropane	20.1	µg/l	20.0		100	70-130	1.51	25	
1,3-Dichloropropane	20.4	µg/l	20.0		102	70-130	4.00	25	
2,2-Dichloropropane	23.4	µg/l	20.0		117	70-130	1.69	25	
1,1-Dichloropropene	20.4	µg/l	20.0		102	70-130	1.98	25	
cis-1,3-Dichloropropene	20.7	µg/l	20.0		104	70-130	0.966	25	
trans-1,3-Dichloropropene	21.3	µg/l	20.0		106	70-130	3.85	25	
Ethylbenzene	19.6	µg/l	20.0		98.0	70-130	2.06	25	
Hexachlorobutadiene	22.4	µg/l	20.0		112	70-141	3.64	50	
2-Hexanone (MBK)	30.5	µg/l	20.0		152	70-130	26.9	25	QC-2
Isopropylbenzene	18.8	µg/l	20.0		94.0	70-130	3.24	25	
4-Isopropyltoluene	20.9	µg/l	20.0		104	70-130	1.94	25	
Methyl tert-butyl ether	20.0	µg/l	20.0		100	70-130	4.08	25	
4-Methyl-2-pentanone (MIBK)	17.5	µg/l	20.0		87.5	54.2-133	11.5	50	
Methylene chloride	21.1	µg/l	20.0		106	70-130	1.90	25	
Naphthalene	19.8	µg/l	20.0		99.0	70-130	0.506	25	
n-Propylbenzene	20.2	µg/l	20.0		101	70-130	5.60	25	
Styrene	19.7	µg/l	20.0		98.5	70-130	4.68	25	
1,1,1,2-Tetrachloroethane	20.2	µg/l	20.0		101	70-130	3.53	25	
1,1,2,2-Tetrachloroethane	19.9	µg/l	20.0		99.5	70-130	4.10	25	
Tetrachloroethene	21.1	µg/l	20.0		106	70-130	2.87	25	
Toluene	20.6	µg/l	20.0		103	70-130	7.04	25	
1,2,3-Trichlorobenzene	20.6	µg/l	20.0		103	70-130	2.96	25	
1,2,4-Trichlorobenzene	20.5	µg/l	20.0		102	70-130	2.48	25	
1,1,1-Trichloroethane	19.0	µg/l	20.0		95.0	70-130	0.00	25	
1,1,2-Trichloroethane	21.3	µg/l	20.0		106	70-130	3.85	25	
Trichloroethene	19.4	µg/l	20.0		97.0	70-130	4.21	25	
Trichlorofluoromethane (Freon 11)	20.2	µg/l	20.0		101	69-143	1.50	50	

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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 5080209 - Volatiles									
LCS Dup (5080209-BSD1)			Prepared & Analyzed: 03-Aug-05						
1,2,3-Trichloropropane	18.8	µg/l	20.0		94.0	70-130	4.90	25	
1,2,4-Trimethylbenzene	19.8	µg/l	20.0		99.0	70-130	4.12	25	
1,3,5-Trimethylbenzene	19.8	µg/l	20.0		99.0	70-130	5.18	25	
Vinyl chloride	21.8	µg/l	20.0		109	70-130	4.69	25	
m,p-Xylene	41.0	µg/l	40.0		102	70-130	4.00	25	
o-Xylene	20.0	µg/l	20.0		100	70-130	3.05	25	
Tetrahydrofuran	21.4	µg/l	20.0		107	70-130	4.78	25	
Ethyl ether	21.1	µg/l	20.0		106	70-132	4.83	50	
Tert-amyl methyl ether	24.0	µg/l	20.0		120	70-130	5.13	25	
Ethyl tert-butyl ether	19.4	µg/l	20.0		97.0	70-130	1.56	25	
Di-isopropyl ether	19.1	µg/l	20.0		95.5	70-130	4.83	25	
Tert-Butanol / butyl alcohol	185	µg/l	200		92.5	70-130	2.67	25	
1,4-Dioxane	228	µg/l	200		114	38.4-132	8.40	25	
Surrogate: 4-Bromofluorobenzene	48.8	µg/l	50.0		97.6	70-130			
Surrogate: Toluene-d8	49.4	µg/l	50.0		98.8	70-130			
Surrogate: 1,2-Dichloroethane-d4	50.8	µg/l	50.0		102	70-130			
Surrogate: Dibromofluoromethane	48.4	µg/l	50.0		96.8	70-130			
Matrix Spike (5080209-MS1)			Source: SA31690-04RE1	Prepared & Analyzed: 03-Aug-05					
Benzene	19.2	µg/l	20.0	BRL	96.0	70-130			
Chlorobenzene	19.9	µg/l	20.0	BRL	99.5	70-130			
1,1-Dichloroethene	18.4	µg/l	20.0	BRL	92.0	70-130			
Toluene	19.8	µg/l	20.0	BRL	99.0	70-130			
Trichloroethene	20.3	µg/l	20.0	2.30	90.0	70-130			
Surrogate: 4-Bromofluorobenzene	48.5	µg/l	50.0		97.0	70-130			
Surrogate: Toluene-d8	49.6	µg/l	50.0		99.2	70-130			
Surrogate: 1,2-Dichloroethane-d4	51.3	µg/l	50.0		103	70-130			
Surrogate: Dibromofluoromethane	49.0	µg/l	50.0		98.0	70-130			
Matrix Spike Dup (5080209-MSD1)			Source: SA31690-04RE1	Prepared & Analyzed: 03-Aug-05					
Benzene	19.8	µg/l	20.0	BRL	99.0	70-130	3.08	30	
Chlorobenzene	20.2	µg/l	20.0	BRL	101	70-130	1.50	30	
1,1-Dichloroethene	20.9	µg/l	20.0	BRL	104	70-130	12.2	30	
Toluene	23.3	µg/l	20.0	BRL	116	70-130	15.8	30	
Trichloroethene	20.2	µg/l	20.0	2.30	89.5	70-130	0.557	30	
Surrogate: 4-Bromofluorobenzene	48.8	µg/l	50.0		97.6	70-130			
Surrogate: Toluene-d8	49.0	µg/l	50.0		98.0	70-130			
Surrogate: 1,2-Dichloroethane-d4	54.3	µg/l	50.0		109	70-130			
Surrogate: Dibromofluoromethane	51.8	µg/l	50.0		104	70-130			
Batch 5080318 - VPH									
Blank (5080318-BLK1)			Prepared & Analyzed: 04-Aug-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							

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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 5080318 - VPH									
Blank (5080318-BLK1)			Prepared & Analyzed: 04-Aug-05						
Surrogate: 2,5-Dibromotoluene (FID)	51.5	µg/l	50.0		103	70-130			
Surrogate: 2,5-Dibromotoluene (PID)	47.8	µg/l	50.0		95.6	70-130			
LCS (5080318-BS1)			Prepared & Analyzed: 04-Aug-05						
C5-C8 Aliphatic Hydrocarbons	122	mg/l	140		87.1	70-130			
C9-C12 Aliphatic Hydrocarbons	63.0	mg/l	55.0		115	70-130			
C9-C10 Aromatic Hydrocarbons	33.2	mg/l	40.0		83.0	70-130			
Unadjusted C5-C8 Aliphatic Hydrocarbons	246	mg/l	280		87.9	70-130			
Unadjusted C9-C12 Aliphatic Hydrocarbons	96.2	mg/l	85.0		113	70-130			
Benzene	16.8	µg/l	20.0		84.0	70-130			
Ethylbenzene	17.7	µg/l	20.0		88.5	70-130			
Methyl tert-butyl ether	19.4	µg/l	20.0		97.0	70-130			
Naphthalene	24.4	µg/l	20.0		122	70-130			
Toluene	17.6	µg/l	20.0		88.0	70-130			
m,p-Xylene	35.1	µg/l	40.0		87.8	70-130			
o-Xylene	17.7	µg/l	20.0		88.5	70-130			
2-Methylpentane	21.3	µg/l	20.0		106	70-130			
n-Nonane	19.3	µg/l	20.0		96.5	70-130			
n-Pentane	25.4	µg/l	20.0		127	70-130			
1,2,4-Trimethylbenzene	18.3	µg/l	20.0		91.5	70-130			
2,2,4-Trimethylpentane	20.3	µg/l	20.0		102	70-130			
n-Butylcyclohexane	24.5	µg/l	20.0		122	70-130			
n-Decane	25.3	µg/l	20.0		126	70-130			
Surrogate: 2,5-Dibromotoluene (FID)	54.8	µg/l	50.0		110	70-130			
Surrogate: 2,5-Dibromotoluene (PID)	51.4	µg/l	50.0		103	70-130			
LCS Dup (5080318-BSD1)			Prepared & Analyzed: 04-Aug-05						
C5-C8 Aliphatic Hydrocarbons	118	mg/l	140		84.3	70-130	3.27	25	
C9-C12 Aliphatic Hydrocarbons	51.0	mg/l	55.0		92.7	70-130	21.5	25	
C9-C10 Aromatic Hydrocarbons	31.0	mg/l	40.0		77.5	70-130	6.85	25	
Unadjusted C5-C8 Aliphatic Hydrocarbons	229	mg/l	280		81.8	70-130	7.19	25	
Unadjusted C9-C12 Aliphatic Hydrocarbons	82.0	mg/l	85.0		96.5	70-130	15.8	25	
Benzene	15.5	µg/l	20.0		77.5	70-130	8.05	25	
Ethylbenzene	15.5	µg/l	20.0		77.5	70-130	13.3	25	
Methyl tert-butyl ether	19.5	µg/l	20.0		97.5	70-130	0.514	25	
Naphthalene	19.9	µg/l	20.0		99.5	70-130	20.3	25	
Toluene	15.4	µg/l	20.0		77.0	70-130	13.3	25	
m,p-Xylene	29.9	µg/l	40.0		74.8	70-130	16.0	25	
o-Xylene	15.1	µg/l	20.0		75.5	70-130	15.9	25	
2-Methylpentane	20.1	µg/l	20.0		100	70-130	5.83	25	
n-Nonane	17.2	µg/l	20.0		86.0	70-130	11.5	25	
n-Pentane	24.0	µg/l	20.0		120	70-130	5.67	25	
1,2,4-Trimethylbenzene	15.4	µg/l	20.0		77.0	70-130	17.2	25	
2,2,4-Trimethylpentane	18.8	µg/l	20.0		94.0	70-130	8.16	25	
n-Butylcyclohexane	21.0	µg/l	20.0		105	70-130	15.0	25	
n-Decane	18.6	µg/l	20.0		93.0	70-130	30.1	25	QR-02
Surrogate: 2,5-Dibromotoluene (FID)	48.0	µg/l	50.0		96.0	70-130			
Surrogate: 2,5-Dibromotoluene (PID)	43.4	µg/l	50.0		86.8	70-130			
Duplicate (5080318-DUP1)			Source: SA31813-01 Prepared & Analyzed: 04-Aug-05						
C5-C8 Aliphatic Hydrocarbons	BRL	0.0750 mg/l		0.00952			6.90	50	
C9-C12 Aliphatic Hydrocarbons	BRL	0.0250 mg/l		0.00357			0.837	50	

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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 5080318 - VPH									
Duplicate (5080318-DUP1)	Source: SA31813-01		Prepared & Analyzed: 04-Aug-05						
C9-C10 Aromatic Hydrocarbons	BRL	0.0250 mg/l		0.00190			0.528	50	
Unadjusted C5-C8 Aliphatic Hydrocarbons	BRL	0.0750 mg/l		0.0103			0.976	50	
Unadjusted C9-C12 Aliphatic Hydrocarbons	BRL	0.0250 mg/l		0.00546			0.730	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		5.0			27.3	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)	54.2	µg/l	50.0		108	70-130			
Surrogate: 2,5-Dibromotoluene (PID)	50.2	µg/l	50.0		100	70-130			
Matrix Spike (5080318-MS1)	Source: SA31813-01		Prepared & Analyzed: 04-Aug-05						
Benzene	16.6	µg/l	20.0	BRL	83.0	70-130			
Ethylbenzene	17.2	µg/l	20.0	BRL	86.0	70-130			
Methyl tert-butyl ether	21.1	µg/l	20.0	BRL	106	70-130			
Naphthalene	17.0	µg/l	20.0	5.00	60.0	70-130			QM-07
Toluene	17.2	µg/l	20.0	BRL	86.0	70-130			
m,p-Xylene	33.3	µg/l	40.0	BRL	83.2	70-130			
o-Xylene	17.0	µg/l	20.0	BRL	85.0	70-130			
2-Methylpentane	20.0	µg/l	20.0	BRL	100	70-130			
n-Nonane	15.9	µg/l	20.0	BRL	79.5	70-130			
n-Pentane	23.9	µg/l	20.0	BRL	120	70-130			
1,2,4-Trimethylbenzene	16.7	µg/l	20.0	BRL	83.5	70-130			
2,2,4-Trimethylpentane	18.6	µg/l	20.0	BRL	93.0	70-130			
n-Butylcyclohexane	19.9	µg/l	20.0	1.10	94.0	70-130			
n-Decane	23.0	µg/l	20.0	0.0	115	70-130			
Surrogate: 2,5-Dibromotoluene (FID)	49.8	µg/l	50.0		99.6	70-130			
Surrogate: 2,5-Dibromotoluene (PID)	45.8	µg/l	50.0		91.6	70-130			

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* Reportable Detection Limit BRL = Below Reporting Limit

Soluble Metals by EPA 6000/7000 Series Methods - Quality Control

Analyte(s)	Result	*RDL Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 5080281 - SW846 3005A									
Blank (5080281-BLK1)			Prepared & Analyzed: 04-Aug-05						
Lead	BRL	0.0038 mg/l							
Selenium	BRL	0.0075 mg/l							
Cadmium	BRL	0.0012 mg/l							
Barium	BRL	0.0025 mg/l							
Chromium	BRL	0.0025 mg/l							
Arsenic	BRL	0.0040 mg/l							
Silver	BRL	0.0050 mg/l							
LCS (5080281-BS1)			Prepared & Analyzed: 04-Aug-05						
Lead	0.0906	0.0038 mg/l	0.100		90.6	85-115			
Selenium	0.0964	0.0075 mg/l	0.100		96.4	85-115			
Arsenic	0.0873	0.0040 mg/l	0.100		87.3	85-115			
Silver	0.0434	0.0050 mg/l	0.0500		86.8	85-115			
Barium	0.0908	0.0025 mg/l	0.100		90.8	85-115			
Chromium	0.0882	0.0025 mg/l	0.100		88.2	85-115			
Cadmium	0.0947	0.0012 mg/l	0.100		94.7	85-115			
LCS Dup (5080281-BSD1)			Prepared & Analyzed: 04-Aug-05						
Selenium	0.110	0.0075 mg/l	0.100		110	85-115	13.2	20	
Lead	0.102	0.0038 mg/l	0.100		102	85-115	11.8	20	
Silver	0.0490	0.0050 mg/l	0.0500		98.0	85-115	12.1	20	
Chromium	0.0994	0.0025 mg/l	0.100		99.4	85-115	11.9	20	
Cadmium	0.107	0.0012 mg/l	0.100		107	85-115	12.2	20	
Barium	0.102	0.0025 mg/l	0.100		102	85-115	11.6	20	
Arsenic	0.0998	0.0040 mg/l	0.100		99.8	85-115	13.4	20	
Duplicate (5080281-DUP1)			Source: SA31813-02	Prepared & Analyzed: 04-Aug-05					
Lead	BRL	0.0038 mg/l		BRL				20	
Selenium	BRL	0.0075 mg/l		BRL				20	
Barium	0.148	0.0025 mg/l		0.134			9.93	20	
Cadmium	BRL	0.0012 mg/l		BRL				20	
Arsenic	BRL	0.0040 mg/l		BRL				20	
Silver	BRL	0.0050 mg/l		BRL				20	
Chromium	BRL	0.0025 mg/l		BRL				20	
Matrix Spike (5080281-MS1)			Source: SA31813-04	Prepared & Analyzed: 04-Aug-05					
Lead	0.0878	0.0038 mg/l	0.100	BRL	87.8	75-125			
Selenium	0.0985	0.0075 mg/l	0.100	BRL	98.5	75-125			
Silver	0.0446	0.0050 mg/l	0.0500	BRL	89.2	75-125			
Arsenic	0.100	0.0040 mg/l	0.100	BRL	100	75-125			
Barium	0.202	0.0025 mg/l	0.100	0.109	93.0	75-125			
Cadmium	0.0964	0.0012 mg/l	0.100	BRL	96.4	75-125			
Chromium	0.0910	0.0025 mg/l	0.100	BRL	91.0	75-125			
Matrix Spike Dup (5080281-MSD1)			Source: SA31813-04	Prepared & Analyzed: 04-Aug-05					
Selenium	0.102	0.0075 mg/l	0.100	BRL	102	75-125	3.49	20	
Lead	0.0906	0.0038 mg/l	0.100	BRL	90.6	75-125	3.14	20	
Cadmium	0.0969	0.0012 mg/l	0.100	BRL	96.9	75-125	0.517	20	
Silver	0.0452	0.0050 mg/l	0.0500	BRL	90.4	75-125	1.34	20	
Barium	0.205	0.0025 mg/l	0.100	0.109	96.0	75-125	1.47	20	
Chromium	0.0914	0.0025 mg/l	0.100	BRL	91.4	75-125	0.439	20	
Arsenic	0.0979	0.0040 mg/l	0.100	BRL	97.9	75-125	2.12	20	

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* Reportable Detection Limit BRL = Below Reporting Limit

Soluble Metals by EPA 200 Series Methods - Quality Control

Analyte(s)	Result	*RDL Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 5080244 - General Prep-Metal									
Blank (5080244-BLK1)				Prepared & Analyzed: 03-Aug-05					
Filtration	0.00	N/A							
Batch 5080282 - EPA200/SW7000 Series									
Blank (5080282-BLK1)				Prepared & Analyzed: 04-Aug-05					
Mercury	BRL	0.00020 mg/l							
LCS (5080282-BS1)				Prepared & Analyzed: 04-Aug-05					
Mercury	0.00228	0.00020 mg/l	0.00250		91.2	75-125			
Duplicate (5080282-DUP1)				Prepared & Analyzed: 04-Aug-05					
Mercury	BRL	0.00020 mg/l		0.00009			20.0	20	
Matrix Spike (5080282-MS1)				Prepared & Analyzed: 04-Aug-05					
Mercury	0.00236	0.00020 mg/l	0.00250	0.00010	90.4	75-125			
Matrix Spike Dup (5080282-MSD1)				Prepared & Analyzed: 04-Aug-05					
Mercury	0.00245	0.00020 mg/l	0.00250	0.00010	94.0	75-125	3.74	20	

Notes and Definitions

LF	Lab Filtered
QC-2	Analyte out of acceptance range in QC spike but no reportable concentration present in sample.
QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
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.
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

Validated by:
Hanibal C. Tayeh, Ph.D.
June O'Connor
Nicole Brown

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

* 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

Matrix	☐ Aqueous	☐ Soil	☐ Sediment	☐ Other
Containers	☐ Satisfactory	☐ Broken	☐ Leaking	
Aqueous Preservative	☐ N/A	☐ pH $\leq$ 2	☐ pH>2	☐ pH adjusted to $\leq$ 2 in lab
Temperature	☐ Received on ice	☐ Received at 4 ± 2 °C	☐ Other:	°C

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

OR 

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

MADEP MCP ANALYTICAL METHOD REPORT CERTIFICATION FORM

MADEP RTN ¹:

This form provides certifications for the following Spectrum Analytical, Inc. work order #: SA31813

Matrix	☐ Groundwater	☐ Soil/Sediment	☐ Drinking Water	☐ Other
MCP SW-846 Methods Used	☐ 8260B	☐ 8151A	☐ 8330	☐ 6010B
	☐ 8270C	☐ 8081A	☐ VPH	☐ 6020
	☐ 8082	☐ 8021B	☐ EPH	☐ 7000S ³

¹ List Release Tracking Number (RTN), if known

² M - SW-846 Method 9014 or MADEP Physiologically Available Cyanide (PAC) Method

³ S - SW-846 Methods 7000 Series List individual method and analyte

An affirmative response to questions A, B, C and D is required for "Presumptive Certainty" status

A	Were all samples received by the laboratory in a condition consistent with that described on the Chain of Custody documentation for the data set?	☐ Yes ☐ No
B	Were all QA/QC procedures required for the specified analytical method(s) included in this report followed, including the requirement to note and discuss in a narrative QC data that did not meet appropriate performance standards or guidelines?	☐ Yes ☐ No
C	Does the data included in this report meet all the analytical requirements for "Presumptive Certainty", as described in Section 2.0 (a), (b), (c) and (d) of the MADEP document CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"?	☐ Yes ☐ No
D	<u>VPH and EPH methods only</u> : Was the VPH or EPH method conducted without significant modifications (see Section 11.3 of respective methods)?	☐ Yes ☐ No

A response to questions E and F below is required for "Presumptive Certainty" status

E	Were all analytical QC performance standards and recommendations for the specified methods achieved?	☐ Yes ☐ No
F	Were results for all analyte-list compounds/elements for the specified method(s) reported?	☐ Yes ☐ No

All negative responses are addressed in a case narrative on the cover page of this report.

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



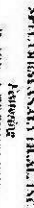
Hanibal C. Tayeh, Ph.D.
President/Laboratory Director

Date: 8/5/2005

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* Reportable Detection Limit

BRL = Below Reporting Limit



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Sf 31813 ^{2nd} 4-4-67

otherwise instructed.

1. 1.5 Shire Part

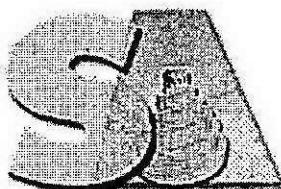
Condition upon receipt: ☐ Recd ☐ Admin ☒ C

Y

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Report Date:
04-Aug-05 15:31

☒ Final Report



SPECTRUM ANALYTICAL, INC.
Featuring
HANTBAL TECHNOLOGY

Laboratory Report

CEA, Inc.
127 Hartwell Street
West Boylston, MA 01583
Attn: Scott Vandersea

Project: Sunoco Inc (M&M)-88 S. Maple St-Westfield
Project #: CEA#5795-05-02

<u>Laboratory ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Date Sampled</u>	<u>Date Received</u>
SA31815-01	MW-4	Ground Water	01-Aug-05 11:45	02-Aug-05 16:43
SA31815-02	MW-6	Ground Water	01-Aug-05 12:00	02-Aug-05 16:43

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 11 pages of analytical data including Chain of Custody document(s).

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



Authorized by:

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

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

CASE NARRATIVE:

The data set for work order SA31844 complies with internal QC criteria for the methods performed. The samples were received @ 4.0 degrees Celsius. An infrared thermometer with a tolerance of +/- 2.0 degrees Celsius was used immediately upon receipt of the samples.

MADEP has published a list of analytical methods (CAM) which provides a series of recommended protocols for the acquisition, analysis and reporting of analytical data in support of MCP decisions. "Presumptive Certainty" can be established only for those methods published by the MADEP in the MCP CAM. The compounds and/or elements reported were specifically requested by the client on the Chain of Custody and in some cases may not include the full analyte list as defined in the method.

According to WSC-CAM 5/2004 Rev.4, Table 11 A-1, recovery for some VOC analytes have been deemed potentially difficult. Although recovery may still be within the recommended 70%-130% range, the analytical range has been set based on historical control limits. Please refer to "Notes and Definitions" for all sample/analyte qualifiers. Qualifiers will note any exceedance levels and items specific to sample analysis/matrix.

Sample Identification

MW-4

SA31815-01

Client Project #

CEA#5795-05-02

Matrix

Ground Water

Collection Date/Time

01-Aug-05 11:45

Received

02-Aug-05

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

Prepared by method SW846 3510C

C9-C18 Aliphatic Hydrocarbons	BRL	0.2 mg/l	1	+MADEP 5/2004 R	03-Aug-05	03-Aug-05	5080189	JD
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	BRL	0.2 mg/l	1	"	"	"	"	"
Unadjusted Total Petroleum Hydrocarbons	BRL	0.2 mg/l	1	"	"	"	"	"

EPH Target PAH Analytes

Prepared by method SW846 3510C

91-20-3	Naphthalene	BRL	5.10 µg/l	1	"	"	"	"
91-57-6	2-Methylnaphthalene	BRL	5.10 µg/l	1	"	"	"	"
208-96-8	Acenaphthylene	BRL	5.10 µg/l	1	"	"	"	"
83-32-9	Acenaphthene	BRL	5.10 µg/l	1	"	"	"	"
86-73-7	Fluorene	BRL	5.10 µg/l	1	"	"	"	"
85-01-8	Phenanthrene	BRL	5.10 µg/l	1	"	"	"	"
120-12-7	Anthracene	BRL	5.10 µg/l	1	"	"	"	"
206-44-0	Fluoranthene	BRL	5.10 µg/l	1	"	"	"	"
129-00-0	Pyrene	BRL	5.10 µg/l	1	"	"	"	"
56-55-3	Benzo (a) anthracene	BRL	5.10 µg/l	1	"	"	"	"
218-01-9	Chrysene	BRL	5.10 µg/l	1	"	"	"	"
205-99-2	Benzo (b) fluoranthene	BRL	5.10 µg/l	1	"	"	"	"
207-08-9	Benzo (k) fluoranthene	BRL	5.10 µg/l	1	"	"	"	"
50-32-8	Benzo (a) pyrene	BRL	5.10 µg/l	1	"	"	"	"
193-39-5	Indeno (1,2,3-cd) pyrene	BRL	5.10 µg/l	1	"	"	"	"
53-70-3	Dibenzo (a,h) anthracene	BRL	5.10 µg/l	1	"	"	"	"
191-24-2	Benzo (g,h,i) perylene	BRL	5.10 µg/l	1	"	"	"	"

Surrogate recoveries:

3386-33-2	1-Chlorooctadecane	47.5	40-140 %	"	"	"	"	"
84-15-1	Ortho-Terphenyl	49.2	40-140 %	"	"	"	"	"
580-13-2	2-Bromonaphthalene	63.7	40-140 %	"	"	"	"	"
321-60-8	2-Fluorobiphenyl	71.1	40-140 %	"	"	"	"	"

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* Reportable Detection Limit

BRL = Below Reporting Limit

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Sample IdentificationMW-6
SA31815-02Client Project #
CEA#5795-05-02Matrix
Ground WaterCollection Date/Time
01-Aug-05 12:00Received
02-Aug-05

CAS No.	Analyte(s)	Result	*RDL/Units	Dilution	Method Ref.	Prepared	Analyzed	Batch	Analyst	Flag
Extractable Petroleum Hydrocarbons										
<u>EPH Aliphatic/Aromatic Ranges</u>			Prepared by method		SW846 3510C					
	C9-C18 Aliphatic Hydrocarbons	BRL	0.2 mg/l	1	+MADEP 5/2004 R	03-Aug-05	03-Aug-05	5080189	JD	
	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	BRL	0.2 mg/l	1	"	"	"	"	"	
	Unadjusted Total Petroleum Hydrocarbons	BRL	0.2 mg/l	1	"	"	"	"	"	
<u>EPH Target PAH Analytes</u>			Prepared by method		SW846 3510C					
91-20-3	Naphthalene	BRL	5.26 µg/l	1	"	"	"	"	"	
91-57-6	2-Methylnaphthalene	BRL	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	"	"	"	"	"	
50-32-8	Benzo (a) pyrene	BRL	5.26 µg/l	1	"	"	"	"	"	
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	"	"	"	"	"	
<u>Surrogate recoveries:</u>										
3386-33-2	1-Chlorooctadecane	55.7	40-140 %		"	"	"	"	"	
84-15-1	Ortho-Terphenyl	52.5	40-140 %		"	"	"	"	"	
580-13-2	2-Bromonaphthalene	54.2	40-140 %		"	"	"	"	"	
321-60-8	2-Fluorobiphenyl	67.9	40-140 %		"	"	"	"	"	

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* Reportable Detection Limit

BRL = Below Reporting Limit

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Extractable Petroleum Hydrocarbons - Quality Control

Analyte(s)	Result	*RDL Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 0508024 - 5080189									
Calibration Check (0508024-CCV1)			Prepared & Analyzed: 03-Aug-05						
C9-C18 Aliphatic Hydrocarbons	0.508	mg/l	0.600		84.7	75-125			
C19-C36 Aliphatic Hydrocarbons	0.743	mg/l	0.800		92.9	75-125			
C11-C22 Aromatic Hydrocarbons	2.04	mg/l	1.70		120	75-125			
Naphthalene	117	µg/l	100		117	80-120			
2-Methylnaphthalene	115	µg/l	100		115	80-120			
Acenaphthylene	118	µg/l	100		118	80-120			
Acenaphthene	116	µg/l	100		116	80-120			
Fluorene	114	µg/l	100		114	80-120			
Phenanthrene	113	µg/l	100		113	80-120			
Anthracene	110	µg/l	100		110	80-120			
Fluoranthene	112	µg/l	100		112	80-120			
Pyrene	112	µg/l	100		112	80-120			
Benzo (a) anthracene	108	µg/l	100		108	80-120			
Chrysene	112	µg/l	100		112	80-120			
Benzo (b) fluoranthene	100	µg/l	100		100	80-120			
Benzo (k) fluoranthene	108	µg/l	100		108	80-120			
Benzo (a) pyrene	116	µg/l	100		116	80-120			
Indeno (1,2,3-cd) pyrene	108	µg/l	100		108	80-120			
Dibenzo (a,h) anthracene	119	µg/l	100		119	80-120			
Benzo (g,h,i) perylene	117	µg/l	100		117	80-120			
Batch 5080189 - SW846 3510C									
Blank (5080189-BLK1)			Prepared & Analyzed: 03-Aug-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							
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	21.9	µg/l	50.0		43.8	40-140			
Surrogate: Ortho-Terphenyl	23.7	µg/l	50.0		47.4	40-140			
Surrogate: 2-Bromonaphthalene	24.7	µg/l	40.0		61.8	40-140			
Surrogate: 2-Fluorobiphenyl	26.6	µg/l	40.0		66.5	40-140			
LCS (5080189-BS1)			Prepared & Analyzed: 03-Aug-05						
C9-C18 Aliphatic Hydrocarbons	0.242	0.2 mg/l	0.600		40.3	40-140			
C19-C36 Aliphatic Hydrocarbons	0.472	0.2 mg/l	0.800		59.0	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 5080189 - SW846 3510C									
LCS (5080189-BS1)					Prepared & Analyzed: 03-Aug-05				
C11-C22 Aromatic Hydrocarbons	1.14	0.2 mg/l	1.70		67.1	40-140			
Naphthalene	45.9	2.50 µg/l	100		45.9	40-140			
2-Methylnaphthalene	47.0	2.50 µg/l	100		47.0	40-140			
Acenaphthylene	54.9	2.50 µg/l	100		54.9	40-140			
Acenaphthene	53.4	2.50 µg/l	100		53.4	40-140			
Fluorene	57.0	2.50 µg/l	100		57.0	40-140			
Phenanthrene	60.3	2.50 µg/l	100		60.3	40-140			
Anthracene	63.1	2.50 µg/l	100		63.1	40-140			
Fluoranthene	60.1	2.50 µg/l	100		60.1	40-140			
Pyrene	59.1	2.50 µg/l	100		59.1	40-140			
Benzo (a) anthracene	52.7	2.50 µg/l	100		52.7	40-140			
Chrysene	57.2	2.50 µg/l	100		57.2	40-140			
Benzo (b) fluoranthene	51.7	2.50 µg/l	100		51.7	40-140			
Benzo (k) fluoranthene	52.4	2.50 µg/l	100		52.4	40-140			
Benzo (a) pyrene	51.7	2.50 µg/l	100		51.7	40-140			
Indeno (1,2,3-cd) pyrene	52.5	2.50 µg/l	100		52.5	40-140			
Dibenzo (a,h) anthracene	54.0	2.50 µg/l	100		54.0	40-140			
Benzo (g,h,i) perylene	52.0	2.50 µg/l	100		52.0	40-140			
Naphthalene (aliphatic fraction)	0.000100	µg/l	100		0.000100	0-200			
2-Methylnaphthalene (aliphatic fraction)	0.000100	µg/l	100		0.000100	0-200			
Surrogate: 1-Chlorooctadecane	29.5	µg/l	50.0		59.0	40-140			
Surrogate: Ortho-Terphenyl	25.2	µg/l	50.0		50.4	40-140			
Surrogate: 2-Bromonaphthalene	22.8	µg/l	40.0		57.0	40-140			
Surrogate: 2-Fluorobiphenyl	29.5	µg/l	40.0		73.8	40-140			
Naphthalene Breakthrough	0.00	%				0-5			
2-Methylnaphthalene Breakthrough	0.00	%				0-5			
Fractionation Check Standard (5080189-BS2)					Prepared & Analyzed: 03-Aug-05				
C9-C18 Aliphatic Hydrocarbons	0.318	0.2 mg/l	0.600		53.0	40-140			
C19-C36 Aliphatic Hydrocarbons	0.517	0.2 mg/l	0.800		64.6	40-140			
C11-C22 Aromatic Hydrocarbons	1.38	0.2 mg/l	1.70		81.2	40-140			
Naphthalene	61.1	2.50 µg/l	100		61.1	40-140			
2-Methylnaphthalene	65.5	2.50 µg/l	100		65.5	40-140			
Acenaphthylene	73.2	2.50 µg/l	100		73.2	40-140			
Acenaphthene	71.4	2.50 µg/l	100		71.4	40-140			
Fluorene	72.3	2.50 µg/l	100		72.3	40-140			
Phenanthrene	73.4	2.50 µg/l	100		73.4	40-140			
Anthracene	76.6	2.50 µg/l	100		76.6	40-140			
Fluoranthene	70.0	2.50 µg/l	100		70.0	40-140			
Pyrene	70.5	2.50 µg/l	100		70.5	40-140			
Benzo (a) anthracene	64.7	2.50 µg/l	100		64.7	40-140			
Chrysene	65.4	2.50 µg/l	100		65.4	40-140			
Benzo (b) fluoranthene	62.2	2.50 µg/l	100		62.2	40-140			
Benzo (k) fluoranthene	58.5	2.50 µg/l	100		58.5	40-140			
Benzo (a) pyrene	59.0	2.50 µg/l	100		59.0	40-140			
Indeno (1,2,3-cd) pyrene	59.2	2.50 µg/l	100		59.2	40-140			
Dibenzo (a,h) anthracene	61.5	2.50 µg/l	100		61.5	40-140			
Benzo (g,h,i) perylene	58.5	2.50 µg/l	100		58.5	40-140			
Naphthalene (aliphatic fraction)	0.000100	µg/l	100		0.000100	0-200			
2-Methylnaphthalene (aliphatic fraction)	0.000100	µg/l	100		0.000100	0-200			
Surrogate: 1-Chlorooctadecane	31.0	µg/l	50.0		62.0	40-140			
Surrogate: Ortho-Terphenyl	30.6	µg/l	50.0		61.2	40-140			
Surrogate: 2-Bromonaphthalene	24.5	µg/l	40.0		61.2	40-140			
Surrogate: 2-Fluorobiphenyl	30.5	µg/l	40.0		76.2	40-140			

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

* 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 5080189 - SW846 3510C									
LCS Dup (5080189-BSD1)					Prepared & Analyzed: 03-Aug-05				
C9-C18 Aliphatic Hydrocarbons	0.283	0.2 mg/l	0.600		47.2	40-140	15.8	25	
C19-C36 Aliphatic Hydrocarbons	0.420	0.2 mg/l	0.800		52.5	40-140	11.7	25	
C11-C22 Aromatic Hydrocarbons	1.26	0.2 mg/l	1.70		74.1	40-140	9.92	25	
Naphthalene	42.9	2.50 µg/l	100		42.9	40-140	6.76	20	
2-Methylnaphthalene	49.0	2.50 µg/l	100		49.0	40-140	4.17	20	
Acenaphthylene	55.5	2.50 µg/l	100		55.5	40-140	1.09	20	
Acenaphthene	55.7	2.50 µg/l	100		55.7	40-140	4.22	20	
Fluorene	59.6	2.50 µg/l	100		59.6	40-140	4.46	20	
Phenanthrene	64.0	2.50 µg/l	100		64.0	40-140	5.95	20	
Anthracene	66.4	2.50 µg/l	100		66.4	40-140	5.10	20	
Fluoranthene	66.0	2.50 µg/l	100		66.0	40-140	9.36	20	
Pyrene	66.0	2.50 µg/l	100		66.0	40-140	11.0	20	
Benzo (a) anthracene	63.2	2.50 µg/l	100		63.2	40-140	18.1	20	
Chrysene	68.2	2.50 µg/l	100		68.2	40-140	17.5	20	
Benzo (b) fluoranthene	63.6	2.50 µg/l	100		63.6	40-140	20.6	20	QR-02
Benzo (k) fluoranthene	63.4	2.50 µg/l	100		63.4	40-140	19.0	20	
Benzo (a) pyrene	61.8	2.50 µg/l	100		61.8	40-140	17.8	20	
Indeno (1,2,3-cd) pyrene	63.0	2.50 µg/l	100		63.0	40-140	18.2	20	
Dibenzo (a,h) anthracene	64.8	2.50 µg/l	100		64.8	40-140	18.2	20	
Benzo (g,h,i) perylene	62.4	2.50 µg/l	100		62.4	40-140	18.2	20	
Naphthalene (aliphatic fraction)	0.000100	µg/l	100		0.000100	0-200	0.00	200	
2-Methylnaphthalene (aliphatic fraction)	0.000100	µg/l	100		0.000100	0-200	0.00	200	
Surrogate: 1-Chlorooctadecane	26.5	µg/l	50.0		53.0	40-140			
Surrogate: Ortho-Terphenyl	25.8	µg/l	50.0		51.6	40-140			
Surrogate: 2-Bromonaphthalene	26.5	µg/l	40.0		66.2	40-140			
Surrogate: 2-Fluorobiphenyl	32.5	µg/l	40.0		81.2	40-140			
Naphthalene Breakthrough	0.00	%				0-5			
2-Methylnaphthalene Breakthrough	0.00	%				0-5			

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* Reportable Detection Limit

BRL = Below Reporting Limit

Extractable Petroleum Hydrocarbons - CCV Evaluation Report

Analyte	Average RF	CCRF	% D	Limit
Batch 0508024				
Calibration Check (0508024-CCV1)				
C9-C18 Aliphatic Hydrocarbons	1.87539E+08	1.58655E+08	-15.4	25.00
C19-C36 Aliphatic Hydrocarbons	1.4791E+08	1.37303E+08	-7.17	25.00
C11-C22 Aromatic Hydrocarbons	18269.7	19.3145	-99.9 #	25.00
Naphthalene	8.21924	9.60121	16.8	20.00
2-Methylnaphthalene	5.20969	5.975	14.7	20.00
Acenaphthylene	7.12596	8.40432	17.9	20.00
Acenaphthene	4.92981	5.71317	15.9	20.00
Fluorene	5.22537	5.93362	13.6	20.00
Phenanthrene	6.58189	7.46975	13.5	20.00
Anthracene	7.1002	7.81987	10.1	20.00
Fluoranthene	6.78953	7.59024	11.8	20.00
Pyrene	7.00701	7.85114	12.0	20.00
Benzo (a) anthracene	5.86729	6.36039	8.40	20.00
Chrysene	5.98057	6.69626	12.0	20.00
Benzo (b) fluoranthene	5.08862	5.10503	0.322	20.00
Benzo (k) fluoranthene	5.53875	5.99855	8.30	20.00
Benzo (a) pyrene	4.82661	5.58604	15.7	20.00
Indeno (1,2,3-cd) pyrene	4.93162	5.32144	7.90	20.00
Dibenzo (a,h) anthracene	3.86699	4.60797	19.2	20.00
Benzo (g,h,i) perylene	4.05765	4.73273	16.6	20.00

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* Reportable Detection Limit BRL = Below Reporting Limit

Page 7 of 11

Notes and Definitions

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.
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 EPH samples contained within this report upon laboratory receipt.

Matrix	☐ Aqueous	☐ Soil	☐ Sediment	☐ Other
Containers	☐ Satisfactory	☐ Broken	☐ Leaking	
Aqueous Preservative	☐ N/A	☐ pH $\leq$ 2	☐ pH $>$ 2	☐ pH adjusted to $<$ 2 in lab Comment
Temperature	☐ Received on ice	☐ Received at 4 ± 2 °C	☐ 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:



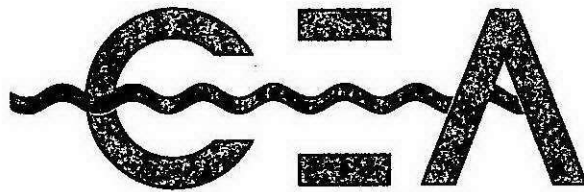
Hanibal C. Tayeh, Ph.D.
President/Laboratory Director

MADEP MCP ANALYTICAL METHOD REPORT CERTIFICATION FORM

MADEP RTN ¹ :					
This form provides certifications for the following Spectrum Analytical, Inc. work order #: SA31815					
Matrix	☐ Groundwater		☐ Soil/Sediment		☐ Drinking Water ☐ Other
MCP SW-846 Methods Used	☐ 8260B	☐ 8151A	☐ 8330	☐ 6010B	☐ 7470A/1A
	☐ 8270C	☐ 8081A	☐ VPH	☐ 6020	☐ 9014M ²
	☐ 8082	☐ 8021B	☐ EPH	☐ 7000S ³	☐ 7196A
¹ List Release Tracking Number (RTN), if known ² M - SW-846 Method 9014 or MADEP Physiologically Available Cyanide (PAC) Method ³ S - SW-846 Methods 7000 Series List individual method and analyte					
<i>An affirmative response to questions A, B, C and D is required for "Presumptive Certainty" status</i>					
A	Were all samples received by the laboratory in a condition consistent with that described on the Chain of Custody documentation for the data set?				☐ Yes ☐ No
B	Were all QA/QC procedures required for the specified analytical method(s) included in this report followed, including the requirement to note and discuss in a narrative QC data that did not meet appropriate performance standards or guidelines?				☐ Yes ☐ No
C	Does the data included in this report meet all the analytical requirements for "Presumptive Certainty", as described in Section 2.0 (a), (b), (c) and (d) of the MADEP document CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"?				☐ Yes ☐ No
D	<u>VPH and EPH methods only</u> : Was the VPH or EPH method conducted without significant modifications (see Section 11.3 of respective methods)?				☐ Yes ☐ No
<i>A response to questions E and F below is required for "Presumptive Certainty" status</i>					
E	Were all analytical QC performance standards and recommendations for the specified methods achieved?				☐ Yes ☐ No
F	Were results for all analyte-list compounds/elements for the specified method(s) reported?				☐ Yes ☐ No
<i>All negative responses are addressed in a case narrative on the cover page of this report.</i>					
I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.  Hanibal C. Tayeh, Ph.D. President/Laboratory Director Date: 8/4/2005					

APPENDIX C

Public Notification Letters



CORPORATE ENVIRONMENTAL ADVISORS, INC.



August 9, 2005

Chief Municipal Officer
Westfield City Hall
59 Court St.
Westfield, MA 01085

RE: Immediate Response Action Status Report #1
Sunoco Station
88-90 South Maple Street
Westfield, Massachusetts
DUNS: 0374-5593
MA DEP RTN: 1-15718
CEA File No. 5795-05

To Whom It May Concern:

As specified under 310 CMR 40.1403(3) of the Massachusetts Contingency Plan (MCP), this letter serves as official notification that an Immediate Response Action (IRA) Status Report #1 prepared for a Threat of Release condition at the above-referenced location have been filed with the Massachusetts Department of Environmental Protection (MA DEP). A copy of the IRA Status Report #1 may be obtained or reviewed at the MA DEP Western Region located at 436 Dwight Street, Suite 500, Springfield, Massachusetts 01103.

If you have any questions or would like to obtain a copy of the submittal, please contact the MA DEP at (413) 784-1149.

Sincerely,
Corporate Environmental Advisors, Inc.

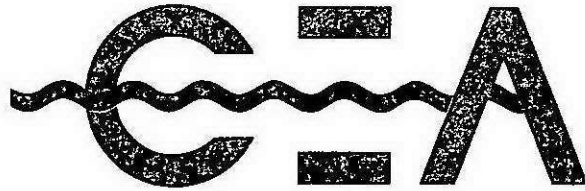
Patrick J. Brown
Environmental Scientist

Cc: Westfield Health Department, Westfield City Hall, 59 Court St., Westfield, MA 01085
MA DEP Western Region, 436 Dwight Street, Suite 500 Springfield, Massachusetts 01103

www.cea-inc.com

CORPORATE HEADQUARTERS: HARTWELL BUSINESS PARK • 127 HARTWELL STREET • WEST BOYLSTON, MA 01583 • PHONE: 508-835-8822 • FAX: 508-835-8812

Solutions Since 1985



CORPORATE ENVIRONMENTAL ADVISORS, INC.



August 9, 2005

Health Department
Westfield City Hall
59 Court St.
Westfield, MA 01085

**RE: Immediate Response Action Status Report #1
Sunoco Station
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Sincerely,
Corporate Environmental Advisors, Inc.

Patrick J. Brown
Environmental Scientist

Cc: Chief Municipal Officer, Westfield City Hall, 59 Court St., Westfield, MA 01085
MA DEP Western Region, 436 Dwight Street, Suite 500 Springfield, Massachusetts 01103

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