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BROWNFIELDS PROGRAM
PHASE I
BROWNFIELDS SITE ASSESSMENT REPORT

TOWN OF ASHBURNHAN DPW
17 CENTRAL STREET
ASHBURNHAM, MA

DEP RTN 2-12224

DEP SARSS IV PROJECT NO. 101072

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1.0 INTRODUCTION

1.1 Background

The Massachusetts Department of Environmental Protection (DEP), under the Site Assessment and Remediation Support Services (SARSS IV) contract, retained Environmental Strategies & Management, Inc. (ES&M) to conduct a Phase I Brownfields Environmental Site Assessment at the Town DPW Barn located at 17 Central Street in Ashburnham, Massachusetts (see Figure 1, Site Locus Map). The scope of work for the investigation was based on a Scoping Session conducted at the site on April 30, 2004, and on the Department's follow up Scoping Session Notes letter received June 1, 2004.

The site, located on four acres, houses the Town of Ashburnham's Department of Public Works (DPW) garage (Figure 2). There is a one-story building containing several maintenance bays and an office located at the site. Additionally, there are storage sheds and a former coal storage area. Facility operations include storage and maintenance of town trucks and equipment. Previous uses of the site include a railroad terminus and roundhouse, and a coal storage facility.

1.2 Purpose

The purpose of this Phase I Brownfields Site Assessment is to evaluate current site conditions, identify environmental conditions that may pose a hazard, and determine the extent, if any, of soil and groundwater contamination at the site. The results presented in this report will allow Town officials to make decisions about the potential reuse of the property. The following tasks were completed as a part of this investigation:

- Task 1 - Project Management
- Task 2 - Historical Investigation and Records Review at Ashburnham Town Offices and DEP
- Task 3 - Surface Investigation - Collection of surficial soil samples from across the site and at areas where staining is evident
- Task 4 - Subsurface Investigation - Collection of subsurface soil samples and groundwater samples, from known or suspected release areas
- Task 5 - Deliverables - Quality Assurance Project Plan, Sampling and Analysis Plan, Health and Safety Plan, and Phase I Brownfield Site Assessment Report

2.0 HISTORICAL INVESTIGATION AND RECORDS REVIEW

On April 30, 2004, a preliminary site investigation and scoping session was held at the Town DPW Barn located a 17 Central Street in Ashburnham, MA. In attendance were: Bob Fichtel of the Town of Ashburnham Focus Group, Garry Waldeck and David

Gallagher of the DEP, and Doug Heely and Amanda Freeman of ES&M. On May 25, 2004, ES&M conducted a review of all relevant files at the DEP Central Regional Office in Worcester, MA. The information gathered at that time is described in this section.

In September 1993 a 1,000-gallon underground storage tank (UST) was removed from an area south of the Ashburnham DPW garage. Upon removal it was observed that the tank had holes and was leaking diesel fuel. The Ashburnham Fire Chief, who witnessed the removal, notified the DEP of the 72-hour release condition and Release Tracking Number (RTN) 2-10039 was issued. The Town excavated approximately eight cubic yards of impacted soil and stockpiled it in a remote location within the DPW yard. With DEP concurrence, the excavation was backfilled with an understanding that the backfill and any additional impacted soil would be excavated and disposed of at a later date.

In October 1994, contaminated soil located in the area of the former tank was excavated on two separate occasions. During the first occasion, October 5, 1994, approximately 20 to 25 cubic yards of soil were removed from the excavation and stockpiled as potentially contaminated, based on visual and olfactory observations and field screening analysis using a photo-ionization detector (PID). During the excavation process, it was observed that soil in the upper six inches was discolored. Discussion with Town officials disclosed that historically oil had been used in the area for dust control purposes. Unstained soil was observed to a depth of approximately three feet below the ground surface (BGS). At a depth of approximately three feet BGS, soil stained with likely diesel fuel was observed. Closure samples were taken around the perimeter of the excavation. Based on analytical results, it was determined that residual soil along the southern and western faces of the excavation remained contaminated. The second excavation, occurring on October 19, 1994, extended from the previous excavation in a southerly direction, and in a westerly direction as far as the existing gasoline UST would allow. Approximately 10 to 15 cubic yards of additional impacted soil were excavated and stockpiled on site. These October 1994 soil stockpiles were stored separately from the soil excavated during September 1993. All stockpiled soil was eventually removed from site. At the conclusion of these excavation activities it was determined that diesel fuel impacted soil in excess of the S-1 soil standard for total petroleum hydrocarbons (TPH) remained along the southern face of the excavation.

During the removal of a 4,000-gallon gasoline UST on May 21, 1998, black-stained soils located around and under the UST were observed. Measurement of petroleum vapors (in headspace) with a PID produced readings greater than the MCP 72-hour reportable limit of 100 parts per million (ppm) within the UST excavation. The release was assigned RTN 2-12224 and an oral Immediate Response Action (IRA) Plan was outlined to the DEP. In July 1998, an IRA Plan was prepared and submitted to the DEP. This IRA included the removal of contaminated soils, and sampling and testing of soils and groundwater after soil removal.

On September 17, 1998 an IRA Status Report was submitted to the DEP. This report described soil removal that commenced on September 22, 1998. Excavation depth extended to groundwater, approximately eight feet BGS, and was further extended to

depths of 12 to 14 feet BGS. The excavation encompassed a surficial area of approximately 28 feet long by 23 feet wide. Contaminated soils were stockpiled on plastic sheeting on-site. After excavation was completed, the area was backfilled and a monitoring well was installed in the center of the excavation for groundwater sampling. A total of 69.49 cubic yards of contaminated soil was removed for off-site disposal.

On February 12, 1999, an IRA Completion Report and a Class A-2 Response Action Outcome) RAO Statement were submitted by W.E. Kuriger Associates. These reports summarized the work conducted under the IRA, and presented the results of the soil and groundwater sampling program. The RAO Statement concluded that a condition of No Significant Risk (NSR) existed, and that an Activity and Use Limitation (AUL) would not be necessary to maintain NSR for future site uses.

ES&M conducted a file review at the Ashburnham Fire Department Office on April 30, 2004. The office had recently been flooded and moved. The file for the DPW Garage could not be located; however, several Fire Department Officials that were present during tank removal activities, confirmed that all USTs had been removed.

3.0 SURFACE AND SUBSURFACE INVESTIGATIONS

A surface and subsurface investigation was completed at the site in September of 2004. The investigation included the completion of soil borings and installation of monitoring wells, the collection of soil and groundwater samples, and the evaluation of surface staining across the property. The investigation program was conducted in accordance with the following documents prepared by ES&M:

- Health and Safety Plan (HASP), dated August 26, 2004
- Quality Assurance Project Plan (QAPP), dated July 23, 2004
- Sampling and Analysis Plan (SAP), dated July 23, 2004

These documents were submitted to DEP and USEPA for approval prior to the initiation of field activities. All investigative work was completed in accordance with these documents.

3.1 Soil Boring/ Monitoring Well Installation and Soil Sampling

On September 1 and 2, 2004, soil boring and monitoring well installation activities took place. Based on historic and current site usage and the Scope of Work provided by the DEP, several areas of interest were identified:

- *Area of Gas Pump* - To evaluate if soil contamination exists in the area of the gas pump, ES&M completed two soil borings (ESM-2 and ESM-3) with a truck-mounted Geoprobe-type rig (drilling logs are included as Appendix A). Small-diameter monitoring wells were installed in each boring. The first boring was located directly in front of the gas pump area. Elevated PID readings at the water table prompted the completion of a second boring to determine approximate horizontal extent of contamination.

- *Former Coal Storage Area* - To evaluate if sandblast grit stored in the former coal storage area has impacted the underlying soil, ES&M completed two soil borings (AB-03 and AB-04) to a depth of six inches BGS using a hand auger.

- *Area of Former Septic System* - To evaluate if hazardous materials have been released to subsurface via the old septic system, ES&M completed three soil borings (B-01, B-02 and ESM-1) using a truck-mounted Geoprobe-type rig (see Appendix A). One of the borings was completed as a small-diameter groundwater monitoring well (ESM-1).

- *Stained Area Next to Garage* - To evaluate the extent of oil-stained soil next to the garage, ES&M completed two soil borings (AB-10 and AB-11), using a hand auger. At two inches BGS, softened asphalt was encountered. Two composite samples were collected. AB-10/11 (0 to 2 inches deep) consisted of oil-stained soil above the asphalt. AB-10/11 (4 to 6 inches deep) consisted of soil from below the softened asphalt. The deeper sample was collected to determine the extent to which the asphalt was able to contain the staining from above.

- *Overall Soil Condition of Lot* - To evaluate overall soil conditions around the site, various oil stained areas were inventoried and a size/volume estimate was made. Each visible stain was numbered and measured. Soil samples from the two stains (S-06 and S-12) that exhibited the strongest olfactory evidence of petroleum impact were field screened with a PID and sent for laboratory analysis.

- *Monitoring Well Installation* - On September 1, 2004, seven direct-push borings were completed at the subject site. Four were completed as groundwater monitoring wells (ESM-1 through ESM-4). All boring locations were pre-marked, and DigSafe utility locator service was notified 72 hours prior to initiation of drilling activities as required. AM Drilling Services of Fitchburg, MA, was contracted by ES&M to complete the drilling utilizing a truck-mounted Geoprobe-type rig. At each boring location, direct-push cores were collected at four-foot intervals using acetylene liners to a depth of 12 feet BGS. A PID equipped with an 11.7 eV lamp was used to field screen the soil samples utilizing the DEP jar headspace technique. One sample from each boring location was selected, based on visual observation and PID field screening results, for laboratory analysis. Four boring locations were selected for small-diameter groundwater monitoring well completion.

All soil samples were properly preserved and submitted under chain of custody to Groundwater Analytical, Inc. laboratory in Buzzards Bay, MA, for analysis for volatile organic compounds (VOC) by EPA Method 8260B; extractable petroleum hydrocarbons (EPH) and volatile petroleum hydrocarbons (VPH) via the DEP Method; and RCRA 8 total metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver). The soil sampling analytical results are discussed in Section 4.1. Table 1 summarizes the results of soil analysis.

The following is a listing of the soil samples that were collected, the regulatory standard that applies to them, and the applicable areas of interest. The locations of all monitoring wells and borings are shown on Figures 2 and 3. The analyses were determined using the field guidelines set forth in the SAP and the QAPP. All borings located in areas that were not included in the previous investigations (i.e., the former UST area) fall under Reporting Category RCS-1. The borings and/or wells that are in the vicinity of the previous regulatory work were compared to the applicable MCP standards as determined in Section 3 of this report.

ID	Depth	Analysis	Standard	Area of Interest Satisfied
B-01	7-8′	EPH, VPH	RCS-1	Septic System
B-02	6-7′	EPH, VPH	RCS-1	Septic System
B-03	Refusal	n/a	n/a	Gas Pump
ESM-01	7-9′	RCRA 8 Metals, EPH, VPH	RCS-1	Septic System
ESM-02	7-8′	EPH, VPH	S-1/GW-3	UST Area
ESM-03	6-8′	RCRA 8 Metals, EPH, VPH, 8260-VOCs	S-1/GW-2	Gas Pump
ESM-04	7-9′	EPH, VPH, 8260-VOCs	S-1/GW-3	Gas Pump
AB-01	-	n/a	n/a	Parking Lot
AB-02	-	n/a	n/a	Parking Lot
AB-03	0-6″	Total Lead/RCRA Metals	RCS-1	Former Coal Storage
AB-04	0-6″	Total Lead/RCRA Metals	RCS-1	Former Coal Storage
AB-05	-	n/a	n/a	Parking Lot
AB-06	-	n/a	n/a	Oil Water Separator
AB-07	30-36″	RCRA 8 Metals, EPH, VPH	RCS-1	Oil Water Separator
AB-08	18-24″	RCRA 8 Metals, EPH, VPH	RCS-1	Oil Water Separator
AB-09	18-24″	RCRA 8 Metals, EPH, VPH, 8260-VOCs	RCS-1	Oil Water Separator
AB-10/11	0-2″	RCRA 8 Metals, EPH, VPH, 8260-VOCs	RCS-1	Stain Near Garage
AB-10/11	4-6″	RCRA 8 Metals, EPH, VPH, 8260-VOCs	RCS-1	Stain Near Garage
S-06	surface	RCRA 8 Metals, EPH, VPH, 8260-VOCs	RCS-1	Parking Lot
S-12	surface	RCRA 8 Metals, EPH, VPH, 8260-VOCs	RCS-1	Parking Lot

3.2 *Top of Casing Elevation Survey and Groundwater Sample Collection*

On September 10, 2004, the depth to groundwater in monitoring wells was measured using an electronic oil/water interface probe. Non-aqueous phase liquids (NAPL) were not detected in any site-related monitoring well during this monitoring event. The depth to groundwater beneath the site on September 10, 2004, ranged from 6.4 to 7.4 feet below grade. Water table elevation measurements for the monitoring wells are included in Table 2.

Groundwater elevations were determined by using top-of-casing survey data and the water table depth measurements collected on September 10, 2004. Based upon water table elevations, groundwater flows generally in a southeastern direction in the vicinity of the former USTs, with an approximate horizontal gradient of 0.016 feet/foot. A map showing the approximate configuration of the water table surface on September 10, 2004 is included as Figure 4.

Groundwater samples were collected from each well using the EPA-recommended Procedure for Low Flow Purging and Sampling of Monitoring Wells (1996). Groundwater analyses were selected using the parameters defined in the QAPP and the SAP prepared by ES&M on July 23, 2004. Groundwater samples collected from

monitoring wells ESM-01 and ESM-02 were analyzed for VPH and EPH. Groundwater samples collected from monitoring wells ESM-03 and ESM-04 were analyzed for VPH, EPH, and VOCs. All groundwater samples were properly preserved and submitted under chain of custody to Groundwater Analytical in Buzzards Bay, MA, for analysis for VOC by EPA Method 8260B, EPH and VPH. The results of the groundwater analytical sampling are discussed in Section 4.2. Table 3 summarizes groundwater analytical results.

4.0 IDENTIFICATION OF SOIL AND GROUNDWATER CATEGORIES

This section identifies and documents the groundwater and soil categories applicable to the site, as described in 310 CMR 40.0930. The groundwater and soil categories are considered as general indicators of the potential for exposure to oil and hazardous material. In addition, the groundwater categories are used to identify applicable or suitably analogous standards.

4.1 Soil Classification

The areas of the property which were not considered to be part of the previous response actions (i.e., the former UST area) were compared to reporting category RCS-1, which applies to all soil samples obtained:

1. at or within 500 feet of a residential dwelling, a residentially zoned property, school, playground, recreational area or park; or
2. within the geographic boundaries of a groundwater resource area categorized as RCGW-1 in 310 CMR 40.0362(1)(a).

Those areas of the property that were formerly associated with RTN 2-10039 and 2-12224 were compared to S-1 Soil Standards. Under the MCP, soil can be classified into one of three categories (S-1, S-2, or S-3) based on the human potential for exposure to soil. The MCP contains standards for soil in each of these categories. Category S-1 soil represents the highest potential exposure because it assumes unrestricted use of the soil (i.e., residential), whereas category S-3 soil represents the lowest potential for exposure.

The MCP requires that soil be categorized based on current site uses. In addition, soil to a depth of 15 feet must be evaluated as S-1 soil for foreseeable uses unless an Activity and Use Limitation (AUL) is placed on the property. An AUL is a deed restriction designed to limit activities on the site that may result in a potential risk to human health, public welfare, or the environment. Since access to the site is unrestricted and future usage may be residential, the soil was categorized as S-1.

4.2 Groundwater Classification

For the purpose of determining whether a notification obligation exists under 310 CMR 40.0315, measured dissolved concentrations of any oil or hazardous material listed at 310 CMR 40.1600 shall be compared to the Reportable Concentration value in the reporting category that best characterizes the site under evaluation, as described below:

Reporting Category RCGW-1. Reporting category RCGW-1 shall be applied to all groundwater samples obtained:

1. within a Current Drinking Water Source Area; or
2. within a Potential Drinking Water Source Area.

Reporting Category RCGW-2. Reporting category RCGW-2 shall be applied to all groundwater samples that are not obtained from category RCGW-1 areas.

Reporting category RCGW-1 shall be selected whenever and wherever reasonable doubts exist over the selection of the appropriate groundwater Reportable Concentration category. Figure 5 (21E NRS Map) indicates that the property is not within a current or a potential drinking water source area, therefore, the RCGW-2 category will apply.

5.0 SOIL AND GROUNDWATER SAMPLING RESULTS

All soil and groundwater samples were collected and preserved according to SAP and QAPP. Samples were packaged on ice and sent under chain of custody via courier to Groundwater Analytical in Buzzard's Bay, MA for analysis. The results were compared to MCP Method 1 Standards (in the former UST area) and to Reportable Concentrations elsewhere. Table 1 summarizes soil analytical results, Table 2 summarizes groundwater elevation measurements, and Table 3 summarizes groundwater analytical results. Laboratory reports for soil and groundwater are included as Appendices B and C, respectively.

5.1 Soil Sample Analytical Results

Area of Oil Water Separator - Three soil samples collected from the area adjacent to the oil water separator were analyzed for EPH, VPH, RCRA 8 Metals, and 8260 VOCs. The laboratory results for these samples were compared to RCS-1 standards. No reporting obligations under the MCP were identified.

Area of Gas Pump - Soil samples collected from the area down gradient of the gas pump were analyzed for EPH, VPH, RCRA Metals, and 8260 VOCs. The soil samples in this area were compared to MCP Method 1 S-1/GW-2 and 3 standards due to their proximity to the previous excavations. The following were found to exceed MCP Method 1 S-1/GW-2 and 3 standards:

ID	Depth	Parameter	Results	S-1/GW-2&3 Standard
ESM-03	6-8'	C5-C8 Aliphatics	160 mg/kg	100 mg/kg
		C9-C10 Aromatic	150 mg/kg	100 mg/kg

Former Coal Storage Area - Two surface soil samples were collected from the area of the former coal storage shed. The building is currently used for storage. Samples were analyzed for RCRA 8 metals including total lead. The concentration of total arsenic found in sample AB-04 (0 to 6inches deep) exceeds the RCS-1 standard.

ID	Depth	Parameter	Results	RCS-1 Standard
AB-04	0-6"	Arsenic, Total	35 mg/kg	30 mg/kg

Area of Former Septic System - Soil samples collected from the area down gradient of the former septic system were analyzed for EPH, VPH, and RCRA Metals. The laboratory results for these samples were compared to RCS-1 standards. No reporting obligations under the MCP were identified.

Stained Area Next to Garage - The oily stain located next to the garage was measured separately from the rest of the parking lot. It measured approximately six feet by eight feet by two inches deep (depth to asphalt). Although the stain was partially hidden by antifreeze and degreaser drums, it is estimated eight cubic feet in volume. Two composite samples were collected from the area next to the garage. AB-10/11 (0 to 2 inches deep) consisted of oil stained soil above the asphalt. AB-10/11 (4 to 6 inches deep) consisted of soil from below the softened asphalt. Soil samples collected from the area of surface staining adjacent to the garage were analyzed for EPH, VPH, RCRA Metals, and 8260 VOCs. The following were found to exceed RCS-1 standards:

ID	Depth	Parameter	Results	RCS-1 Standard
AB-10/11	0-2"	C19-C36 Aliphatic	13,000 mg/kg	2,500 mg/kg
		C11-C22 Aromatic	2,200 mg/kg	800 mg/kg
AB-10/11	0-2"	Benzo(a)anthracene	<2.7 mg/kg	0.7 mg/kg
		Benzo(a)pyrene	<2.7 mg/kg	0.7 mg/kg
		Benzo(b)fluoranthene	<2.7 mg/kg	0.7 mg/kg
		Dibenzo(a,h)anthracene	<2.7 mg/kg	0.7 mg/kg
		Indeno(1,2,3-cd)pyrene	<2.7 mg/kg	0.7 mg/kg

Overall Soil Condition of Lot - All visible parking lot soil stains were cataloged and measured. There were 12 noticeable stains and a couple of smaller (less than 6 inches by 6 inches drips. The depth of the staining was taken from the ground surface to the asphalt below. The total volume of stained soil was found to be less than two cubic yards. The length, width, and depth of the stains are listed below:

Number	Length (ft)	Width (ft)	Depth (ft)	Area (ft ^{3})
1	3	3	0.08	*0.75*
2	9	5	0.08	*3.75*
3	1	2	0.25	*0.50*
4	1	5	0.25	*1.25*
5	5	7	0.33	*11.67*
6	3	4	0.33	*4.00*
7	3	2	0.08	*0.50*
8	5.5	3.5	0.08	*1.60*
9	1	1	0.08	*0.08*
10	5	5	0.17	*4.17*
11	5	3	0.17	*2.50*
12	2	3	0.08	*0.50*
		TOTAL AREA	Cubic Feet	**31.27**
			Cubic Yards	**1.16**

Soil samples from stains numbered 6 and 12 were sent for laboratory analysis. The analytical results were compared to RCS-1 standards. The following were found to exceed RCS-1 standards:

ID	Depth	Parameter	Results	RCS-1 Standard
S-06	Surface	C19-C36 Aliphatic	6,200 mg/kg	2,500 mg/kg
		C11-C22 Aromatic	1,000 mg/kg	800 mg/kg
S-12	Surface	C9-C18 Aliphatic	1,600 mg/kg	1,000 mg/kg
		C19-C36 Aliphatic	19,000 mg/kg	2,500 mg/kg
		C11-C22 Aromatic	4,600 mg/kg	800 mg/kg

5.2 Groundwater Analytical Results

Groundwater samples were collected from monitoring wells ESM-01 through ESM-04 on September 10, 2004. Groundwater samples were collected and preserved in accordance with the SAP and QAPP, and submitted to Groundwater Analytical for laboratory analysis for VOC by EPA 8260B, EPH, and VPH.

Groundwater analytical results were compared to RCGW-2 groundwater standards. The concentrations of all compounds were found to be below RCGW-2 Standards.

6.0 LIMITED REMOVAL ACTION

6.1 Excavation and Soil Sampling

The concentration of total arsenic found in a soil sample collected from boring AB-4 exceeded the RCS-1 Reportable Concentration[1]. On January 19, 2005, a Limited Removal Action was completed by the Town of Ashburnham to address the issue. The town provided a backhoe and operator, and incurred the costs of excavation oversight and soil management. A three foot by four foot area surrounding AB-4 was excavated to a depth of 8″ below ground surface. The soil was placed in a labeled 55-gallon soil drum pending disposal analysis. Soil samples were collected from each side of the excavation and submitted to Groundwater Analytical for laboratory analysis for total arsenic. Sample locations are indicated on Figure 3. Soil samples were also collected from the 55-gallon drum and submitted to Groundwater Analytical for laboratory analysis for disposal criteria. The results of all of the Limited Removal Action soil sampling are summarized in Table 4. Copies of the laboratory reports are included in Appendix B.

6.2 Soil Analytical Results

ID	Depth	Parameter	Results	RCS-1 Standard
SS-01	6-8″″	Arsenic, Total	13 mg/kg	30 mg/kg
SS-02	6-8″″	Arsenic, Total	23 mg/kg	30 mg/kg
SS-03	6-8″″	Arsenic, Total	21 mg/kg	30 mg/kg
SS-04	6-8″″	Arsenic, Total	24 mg/kg	30 mg/kg
D-01	Drum	TCLP Arsenic	<300 ug/ml	n/a
D-02	Drum	Arsenic Total	13 mg/kg	n/a

[1] The other samples described in Section 5 that exceeded S-1 Standards of Reportable Concentrations did not require further actions, as explained in Section 7.

6.3 *Limited Removal Action Conclusions*

The concentrations of total arsenic in all of the soil samples collected from the excavated area during the Limited Removal Action were below the RCS-1 Standard. Therefore, there is no longer a reporting obligation with respect to arsenic. Furthermore, concentrations of arsenic in the drummed soil were also below RCS-1 and concentrations of arsenic in the TCLP extract were non-detect. As a result, the soil will be reused at the site.

7.0 SUMMARY AND CONCLUSIONS

A Phase I Brownfield's Site Assessment was performed at the Town of Ashburnham DPW property located at 17 Central Street in Ashburnham, MA. The purpose of the Phase I was to evaluate current site conditions, identify environmental conditions that may pose an imminent hazard, and determine the extent of soil and groundwater contamination at the site, to the extent possible. The following tasks were completed as a part of this investigation:

- A site inspection to identify potential sources of soil and groundwater contamination;
- The completion of a historical investigation and records review to identify past sources of soil and groundwater contamination;
- The development of site-specific supporting plans including a Quality Assurance Project Plan, Sampling and Analysis Plan, Health and Safety Plan, and Waste Management Plan;
- A surface investigation to collect surficial soil samples from potential sources across the site and at areas where staining is evident; and
- A subsurface investigation to collect subsurface soil samples and groundwater samples from known or suspected release areas.

Summary of Brownfields Site Assessment

- The investigation into the area of the oil/water separator indicated concentrations of EPH, VPH, and VOCs that were below RCS-1 Standards.
- The investigation into the area of the gas pump revealed concentrations of C5-C8 Aliphatics and C9-C10 Aromatics in soil at ESM-03 (6-8') that exceed S-1/GW-2 Standards. This boring is within the area of the former response actions for RTNs 2-10039 and 2-12224. While these results are above the applicable regulatory standards, they appear to be consistent with levels noted in the February 12, 1999 RAO Statement submitted by W.E. Kuriger Associates. In this RAO Statement, the LSP of Record calculated an average Exposure Point Concentration based on several soil samples that were collected within the UST

excavation area. The detected concentrations observed at ESM-3 would not likely change the outcome or conclusions of the RAO.

- The investigation into the area of the former coal storage shed revealed a concentration of 35 mg/kg of arsenic in the soil sample from AB-04 (0-6"). The RCS-1 limit for arsenic is 30 mg/kg. This triggered a reporting notification within 120 days. To determine if the concentration of arsenic detected at AB-04 was indicative of the entire area or a localized problem, a Limited Removal Action was completed. Additional soil samples taken from the immediate vicinity of AB-04 indicated that the 35 mg/kg detected at AB-04 was an anomaly in comparison to the rest of the area. It has been determined that no reporting obligation exists, and no further action is required.
- The investigation into the area of the former septic system revealed concentrations that were well below RCS-1 standards. It does not appear that a reporting obligation exists in this portion of the property.
- The investigation into the area of staining next to the garage resulted in concentrations that exceeded RCS-1 standards for C19-C36 Aliphatics, C11-C22 Aromatics, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Dibenzo(a,h)anthracene, and Indeno(1,2,3-cd)pyrene. However, since the release appears to be motor oil and the volume of impacted soil is less than two cubic yards, it would not require a release notification per 310 CMR 40.0315. The total volume of impacted soil in this area is approximately 0.3 cubic yards. While this release does not need to be reported to the DEP, it should be considered an important housekeeping issue that should be addressed. The soil should be removed and disposed of in the proper manner.
- The investigation into the overall condition of the lot based on the size and analytical results of the areas of visible staining also resulted in concentrations that exceeded RCS-1 standards for C9-C18Aliphatics, C19-C36 Aliphatics, and C11-C22 Aromatics. The total estimated volume of stained soil is 1.16 cubic yards. Again, the volume of impacted soil is less than two cubic yards and therefore does not require notification. It appears that the majority of the staining occurs in areas where DPW and personal employee vehicles are parked. These stains should also be considered a housekeeping issue that should be addressed. If the site is to be redeveloped, proper soil management procedures will need to be practiced during site preparation and construction.
- The investigation into the condition of the groundwater in the vicinity of the USTs revealed concentrations of all parameters that were well below RCGW-2 standards. Therefore, no reporting obligations for groundwater were identified.

8.0 DEVIATIONS FROM THE QAPP

Unforeseen issues and field adjustments led to several minor deviations from the QAPP. This section lists those deviations and explains the rationale behind the decisions made.

- During the subsurface investigation, four groundwater monitoring wells (ESM-1 through ESM-4) were installed. This was done at the request of David Gallagher (DEP). Elevated PID readings were detected during the boring for monitoring well ESM-3. The additional well was completed to determine the extent of the impacted soil.
- Since an additional monitoring well was installed (at DEP request), four field samples were collected for groundwater (instead of three) for analysis for VPH and EPH. Only two samples were collected for VOCs based on PID field measurements.
- Thirteen soil samples were collected and selected based on visual, olfactory, and PID readings for laboratory analysis for VPH and EPH. Eleven soil samples were submitted for RCRA 8 Metals. Six soil samples with one duplicate were submitted for VOC analysis.
- During groundwater sampling, a TROLL 9000 data logger connected to a laptop and WinSitu 4.0 software was used instead of a YSI monitor to collect water quality parameters. A YSI-type monitor was not available at the time of sampling and the TROLL 9000 was determined to be a suitable replacement.
- Soil sample results in areas outside of the 1993 and 1998 UST removal areas were compared to reporting category RCS-1. Groundwater results were compared to reporting category RCGW-2 since the 1993 and 1998 UST releases were limited to soil.
- The laboratory reporting list for VOCs included four oxygenates (tert butyl alcohol, di-isopropyl ether, ethyl tert butyl ether, and tert-amyl methyl ether) that have been recently recommended for inclusion in DEP data quality guidelines.

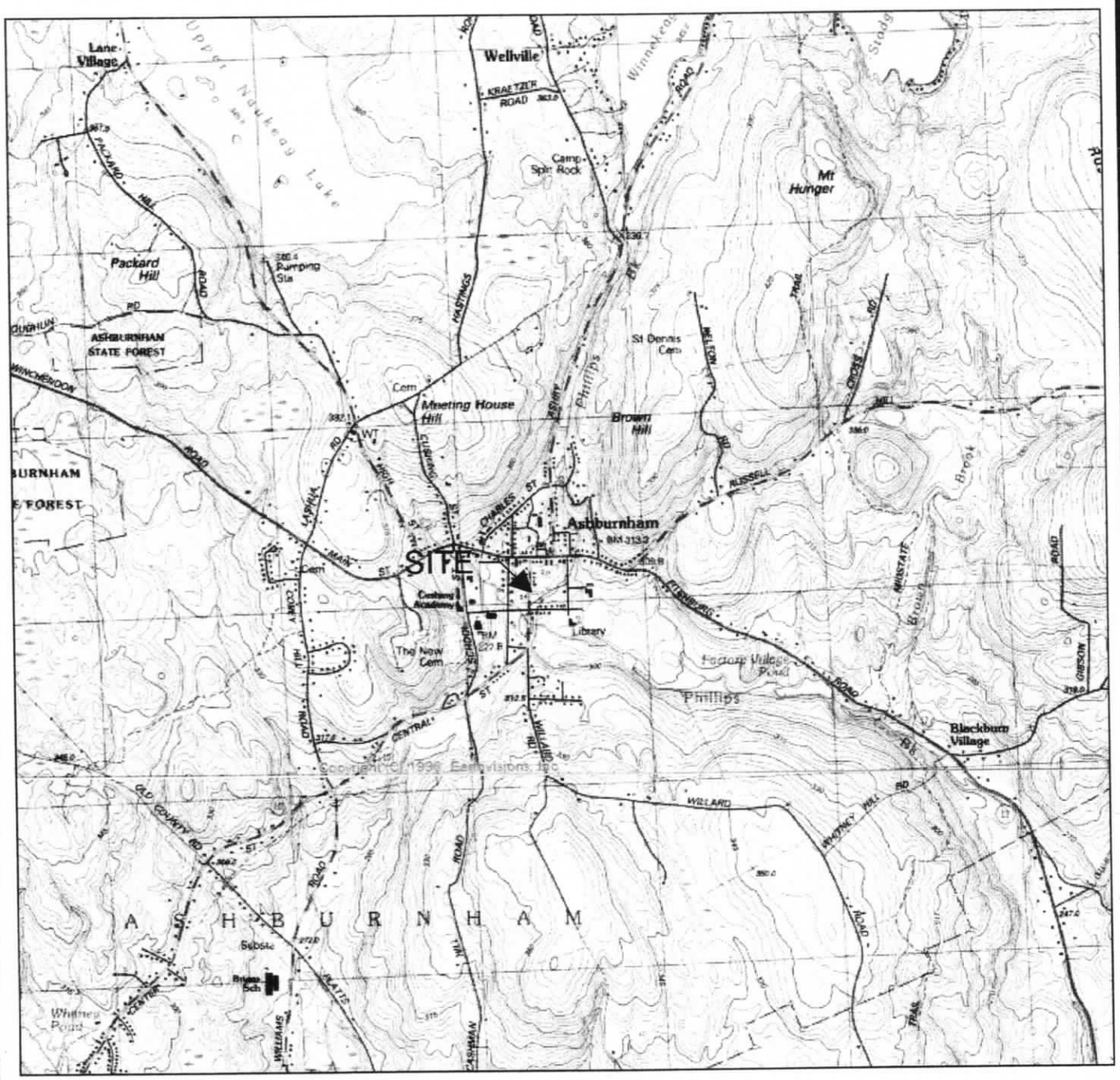
9.0 LSP DATA QUALITY EVALUATION

In accordance with 310 CMR 40.0017, any person undertaking response actions under the MCP shall ensure that analytical and environmental monitoring data used in support of LSP Opinions with respect to assessment, removal, or containment actions is scientifically valid and defensible, and of a level of precision and accuracy commensurate with its stated or intended use. Furthermore, 40.0017 (3)(i) also provides that all response action submittals shall include details on any known conditions or findings which may affect the validity of analytical data, including unsatisfactory results obtained on QA/QC blank, duplicate, surrogate, or spiked samples.

The DEP has provided guidance of the particular components of a recommended QA/QC and data reporting program that may be electively used by parties conducting response actions. The Compendium of Quality Assurance and Quality Control Requirements and Performance Standards for Selected Analytical Methods Used in Support of Response Actions for the MCP (BWSC-CAM) summarizes these data quality

requirements necessary to achieve a level of "presumptive certainty" regarding environmental monitoring and analytical data collected in support of MCP decisions.

The data collected, analyzed, and reported in this Phase I Brownfields Site Assessment report achieved the status of "presumptive certainty". Laboratory prepared Data Certification Summaries are included with each lab report. Any project specific method modifications, non-conformances, or observations are detailed in the Project Narrative section of the laboratory report.



SOURCE: U.S.G.S.7.5 x 15 MINUTE
TOPOGRAPHIC QUADRANGLE
ASHBURNHAM, MASS.-NH (1988)
SITE COORDINATES:
LAT: 42° 38' 02" N
LON: 71° 54' 36" W

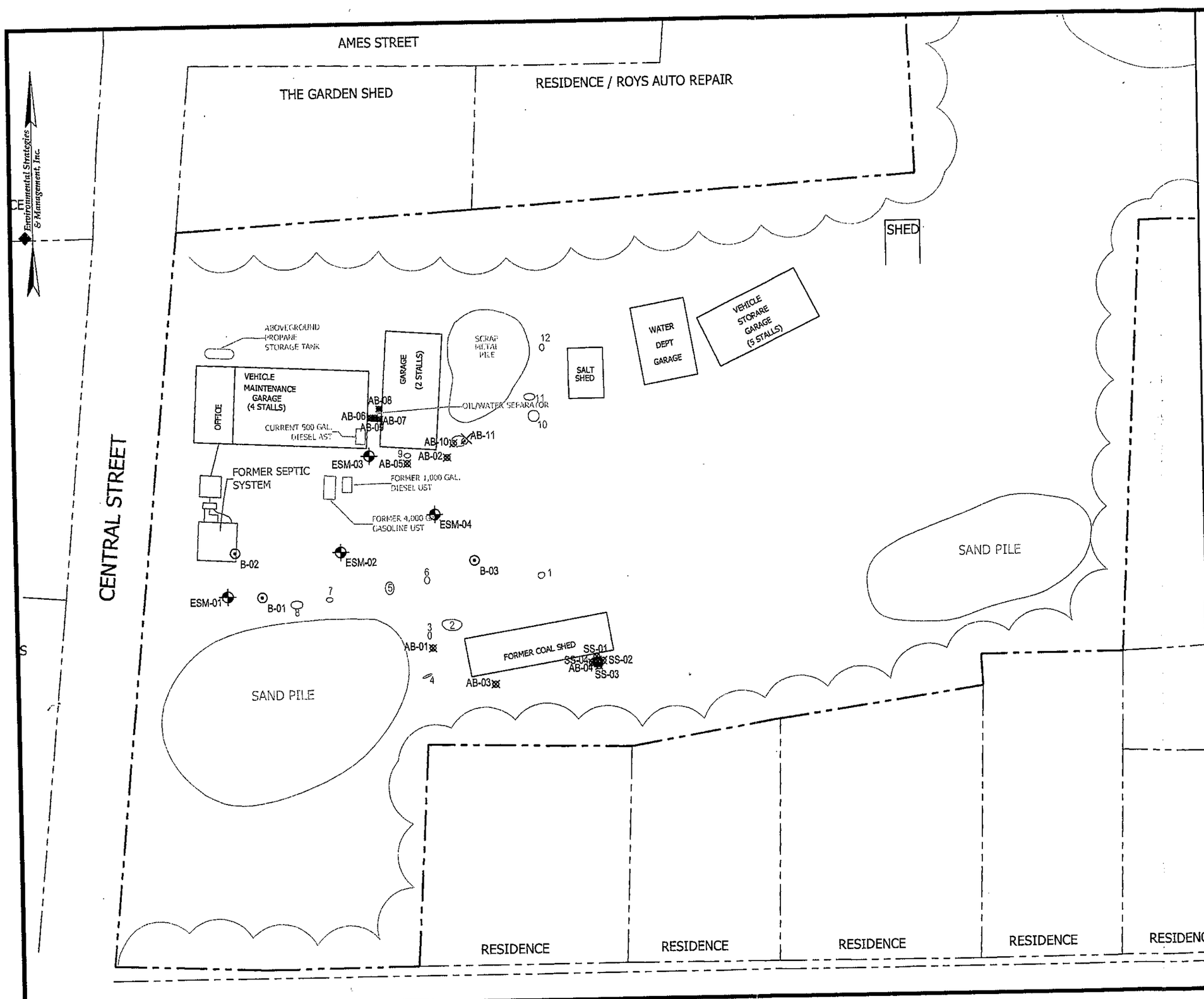
MN GN
15° 267 MILS
1°13 22 MILS

SCALE 1:25 000

1 MILE
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 KILOMETER

Environmental Strategies & Management, Inc.	184 West Main Street Norton, MA 02766 (508) 285-9700 (508) 285-9957 fax info@esm-inc.com		
GAUGING DATE: NA	DRAWING DATE: 07/27/04	ACAD FILE: ASHBURNHAM2/SLM	
SITE LOCUS MAP			
CLIENT: SARSS ASHBURNHAM			PM: DH
LOCATION: 17 CENTRAL STREET ASHBURNHAM, MA			LSP: DH
DESIGNED: –	DWG: AF	PROJECT NO.: 2004-274	FIGURE: 1

F:\CAD Files\SARSS\Ashburnham\ASHBURNHAM2.dwg, SLM, 8/26/2004 1:57:00 PM



LEGEND

ESM-01	GROUNDWATER MONITORING WELL
B-01	GEOPROBE SOIL BORING
AB-01	HAND AUGER SOIL BORING
1	PARKING LOT STAIN
	AREA OF LIMITED SOIL REMOVAL ACTION
SS-01	HAND COLLECTED SOIL SAMPLE

0 50 100
SCALE FEET

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info@esm-inc.com

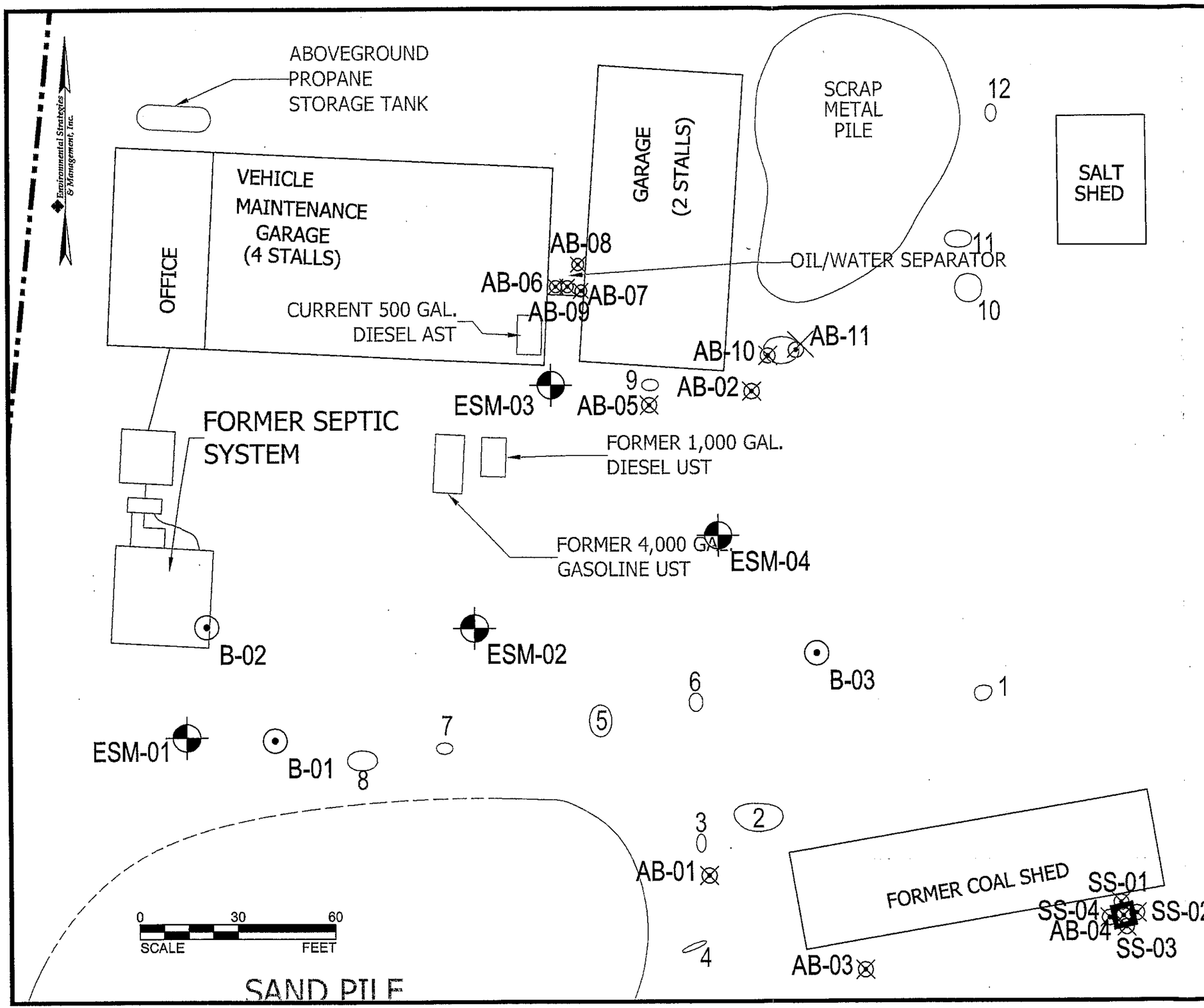
GAUGING DATE:	DRAWING DATE:	ACAD FILE:
N/A	02/14/05	SARSS ASHBURNHAM/PI-2

SITE MAP

PHASE I - BROWNFIELD SITE ASSESSMENT

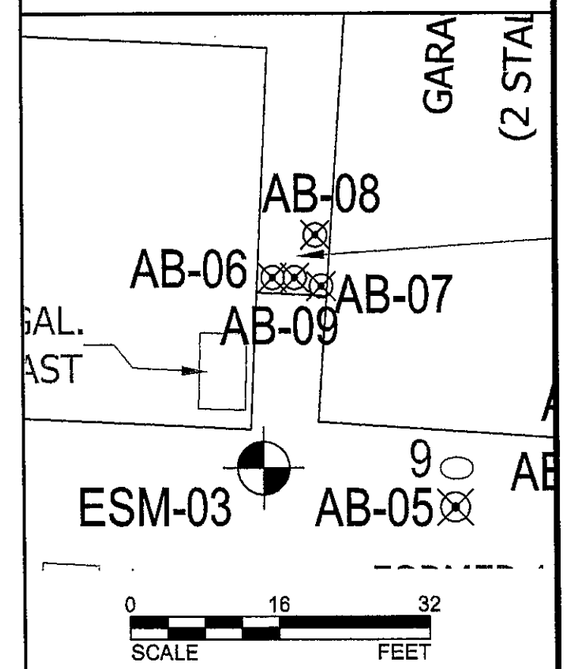
CLIENT:	PM:
SARSS / ASHBURNHAM	DH
LOCATION: 17 CENTRAL ST ASHBURNHAM, MA	LSP: DH

RTN:	DWG:	PROJECT NO.:	FIGURE:
2-12224	AF	2004-274	2



LEGEND

ESM-01	GROUNDWATER MONITORING WELL
B-01	GEOPROBE SOIL BORING
AB-01	HAND AUGER SOIL BORING
1	PARKING LOT STAIN
	AREA OF LIMITED SOIL REMOVAL ACTION
SS-01	HAND COLLECTED SOIL SAMPLE



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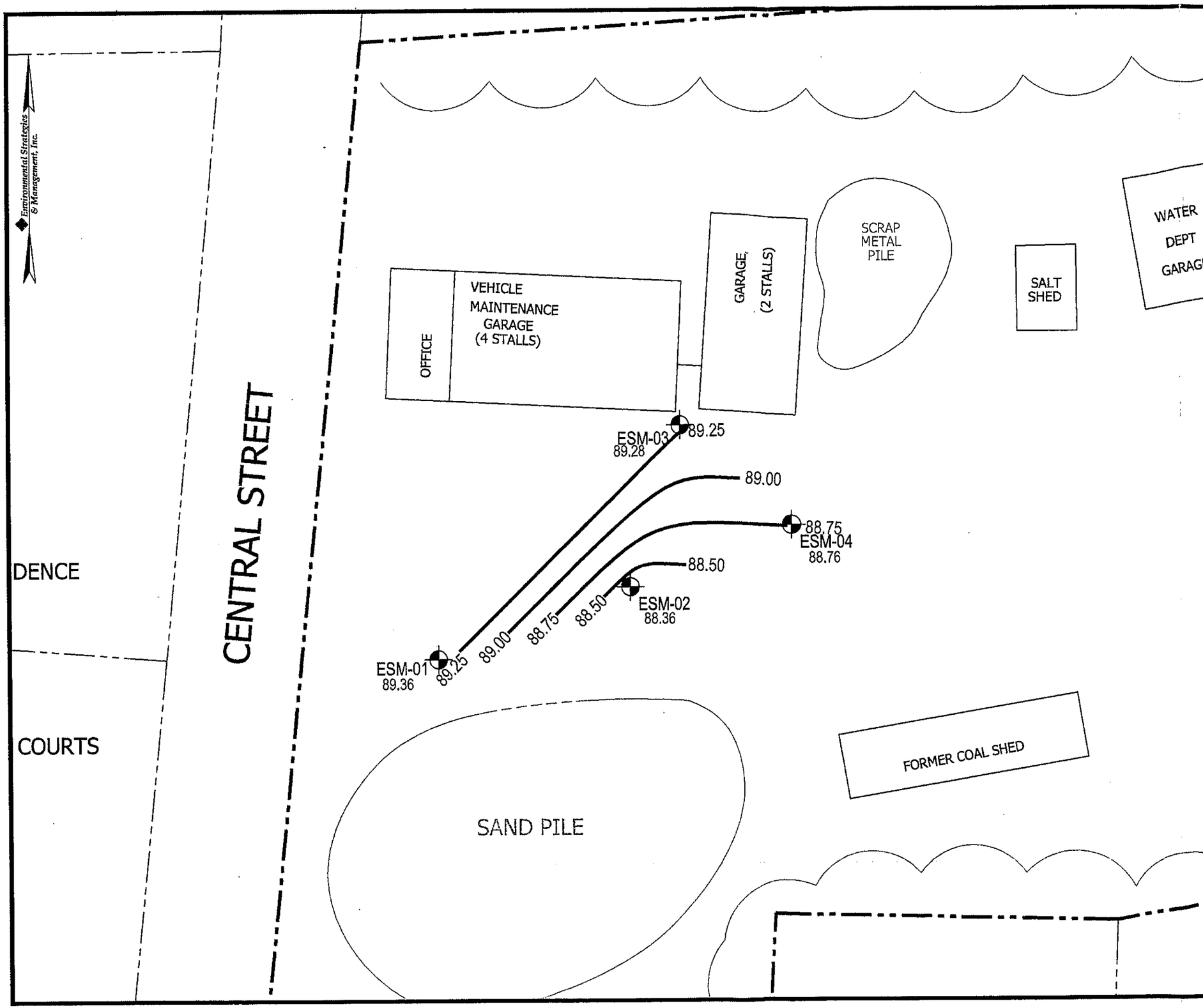
GAUGING DATE:	DRAWING DATE:	ACAD FILE:
N/A	02/14/05	SARSS ASHBURNHAM/PI-3

DETAILED SITE MAP

PHASE I - BROWNFIELD SITE ASSESSMENT

CLIENT:	PM:
SARSS / ASHBURNHAM	DH
LOCATION: 17 CENTRAL ST ASHBURNHAM, MA	LSP: DH

RTN:	DWG:	PROJECT NO.:	FIGURE:
2-12224	AF	2004-274	3



LEGEND

ESM-01	GROUNDWATER MONITORING WELL
B-01	GEOPROBE SOIL BORING
AB-01	HAND AUGER SOIL BORING
88.76	WATER TABLE ELEVATION AT WELL
88.75	WATER TABLE ELEVATION CONTOUR

0 30 60
SCALE FEET

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info@esm-inc.com

GAUGING DATE:	DRAWING DATE:	ACAD FILE:
09/10/04	02/14/05	SARSS ASHBURNHAM/PI-3

WATER TABLE ELEVATION CONTOUR MAP

PHASE I - BROWNFIELD SITE ASSESSMENT

CLIENT:	PM:
SARSS / ASHBURNHAM	DH
LOCATION: 17 CENTRAL ST ASHBURNHAM, MA	LSP: DH

RTN:	DWG:	PROJECT NO.:	FIGURE:
2-12224	AF	2004-274	4

Figure 5
NRS Site Scoring Map
DPW Garage
17 Central Street
Ashburnham, MA

Legend

Environmental Strategies & Management

TABLE 1
SUMMARY OF
SOIL ANALYTICAL RESULTS
VPH

SARSS Ashburnham
17 Central Street
Ashburnham, Massachusetts

(All results in mg/kg)

Sample ID	Date	Depth	C5-C8 Aliphatics	C9-C12 Aliphatics	C9-C10 Aromatic	MTBE	Benzene	Toluene	E Benzene	Xylenes	Naphthalene
AB-07	09/02/04	(33-36")	<1	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5
AB-08	09/02/04	(18-24")	<1	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5
AB-09	09/02/04	(18-24")	<1.6	<1.6	5.1	<0.16	<0.16	<0.16	<0.16	<0.16	<0.79
AB-10/11	09/02/04	(4-6")	<1.6	<1.6	<1.6	<0.16	<0.16	<0.16	<0.16	<0.16	<0.8
AB-10/11	09/02/04	(0-2")	<1.4	<1.4	<1.4	<0.14	<0.14	<0.14	<0.14	<0.14	<0.69
B-01	09/01/04	(7-8')	<1	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5
B-02	09/01/04	(6-7')	<2	<2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.98
ESM-01	09/01/04	(7-9')	<2.2	<2.2	<2.2	<0.22	<0.22	<0.22	<0.22	<0.22	<1.1
ESM-02	09/01/04	(7-8')	<1	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5
ESM-03	09/01/04	(6-8')	160	130	150	<0.38	0.39	0.56	6.6	1.66	2.2
ESM-04	09/01/04	(7-9')	<1.5	9.2	16	<0.15	<0.15	<0.15	<0.15	<0.15	<0.73
S-06	09/02/04	(Surface)	<1.4	<1.4	4	<0.14	<0.14	<0.14	<0.14	<0.14	<0.7
S-12	09/02/04	(Surface)	<2.2	<2.2	<2.2	<0.22	<0.22	<0.22	<0.22	<0.22	<1.1
Soil Standards	S1-GW2		100	1000	100	100	40	500	500	500	100
	S1-GW3		100	1000	100	100	40	500	500	500	100
	RC S1		100	1000	200	0.3	10	90	80	500	4

Notes NA - Not Applicable
NS - Not Sampled
RC - Reportable Concentrations

Environmental Strategies & Management, Inc.

TABLE 1
SUMMARY OF
SOIL ANALYTICAL RESULTS
EPH
(section 1)

SARSS Ashburnham
17 Central Street
Ashburnham, Massachusetts

(All results in mg/kg)

Sample	Date	Depth	C9-C18 Aliphatics	C19-C36 Aliphatics	C11-C22 Aromatics	Acenaphthene	2-methylnaphthalene	Naphthalene	Phenanthrene	Benzo(g,h,i) perylene	Benzo(k) fluoranthene	Chrysene
AB-07	09/02/04	(33-36")	<33	45	<33	<0.55	<0.55	<0.55	<0.55	<0.55	<0.55	<0.55
AB-08	09/02/04	(18-24")	<31	<31	<31	<0.51	<0.51	<0.51	<0.51	<0.51	<0.51	<0.51
AB-09	09/02/04	(18-24")	<35	360	88	<0.58	<0.58	<0.58	<0.58	<0.58	<0.58	<0.58
AB-10/11	09/02/04	(4-6")	57	1300	270	<0.52	<0.52	<0.52	<0.52	<0.52	<0.52	<0.52
AB-10/11	09/02/04	(0-2")	680	13000	2200	<2.7	<2.7	<2.7	<2.7	<2.7	<2.7	<2.7
B-01	09/01/04	(7-8')	<37	39	<37	<0.62	<0.62	<0.62	<0.62	<0.62	<0.62	<0.62
B-02	09/01/04	(6-7')	<39	<39	<39	<0.64	<0.64	<0.64	<0.64	<0.64	<0.64	<0.64
ESM-01	09/01/04	(7-9')	<37	<37	<37	<0.61	<0.61	<0.61	<0.61	<0.61	<0.61	<0.61
ESM-02	09/01/04	(7-8')	<36	<36	<36	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6
ESM-03	09/01/04	(6-8')	820	950	510	<0.53	1.3	0.77	<0.53	<0.53	<0.53	<0.53
ESM-04	09/01/04	(7-9')	120	150	120	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54
S-06	09/02/04	(Surface)	<150	6200	1000	<0.7	3.3	<0.7	<0.7	<0.7	<0.7	<0.7
S-12	09/02/04	(Surface)	1600	19000	4600	<0.7	<0.7	<0.7	0.97	<0.7	<0.7	<0.7
Soil Standards	S1-GW2		1000	2500	800	1000	500	100	1000	1000	7	7
	S1-GW3		1000	2500	800	1000	500	100	100	1000	7	7
	RC S1		1000	2500	200	20	4	4	100	1000	7	7

Notes NA - Not Applicable
NS - Not Sampled
RC - Reportable Concentrations

Environmental Strategies & Management, Inc.

TABLE 1
SUMMARY OF
SOIL ANALYTICAL RESULTS
EPH
(section 2)

SARSS Ashburnham
17 Central Street
Ashburnham, Massachusetts

(All results in mg/kg)

Sample	Date	Depth	Acenaphthylene	Anthracene	Benzo(a) anthracene	Benzo(a) pyrene	Benzo(b) fluoranthene	Dibenzo(a,h) anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Pyrene
AB-07	09/02/04	(33-36")	<0.55	<0.55	<0.55	<0.55	<0.55	<0.55	<0.55	<0.55	<0.55	<0.55
AB-08	09/02/04	(18-24")	<0.51	<0.51	<0.51	<0.51	<0.51	<0.51	<0.51	<0.51	<0.51	<0.51
AB-09	09/02/04	(18-24")	<0.58	<0.58	<0.58	<0.58	<0.58	<0.58	<0.58	<0.58	<0.58	<0.58
AB-10/11	09/02/04	(4-6")	<0.52	<0.52	<0.52	<0.52	<0.52	<0.52	<0.52	<0.52	<0.52	<0.52
AB-10/11	09/02/04	(0-2")	<2.7	<2.7	<2.7	<2.7	<2.7	<2.7	<2.7	<2.7	<2.7	<2.7
B-01	09/01/04	(7-8')	<0.62	<0.62	<0.62	<0.62	<0.62	<0.62	<0.62	<0.62	<0.62	<0.62
B-02	09/01/04	(6-7')	<0.64	<0.64	<0.64	<0.64	<0.64	<0.64	<0.64	<0.64	<0.64	<0.64
ESM-01	09/01/04	(7-9')	<0.61	<0.61	<0.61	<0.61	<0.61	<0.61	<0.61	<0.61	<0.61	<0.61
ESM-02	09/01/04	(7-8')	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6
ESM-03	09/01/04	(6-8')	<0.53	<0.53	<0.53	<0.53	<0.53	<0.53	<0.53	<0.53	<0.53	<0.53
ESM-04	09/01/04	(7-9')	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54
S-06	09/02/04	(Surface)	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7
S-12	09/02/04	(Surface)	<0.7	0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	1.5
Soil Standards		S1-GW2	100	1000	0.7	0.7	0.7	0.7	1000	1000	0.7	700
		S1-GW3	100	1000	0.7	0.7	0.7	0.7	1000	1000	0.7	700
		RC S1	100	1000	0.7	0.7	0.7	0.7	1000	400	0.7	700

Notes NA - Not Applicable
NS - Not Sampled
RC - Reportable Concentrations

Environmental Strategies & Management, Inc.

TABLE 1
SUMMARY OF
SOIL ANALYTICAL RESULTS
Metals

SARSS Ashburnham
17 Central Street
Ashburnham, Massachusetts

(All results in mg/kg)

Sample	Date	Depth	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver
AB-03	09/01/04	(0-6")	8.6	<23	<0.56	<11	18	<0.038	<11	<5.6
AB-04	09/01/04	(0-6")	35	27	<0.58	<12	38	0.045	<12	<5.8
AB-07	09/02/04	(33-36")	2	<23	<0.56	<11	<11	<0.038	<11	<5.6
AB-08	09/02/04	(18-24")	4.8	<20	<0.5	<10	49	<0.034	<10	<5
AB-09	09/02/04	(18-24")	11	38	<0.58	17	160	0.23	<12	<5.8
AB-10/11	09/02/04	(4-6")	7.4	37	<0.51	13	85	<0.034	<10	<5.1
AB-10/11	09/02/04	(0-2")	7.7	47	0.97	24	81	<0.039	<11	<5.6
ESM-01	09/01/04	(7-9')	13	56	<0.6	14	87	0.24	<12	<6
ESM-03	09/01/04	(6-8')	16	37	0.61	<11	63	<0.035	<11	<5.3
S-06	09/02/04	(Surface)	4.6	<20	<0.5	<10	<10	<0.034	<10	<5
S-12	09/02/04	(Surface)	20	46	<0.55	18	40	0.062	<11	<5.5
Soil Standards	S1-GW2		30	1000	30	1000	300	20	400	100
	S1-GW3		30	1000	30	1000	300	20	400	100
	RC S1		30	1000	30	1000	300	20	400	100

Notes
NA - Not Applicable
NS - Not Sampled
RC - Reportable Concentrations

Environmental Strategies & Management, Inc.

TABLE 1
SUMMARY OF
SOIL ANALYTICAL RESULTS
VOLATILE ORGANICS

SARSS Ashburnham
17 Central Street
Ashburnham, Massachusetts

(All results in mg/kg)

Sample ID:	ESM-03
Depth	(6-8')
Date:	9/1/2004

Dichlorodifluoromethane:	<2.5	Dibromochloromethane:	<1.3
Chloromethane:	<2.5	1,2-Dibromoethane:	<1.3
Vinyl Chloride:	<2.5	Chlorobenzene:	<1.3
Bromomethane:	<2.5	1,1,1,2-Tetrachloroethane:	<1.3
Chloroethane:	<2.5	Ethylbenzene:	<1.3
Trichlorofluoromethane:	<2.5	Xylene (Total):	<1.3
1,1-Dichloroethene:	<1.3	Styrene:	<1.3
Acetone:	<13	Bromoform:	<1.3
Diethyl Ether:	<2.5	Isopropylbenzene:	<1.3
1,1,2-Trichlorotrifluoroethane:	<13	1,1,2,2-Tetrachloroethane:	<1.3
Carbon Disulfide:	<13	Bromobenzene:	<1.3
Methylene Chloride:	<5.1	1,2,3-Trichloropropane:	<1.3
trans-1,2-Dichloroethene:	<1.3	n-Propylbenzene:	<1.3
Methyl tert-butyl ether:	<1.3	2-Chlorotoluene:	<1.3
1,1-Dichloroethane:	<1.3	1,3,5-Trimethylbenzene:	<1.3
Tetrahydrofuran:	<13	4-Chlorotoluene:	<1.3
2-Butanone:	<13	tert-Butylbenzene:	<1.3
cis-1,2-Dichloroethene:	<1.3	1,2,4-Trimethylbenzene:	<1.3
2,2-Dichloropropane:	<1.3	sec-Butylbenzene:	<1.3
Bromochloromethane:	<1.3	4-Isopropyltoluene:	<1.3
Chloroform:	<1.3	1,3-Dichlorobenzene:	<1.3
1,1,1-Trichloroethane:	<1.3	1,4-Dichlorobenzene:	<1.3
1,1-Dichloropropene:	<1.3	n-Butylbenzene:	<1.3
Carbon Tetrachloride:	<1.3	1,2-Dichlorobenzene:	<1.3
1,2-Dichloroethane:	<1.3	1,2-Dibromo-3-chloropropane:	<1.3
Benzene:	<1.3	1,2,4-Trichlorobenzene:	<1.3
Trichloroethene:	<1.3	Hexachlorobutadiene:	<1.3
1,2-Dichloropropane:	<1.3	Naphthalene:	<1.3
Dibromomethane:	<1.3	1,2,3-Trichlorobenzene:	<1.3
Bromodichloromethane:	<1.3		
cis-1,3-Dichloropropene:	<1.3		
4-Methyl-2-pentanone:	<13		
Toluene:	<1.3		
trans-1,3-Dichloropropene:	<1.3		
1,1,2-Trichloroethane:	<1.3		
1,3-Dichloropropane:	<1.3		
Tetrachloroethene:	<1.3		
2-Hexanone:	<13		

Sample ID:	ESM-04
Depth	(7-9')
Date:	9/1/2004

Dichlorodifluoromethane:	<0.55	Dibromochloromethane:	<0.28
Chloromethane:	<0.55	1,2-Dibromoethane:	<0.28
Vinyl Chloride:	<0.55	Chlorobenzene:	<0.28
Bromomethane:	<0.55	1,1,1,2-Tetrachloroethane:	<0.28
Chloroethane:	<0.55	Ethylbenzene:	<0.28
Trichlorofluoromethane:	<0.55	Xylene (Total):	<0.28
1,1-Dichloroethene:	<0.28	Styrene:	<0.28
Acetone:	<2.8	Bromoform:	<0.28
Diethyl Ether:	<0.55	Isopropylbenzene:	<0.28
1,1,2-Trichlorotrifluoroethane:	<2.8	1,1,2,2-Tetrachloroethane:	<0.28
Carbon Disulfide:	<2.8	Bromobenzene:	<0.28
Methylene Chloride:	<1.1	1,2,3-Trichloropropane:	<0.28
trans-1,2-Dichloroethene:	<0.28	n-Propylbenzene:	<0.28
Methyl tert-butyl ether:	<0.28	2-Chlorotoluene:	<0.28
1,1-Dichloroethane:	<0.28	1,3,5-Trimethylbenzene:	<0.28
Tetrahydrofuran:	<2.8	4-Chlorotoluene:	<0.28
2-Butanone:	<2.8	tert-Butylbenzene:	<0.28
cis-1,2-Dichloroethene:	<0.28	1,2,4-Trimethylbenzene:	<0.28
2,2-Dichloropropane:	<0.28	sec-Butylbenzene:	<0.28
Bromochloromethane:	<0.28	4-Isopropyltoluene:	<0.28
Chloroform:	<0.28	1,3-Dichlorobenzene:	<0.28
1,1,1-Trichloroethane:	<0.28	1,4-Dichlorobenzene:	<0.28
1,1-Dichloropropene:	<0.28	n-Butylbenzene:	<0.28
Carbon Tetrachloride:	<0.28	1,2-Dichlorobenzene:	<0.28
1,2-Dichloroethane:	<0.28	1,2-Dibromo-3-chloropropane:	<0.28
Benzene:	<0.28	1,2,4-Trichlorobenzene:	<0.28
Trichloroethene:	<0.28	Hexachlorobutadiene:	<0.28
1,2-Dichloropropane:	<0.28	Naphthalene:	<0.28
Dibromomethane:	<0.28	1,2,3-Trichlorobenzene:	<0.28
Bromodichloromethane:	<0.28		
cis-1,3-Dichloropropene:	<0.28		
4-Methyl-2-pentanone:	<2.8		
Toluene:	<0.28		
trans-1,3-Dichloropropene:	<0.28		
1,1,2-Trichloroethane:	<0.28		
1,3-Dichloropropane:	<0.28		
Tetrachloroethene:	<0.28		
2-Hexanone:	<2.8		

Sample ID:	FIELD DUP
Depth	(6-8')
Date:	9/1/2004

Dichlorodifluoromethane:	<0.92	Dibromochloromethane:	<0.46
Chloromethane:	<0.92	1,2-Dibromoethane:	<0.46
Vinyl Chloride:	<0.92	Chlorobenzene:	<0.46
Bromomethane:	<0.92	1,1,1,2-Tetrachloroethane:	<0.46
Chloroethane:	<0.92	Ethylbenzene:	<0.46
Trichlorofluoromethane:	<0.92	Xylene (Total):	0.71
1,1-Dichloroethene:	<0.46	Styrene:	<0.46
Acetone:	<4.6	Bromoform:	<0.46
Diethyl Ether:	<0.92	Isopropylbenzene:	<0.46
1,1,2-Trichlorotrifluoroethane:	<4.6	1,1,2,2-Tetrachloroethane:	<0.46
Carbon Disulfide:	<4.6	Bromobenzene:	<0.46
Methylene Chloride:	<1.8	1,2,3-Trichloropropane:	<0.46
trans-1,2-Dichloroethene:	<0.46	n-Propylbenzene:	<0.46
Methyl tert-butyl ether:	<0.46	2-Chlorotoluene:	<0.46
1,1-Dichloroethane:	<0.46	1,3,5-Trimethylbenzene:	<0.46
Tetrahydrofuran:	<4.6	4-Chlorotoluene:	<0.46
2-Butanone:	<4.6	tert-Butylbenzene:	<0.46
cis-1,2-Dichloroethene:	<0.46	1,2,4-Trimethylbenzene:	0.64
2,2-Dichloropropane:	<0.46	sec-Butylbenzene:	<0.46
Bromochloromethane:	<0.46	4-Isopropyltoluene:	<0.46
Chloroform:	<0.46	1,3-Dichlorobenzene:	<0.46
1,1,1-Trichloroethane:	<0.46	1,4-Dichlorobenzene:	<0.46
1,1-Dichloropropene:	<0.46	n-Butylbenzene:	<0.46
Carbon Tetrachloride:	<0.46	1,2-Dichlorobenzene:	<0.46
1,2-Dichloroethane:	<0.46	1,2-Dibromo-3-chloropropane:	<0.46
Benzene:	<0.46	1,2,4-Trichlorobenzene:	<0.46
Trichloroethene:	<0.46	Hexachlorobutadiene:	<0.46
1,2-Dichloropropane:	<0.46	Naphthalene:	<0.46
Dibromomethane:	<0.46	1,2,3-Trichlorobenzene:	<0.46
Bromodichloromethane:	<0.46		
cis-1,3-Dichloropropene:	<0.46		
4-Methyl-2-pentanone:	<4.6		
Toluene:	0.58		
trans-1,3-Dichloropropene:	<0.46		
1,1,2-Trichloroethane:	<0.46		
1,3-Dichloropropane:	<0.46		
Tetrachloroethene:	<0.46		
2-Hexanone:	<4.6		

Sample ID:	AB-09
Depth	(18-24")
Date:	9/2/2004

Dichlorodifluoromethane:	<0.01	Dibromochloromethane:	<0.005
Chloromethane:	<0.01	1,2-Dibromoethane:	<0.005
Vinyl Chloride:	<0.01	Chlorobenzene:	<0.005
Bromomethane:	<0.01	1,1,1,2-Tetrachloroethane:	<0.005
Chloroethane:	<0.01	Ethylbenzene:	<0.005
Trichlorofluoromethane:	<0.01	Xylene (Total):	0.007
1,1-Dichloroethene:	<0.005	Styrene:	<0.005
Acetone:	<0.21	Bromoform:	<0.005
Diethyl Ether:	<0.01	Isopropylbenzene:	<0.005
1,1,2-Trichlorotrifluoroethane:	<0.052	1,1,2,2-Tetrachloroethane:	<0.005
Carbon Disulfide:	<0.052	Bromobenzene:	<0.005
Methylene Chloride:	<0.052	1,2,3-Trichloropropane:	<0.005
trans-1,2-Dichloroethene:	<0.005	n-Propylbenzene:	<0.005
Methyl tert-butyl ether:	51	2-Chlorotoluene:	<0.005
1,1-Dichloroethane:	<0.005	1,3,5-Trimethylbenzene:	<0.005
Tetrahydrofuran:	<0.052	4-Chlorotoluene:	<0.005
2-Butanone:	<0.052	tert-Butylbenzene:	<0.005
cis-1,2-Dichloroethene:	<0.005	1,2,4-Trimethylbenzene:	0.008
2,2-Dichloropropane:	<0.005	sec-Butylbenzene:	<0.005
Bromochloromethane:	<0.005	4-Isopropyltoluene:	<0.005
Chloroform:	<0.005	1,3-Dichlorobenzene:	<0.005
1,1,1-Trichloroethane:	<0.005	1,4-Dichlorobenzene:	<0.005
1,1-Dichloropropene:	<0.005	n-Butylbenzene:	<0.005
Carbon Tetrachloride:	<0.005	1,2-Dichlorobenzene:	<0.005
1,2-Dichloroethane:	<0.005	1,2-Dibromo-3-chloropropane:	<0.005
Benzene:	<0.005	1,2,4-Trichlorobenzene:	<0.005
Trichloroethene:	<0.005	Hexachlorobutadiene:	<0.005
1,2-Dichloropropane:	<0.005	Naphthalene:	<0.005
Dibromomethane:	<0.005	1,2,3-Trichlorobenzene:	<0.005
Bromodichloromethane:	<0.005		
cis-1,3-Dichloropropene:	<0.005		
4-Methyl-2-pentanone:	<0.052		
Toluene:	0.009		
trans-1,3-Dichloropropene:	<0.005		
1,1,2-Trichloroethane:	<0.005		
1,3-Dichloropropane:	<0.005		
Tetrachloroethene:	<0.005		
2-Hexanone:	<0.052		

Sample ID:	AB-10/11
Depth	(0-2")
Date:	9/2/2004

Dichlorodifluoromethane:	<0.011	Dibromochloromethane:	<0.006
Chloromethane:	<0.011	1,2-Dibromoethane:	<0.006
Vinyl Chloride:	<0.011	Chlorobenzene:	<0.006
Bromomethane:	<0.011	1,1,1,2-Tetrachloroethane:	<0.006
Chloroethane:	<0.011	Ethylbenzene:	<0.006
Trichlorofluoromethane:	<0.011	Xylene (Total):	<0.006
1,1-Dichloroethene:	<0.006	Styrene:	<0.006
Acetone:	430	Bromoform:	<0.006
Diethyl Ether:	<0.011	Isopropylbenzene:	<0.006
1,1,2-Trichlorotrifluoroethane:	<0.057	1,1,2,2-Tetrachloroethane:	<0.006
Carbon Disulfide:	<0.057	Bromobenzene:	<0.006
Methylene Chloride:	<0.057	1,2,3-Trichloropropane:	<0.006
trans-1,2-Dichloroethene:	<0.006	n-Propylbenzene:	<0.006
Methyl tert-butyl ether:	<0.006	2-Chlorotoluene:	<0.006
1,1-Dichloroethane:	<0.006	1,3,5-Trimethylbenzene:	<0.006
Tetrahydrofuran:	<0.057	4-Chlorotoluene:	<0.006
2-Butanone:	89	tert-Butylbenzene:	<0.006
cis-1,2-Dichloroethene:	<0.006	1,2,4-Trimethylbenzene:	<0.006
2,2-Dichloropropane:	<0.006	sec-Butylbenzene:	<0.006
Bromochloromethane:	<0.006	4-Isopropyltoluene:	<0.006
Chloroform:	<0.006	1,3-Dichlorobenzene:	<0.006
1,1,1-Trichloroethane:	<0.006	1,4-Dichlorobenzene:	<0.006
1,1-Dichloropropene:	<0.006	n-Butylbenzene:	<0.006
Carbon Tetrachloride:	<0.006	1,2-Dichlorobenzene:	<0.006
1,2-Dichloroethane:	<0.006	1,2-Dibromo-3-chloropropane:	<0.006
Benzene:	<0.006	1,2,4-Trichlorobenzene:	<0.006
Trichloroethene:	<0.006	Hexachlorobutadiene:	<0.006
1,2-Dichloropropane:	<0.006	Naphthalene:	<0.006
Dibromomethane:	<0.006	1,2,3-Trichlorobenzene:	<0.006
Bromodichloromethane:	<0.006		
cis-1,3-Dichloropropene:	<0.006		
4-Methyl-2-pentanone:	<0.057		
Toluene:	<0.006		
trans-1,3-Dichloropropene:	<0.006		
1,1,2-Trichloroethane:	<0.006		
1,3-Dichloropropane:	<0.006		
Tetrachloroethene:	<0.006		
2-Hexanone:	<0.057		

Sample ID:	S-06 (Surface)
Depth	(Surface)
Date:	9/2/2004

Dichlorodifluoromethane:	<0.013	Dibromochloromethane:	<0.007
Chloromethane:	<0.013	1,2-Dibromoethane:	<0.007
Vinyl Chloride:	<0.013	Chlorobenzene:	<0.007
Bromomethane:	<0.013	1,1,1,2-Tetrachloroethane:	<0.007
Chloroethane:	<0.013	Ethylbenzene:	<0.007
Trichlorofluoromethane:	<0.013	Xylene (Total):	<0.007
1,1-Dichloroethene:	<0.007	Styrene:	<0.007
Acetone:	<0.26	Bromoform:	<0.007
Diethyl Ether:	<0.013	Isopropylbenzene:	<0.007
1,1,2-Trichlorotrifluoroethane:	<0.065	1,1,2,2-Tetrachloroethane:	<0.007
Carbon Disulfide:	<0.065	Bromobenzene:	<0.007
Methylene Chloride:	<0.065	1,2,3-Trichloropropane:	<0.007
trans-1,2-Dichloroethene:	<0.007	n-Propylbenzene:	<0.007
Methyl tert-butyl ether:	<0.007	2-Chlorotoluene:	<0.007
1,1-Dichloroethane:	<0.007	1,3,5-Trimethylbenzene:	<0.007
Tetrahydrofuran:	<0.065	4-Chlorotoluene:	<0.007
2-Butanone:	<0.065	tert-Butylbenzene:	<0.007
cis-1,2-Dichloroethene:	<0.007	1,2,4-Trimethylbenzene:	<0.007
2,2-Dichloropropane:	<0.007	sec-Butylbenzene:	<0.007
Bromochloromethane:	<0.007	4-Isopropyltoluene:	<0.007
Chloroform:	<0.007	1,3-Dichlorobenzene:	<0.007
1,1,1-Trichloroethane:	<0.007	1,4-Dichlorobenzene:	<0.007
1,1-Dichloropropene:	<0.007	n-Butylbenzene:	<0.007
Carbon Tetrachloride:	<0.007	1,2-Dichlorobenzene:	<0.007
1,2-Dichloroethane:	<0.007	1,2-Dibromo-3-chloropropane:	<0.007
Benzene:	<0.007	1,2,4-Trichlorobenzene:	<0.007
Trichloroethene:	<0.007	Hexachlorobutadiene:	<0.007
1,2-Dichloropropane:	<0.007	Naphthalene:	<0.007
Dibromomethane:	<0.007	1,2,3-Trichlorobenzene:	<0.007
Bromodichloromethane:	<0.007		
cis-1,3-Dichloropropene:	<0.007		
4-Methyl-2-pentanone:	<0.065		
Toluene:	<0.007		
trans-1,3-Dichloropropene:	<0.007		
1,1,2-Trichloroethane:	<0.007		
1,3-Dichloropropane:	<0.007		
Tetrachloroethene:	<0.007		
2-Hexanone:	<0.065		

Sample ID:	S-12 (Surface)
Depth	(Surface)
Date:	9/2/2004

Dichlorodifluoromethane:	<0.015	Dibromochloromethane:	<0.008
Chloromethane:	<0.015	1,2-Dibromoethane:	<0.008
Vinyl Chloride:	<0.015	Chlorobenzene:	<0.008
Bromomethane:	<0.015	1,1,1,2-Tetrachloroethane:	<0.008
Chloroethane:	<0.015	Ethylbenzene:	<0.008
Trichlorofluoromethane:	<0.015	Xylene (Total):	<0.008
1,1-Dichloroethene:	<0.008	Styrene:	<0.008
Acetone:	310	Bromoform:	<0.008
Diethyl Ether:	<0.015	Isopropylbenzene:	<0.008
1,1,2-Trichlorotrifluoroethane:	<0.076	1,1,2,2-Tetrachloroethane:	<0.008
Carbon Disulfide:	<0.076	Bromobenzene:	<0.008
Methylene Chloride:	<0.076	1,2,3-Trichloropropane:	<0.008
trans-1,2-Dichloroethene:	<0.008	n-Propylbenzene:	<0.008
Methyl tert-butyl ether:	<0.008	2-Chlorotoluene:	<0.008
1,1-Dichloroethane:	<0.008	1,3,5-Trimethylbenzene:	<0.008
Tetrahydrofuran:	<0.076	4-Chlorotoluene:	<0.008
2-Butanone:	<0.076	tert-Butylbenzene:	<0.008
cis-1,2-Dichloroethene:	<0.008	1,2,4-Trimethylbenzene:	<0.008
2,2-Dichloropropane:	<0.008	sec-Butylbenzene:	<0.008
Bromochloromethane:	<0.008	4-Isopropyltoluene:	<0.008
Chloroform:	<0.008	1,3-Dichlorobenzene:	<0.008
1,1,1-Trichloroethane:	<0.008	1,4-Dichlorobenzene:	<0.008
1,1-Dichloropropene:	<0.008	n-Butylbenzene:	<0.008
Carbon Tetrachloride:	<0.008	1,2-Dichlorobenzene:	<0.008
1,2-Dichloroethane:	<0.008	1,2-Dibromo-3-chloropropane:	<0.008
Benzene:	<0.008	1,2,4-Trichlorobenzene:	<0.008
Trichloroethene:	<0.008	Hexachlorobutadiene:	<0.008
1,2-Dichloropropane:	<0.008	Naphthalene:	<0.008
Dibromomethane:	<0.008	1,2,3-Trichlorobenzene:	<0.008
Bromodichloromethane:	<0.008		
cis-1,3-Dichloropropene:	<0.008		
4-Methyl-2-pentanone:	<0.076		
Toluene:	<0.008		
trans-1,3-Dichloropropene:	<0.008		
1,1,2-Trichloroethane:	<0.008		
1,3-Dichloropropane:	<0.008		
Tetrachloroethene:	<0.008		
2-Hexanone:	<0.076		

Sample ID:	RCS-1
Depth	
Date:	1/1/2002

Dichlorodifluoromethane:	1000	Dibromochloromethane:	0.09
Chloromethane:	100	1,2-Dibromoethane:	0.005
Vinyl Chloride:	0.3	Chlorobenzene:	8
Bromomethane:	3	1,1,1,2-Tetrachloroethane:	0.4
Chloroethane:	100	Ethylbenzene:	80
Trichlorofluoromethane:	1000	Xylene (Total):	500
1,1-Dichloroethene:	0.1	Styrene:	2
Acetone:	3	Bromoform:	0.1
Diethyl Ether:	100	Isopropylbenzene:	1000
1,1,2-Trichlorotrifluoroethane:	NA	1,1,2,2-Tetrachloroethane:	0.02
Carbon Disulfide:	100	Bromobenzene:	100
Methylene Chloride:	0.1	1,2,3-Trichloropropane:	100
trans-1,2-Dichloroethene:	4	n-Propylbenzene:	100
Methyl tert-butyl ether:	0.3	2-Chlorotoluene:	100
1,1-Dichloroethane:	3	1,3,5-Trimethylbenzene:	10
Tetrahydrofuran:	500	4-Chlorotoluene:	NA
2-Butanone:	0.3	tert-Butylbenzene:	100
cis-1,2-Dichloroethene:	2	1,2,4-Trimethylbenzene:	1000
2,2-Dichloropropane:	NA	sec-Butylbenzene:	NA
Bromochloromethane:	NA	4-Isopropyltoluene:	NA
Chloroform:	0.1	1,3-Dichlorobenzene:	100
1,1,1-Trichloroethane:	30	1,4-Dichlorobenzene:	2
1,1-Dichloropropene:	NA	n-Butylbenzene:	NA
Carbon Tetrachloride:	1	1,2-Dichlorobenzene:	100
1,2-Dichloroethane:	0.05	1,2-Dibromo-3-chloropropane:	10
Benzene:	10	1,2,4-Trichlorobenzene:	100
Trichloroethene:	0.4	Hexachlorobutadiene:	3
1,2-Dichloropropane:	0.1	Naphthalene:	4
Dibromomethane:	500	1,2,3-Trichlorobenzene:	NA
Bromodichloromethane:	0.1		
cis-1,3-Dichloropropene:	0.01		
4-Methyl-2-pentanone:	0.5		
Toluene:	90		
trans-1,3-Dichloropropene:	0.01		
1,1,2-Trichloroethane:	0.3		
1,3-Dichloropropane:	0.01		
Tetrachloroethene:	0.5		
2-Hexanone:	100		

TABLE 2
SUMMARY OF
WATER TABLE ELEVATION MEASUREMENTS

SARSS Ashburnham
17 Central Street
Ashburnham, Massachusetts

Well ID	Date	Casing Elevation (feet)	Depth to Water (feet)	Depth to Product (feet)	Product Thickness (feet)	Petro Specific Gravity	Water Equivalent (feet)	Corrected Depth to Water (feet)	Corrected Water Elevation (feet)
ESM-01	09/10/04	96.01	6.65	ND					89.36
ESM-02	09/10/04	95.46	7.10	ND					88.36
ESM-03	09/10/04	95.72	6.44	ND					89.28
ESM-04	09/10/04	96.10	7.34	ND					88.76

Notes NM - Not Measured
NA - Not Applicable
ND - Not Detected
The product thickness for trace amounts of product is <0.01 ft.

Environmental Strategies & Management, Inc.

TABLE 3
SUMMARY OF
GROUNDWATER ANALYTICAL RESULTS
VPH

SARSS Ashburnham
17 Central Street
Ashburnham, Massachusetts

(All results in ug/l)

Well	Date	C5-C8 Aliphatics	C9-C12 Aliphatics	C9-C10 Aromatics	MTBE	Benzene	Toluene	E Benzene	m- and p-Xylenes	o-Xylene	Naphthalene
ESM-01	09/10/04	<20	<20	<20	<5	<1	<5	<5	<5	<5	<5
ESM-02	09/10/04	<20	<20	<20	<5	<1	<5	<5	<5	<5	<5
ESM-03	09/10/04	590	540	400	<25	<5	<25	<25	<25	<25	<25
ESM-04	09/10/04	<20	30	120	<5	<1	<5	<5	<5	<5	<5
GW Standards	RCGW-2	1000	1000	4000	50000	2000	6000	4000	6000	6000	6000

Notes NS - Not Sampled
NA - Not Applicable

Environmental Strategies & Management, Inc.

TABLE 3
SUMMARY OF
GROUNDWATER ANALYTICAL RESULTS
EPH
(section 1)

SARSS Ashburnham
17 Central Street
Ashburnham, Massachusetts

(All results in ug/l)

Well	Date	C9-C18 Aliphatics	C19-C36 Aliphatics	C11-C22 Aromatics	Acenaphthene	2-methylnaphthalene	Naphthalene	Phenanthrene	Benzo(g,h,i) perylene	Benzo(k) fluoranthene	Chrysene
ESM-01	09/10/04	<590	<590	<180	<0.6	<0.6	<0.6	<0.6	<0.1	<0.1	<0.1
ESM-02	09/10/04	<560	<560	<170	<0.6	<0.6	<0.6	<0.6	<0.1	<0.1	<0.1
ESM-03	09/10/04	<560	<560	220	<0.6	0.8	2.2	<0.6	<0.1	<0.1	<0.1
ESM-04	09/10/04	<560	<560	400	1.4	<0.6	<0.6	<0.6	<0.1	<0.1	<0.1
GW Standard	RCGW-2	1000	20000	30000	5000	3000	6000	50	3000	3000	3000

Notes NS - Not Sampled
NA - Not Applicable

Environmental Strategies & Management, Inc.

TABLE 3
SUMMARY OF
GROUNDWATER ANALYTICAL RESULTS
EPH
(section 2)

SARSS Ashburnham
17 Central Street
Ashburnham, Massachusetts

(All results in ug/l)

Well	Date	Acenaphthylene	Anthracene	Benzo(a) anthracene	Benzo(a) pyrene	Benzo(b) fluoranthene	Dibenzo(a,h) anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Pyrene
ESM-01	09/10/04	<0.6	<0.6	<0.1	<0.1	<0.1	<0.1	<0.6	<0.6	<0.1	<0.6
ESM-02	09/10/04	<0.6	<0.6	<0.1	<0.1	<0.1	<0.1	<0.6	<0.6	<0.1	<0.6
ESM-03	09/10/04	<0.6	<0.6	<0.1	<0.1	<0.1	<0.1	<0.6	<0.6	<0.1	<0.6
ESM-04	09/10/04	<0.6	<0.6	<0.1	<0.1	<0.1	<0.1	<0.6	1.7	<0.1	<0.6
GW Standards	RCGW-2	3000	600	3000	3000	3000	3000	200	3000	3000	3000

Notes NS - Not Sampled
NA - Not Applicable

Environmental Strategies & Management, Inc.

TABLE 3
SUMMARY OF
GROUNDWATER ANALYTICAL RESULTS
VOLATILE ORGANICS

SARSS Ashburnham
17 Central Street
Ashburnham, Massachusetts

(All results in ug/l)

Sample ID: ESM-03
Date: 9/10/2004

Dichlorodifluoromethane:	<0.5	Dibromochloromethane:	<0.5
Chloromethane:	<0.5	1,2-Dibromoethane:	<0.5
Vinyl Chloride:	<0.5	Chlorobenzene:	<0.5
Bromomethane:	<0.5	1,1,1,2-Tetrachloroethane:	<0.5
Chloroethane:	<0.5	Ethylbenzene:	0.5
Trichlorofluoromethane:	<0.5	Xylene (Total):	1
1,1-Dichloroethene:	<0.5	Styrene:	<0.5
Acetone:	<10	Bromoform:	<0.5
Diethyl Ether:	<2	Isopropylbenzene:	<0.5
1,1,2-Trichlorotrifluoroethane:	<5	1,1,2,2-Tetrachloroethane:	<0.5
Carbon Disulfide:	<5	Bromobenzene:	<0.5
Methylene Chloride:	<2.5	1,2,3-Trichloropropane:	<0.5
trans-1,2-Dichloroethene:	<0.5	n-Propylbenzene:	1
Methyl tert-butyl ether:	2	2-Chlorotoluene:	<0.5
1,1-Dichloroethane:	<0.5	1,3,5-Trimethylbenzene:	0.9
Tetrahydrofuran:	<5	4-Chlorotoluene:	<0.5
2-Butanone:	<5	tert-Butylbenzene:	<0.5
cis-1,2-Dichloroethene:	0.7	1,2,4-Trimethylbenzene:	2
2,2-Dichloropropane:	<0.5	sec-Butylbenzene:	1
Bromochloromethane:	<0.5	4-Isopropyltoluene:	0.8
Chloroform:	<0.5	1,3-Dichlorobenzene:	<0.5
1,1,1-Trichloroethane:	<0.5	1,4-Dichlorobenzene:	<0.5
1,1-Dichloropropene:	<0.5	n-Butylbenzene:	3
Carbon Tetrachloride:	<0.5	1,2-Dichlorobenzene:	<0.5
1,2-Dichloroethane:	<0.5	1,2-Dibromo-3-chloropropane:	<0.5
Benzene:	0.9	1,2,4-Trichlorobenzene:	<0.5
Trichloroethene:	2	Hexachlorobutadiene:	<0.5
1,2-Dichloropropane:	<0.5	Naphthalene:	0.8
Dibromomethane:	<0.5	1,2,3-Trichlorobenzene:	<0.5
Bromodichloromethane:	<0.5		
cis-1,3-Dichloropropene:	<0.5		
4-Methyl-2-pentanone:	<5		
Toluene:	1		
trans-1,3-Dichloropropene:	<0.5		
1,1,2-Trichloroethane:	<0.5		
1,3-Dichloropropane:	<0.5		
Tetrachloroethene:	2		
2-Hexanone:	<5		

Sample ID: ESM-04
Date: 9/10/2004

Dichlorodifluoromethane:	<0.5
Chloromethane:	<0.5
Vinyl Chloride:	<0.5
Bromomethane:	<0.5
Chloroethane:	<0.5
Trichlorofluoromethane:	<0.5
1,1-Dichloroethene:	<0.5
Acetone:	<10
Diethyl Ether:	<2
1,1,2-Trichlorotrifluoroethane:	<5
Carbon Disulfide:	<5
Methylene Chloride:	<2.5
trans-1,2-Dichloroethene:	<0.5
Methyl tert-butyl ether:	2
1,1-Dichloroethane:	<0.5
Tetrahydrofuran:	<5
2-Butanone:	<5
cis-1,2-Dichloroethene:	1
2,2-Dichloropropane:	<0.5
Bromochloromethane:	<0.5
Chloroform:	<0.5
1,1,1-Trichloroethane:	<0.5
1,1-Dichloropropene:	<0.5
Carbon Tetrachloride:	<0.5
1,2-Dichloroethane:	<0.5
Benzene:	<0.5
Trichloroethene:	2
1,2-Dichloropropane:	<0.5
Dibromomethane:	<0.5
Bromodichloromethane:	<0.5
cis-1,3-Dichloropropene:	<0.5
4-Methyl-2-pentanone:	<5
Toluene:	<0.5
trans-1,3-Dichloropropene:	<0.5
1,1,2-Trichloroethane:	<0.5
1,3-Dichloropropane:	<0.5
Tetrachloroethene:	4
2-Hexanone:	<5
Dibromochloromethane:	<0.5
1,2-Dibromoethane:	<0.5
Chlorobenzene:	<0.5
1,1,1,2-Tetrachloroethane:	<0.5
Ethylbenzene:	<0.5
Xylene (Total):	<0.5
Styrene:	<0.5
Bromoform:	<0.5
Isopropylbenzene:	3
1,1,2,2-Tetrachloroethane:	<0.5
Bromobenzene:	<0.5
1,2,3-Trichloropropane:	<0.5
n-Propylbenzene:	<0.5
2-Chlorotoluene:	<0.5
1,3,5-Trimethylbenzene:	<0.5
4-Chlorotoluene:	<0.5
tert-Butylbenzene:	<0.5
1,2,4-Trimethylbenzene:	<0.5
sec-Butylbenzene:	2
4-Isopropyltoluene:	<0.5
1,3-Dichlorobenzene:	<0.5
1,4-Dichlorobenzene:	<0.5
n-Butylbenzene:	<0.5
1,2-Dichlorobenzene:	<0.5
1,2-Dibromo-3-chloropropane:	<0.5
1,2,4-Trichlorobenzene:	<0.5
Hexachlorobutadiene:	<0.5
Naphthalene:	0.5
1,2,3-Trichlorobenzene:	<0.5

Sample ID: RCGW-2
Date:

Dichlorodifluoromethane:	100000
Chloromethane:	10000
Vinyl Chloride:	2
Bromomethane:	2
Chloroethane:	10000
Trichlorofluoromethane:	100000
1,1-Dichloroethene:	1
Acetone:	50000
Diethyl Ether:	10000
1,1,2-Trichlorotrifluoroethane:	NA
Carbon Disulfide:	10000
Methylene Chloride:	50000
trans-1,2-Dichloroethene:	20000
Methyl tert-butyl ether:	50000
1,1-Dichloroethane:	9000
Tetrahydrofuran:	50000
2-Butanone:	50000
cis-1,2-Dichloroethene:	30000
2,2-Dichloropropane:	NA
Bromochloromethane:	NA
Chloroform:	400
1,1,1-Trichloroethane:	4000
1,1-Dichloropropene:	NA
Carbon Tetrachloride:	20
1,2-Dichloroethane:	20
Benzene:	2000
Trichloroethene:	300
1,2-Dichloropropane:	9
Dibromomethane:	50000
Bromodichloromethane:	50000
cis-1,3-Dichloropropene:	5
4-Methyl-2-pentanone:	50000
Toluene:	6000
trans-1,3-Dichloropropene:	5
1,1,2-Trichloroethane:	20000
1,3-Dichloropropane:	5
Tetrachloroethene:	3000
2-Hexanone:	10000
Dibromochloromethane:	50000
1,2-Dibromoethane:	3
Chlorobenzene:	500
1,1,1,2-Tetrachloroethane:	6
Ethylbenzene:	4000
Xylene (Total):	6000
Styrene:	900
Bromoform:	800
Isopropylbenzene:	100000
1,1,2,2-Tetrachloroethane:	20
Bromobenzene:	10000
1,2,3-Trichloropropane:	10000
n-Propylbenzene:	10000
2-Chlorotoluene:	10000
1,3,5-Trimethylbenzene:	1000
4-Chlorotoluene:	NA
tert-Butylbenzene:	10000
1,2,4-Trimethylbenzene:	100000
sec-Butylbenzene:	NA
4-Isopropyltoluene:	NA
1,3-Dichlorobenzene:	8000
1,4-Dichlorobenzene:	8000
n-Butylbenzene:	NA
1,2-Dichlorobenzene:	8000
1,2-Dibromo-3-chloropropane:	1000
1,2,4-Trichlorobenzene:	500
Hexachlorobutadiene:	0.6
Naphthalene:	6000
1,2,3-Trichlorobenzene:	NA

TABLE 4
SUMMARY OF
TCLP Arsenic

SARSS Ashburnham
17 Central Street
Ashburnham, Massachusetts

(All results in ug/ml)

Sample	Date	Arsenic
D-01	01/19/05	<300

Notes
NA - Not Applicable
NS - Not Sampled
RC - Reportable Concentrations

Environmental Strategies & Management, Inc.

TABLE 4

SUMMARY OF

SOIL ANALYTICAL RESULTS

Arsenic

SARSS Ashburnham

17 Central Street

Ashburnham, Massachusetts

(All results in mg/kg)

Sample	Date	Depth	Arsenic
D-02	01/19/05	Drum	13
SS-01	01/19/05	6-8"	13
SS-02	01/19/05	6-8"	23
SS-03	01/19/05	6-8"	21
SS-04	01/19/05	6-8"	24
Soil Standards	S1-GW2		30
	S1-GW3		30
	RC S1		30

Notes NA - Not Applicable
NS - Not Sampled
RC - Reportable Concentrations

Environmental Strategies & Management, Inc.

Project No: 2004-274

Project: SARSS Ashburnham

Client: MA DEP

Site Location: 17 Central St., Ashburnham, MA

Borehole Number: B-1

Field Geologist: AF

Environmental Strategies & Management, Inc.
184 West Main Street
Norton, MA 02766
508-285-9700

SUBSURFACE PROFILE				SAMPLE			PID Results (ppm) 200 400 600 800	Remarks
Depth	Symbol	Description	Depth/Elev.	Number	Recovery	Symbol		
0		Ground Surface	0					
		tan, damp fine to medium SAND, some gravel	0				0.0	
1								
2			-2	MC-1				
		tan, damp, fine to medium SAND, some gravel	2				0.0	
3								
4			-4					
		brown, damp, GRAVEL, some fine to medium sand	4				0.0	
5								
6			-6	MC-2				
		dark grey, wet, silty SAND and clay, some gravel	6				0.0	
7								
8			-8					
		End of Borehole	8					
9								
10								
11								
12								
13								
14								
15								

Drilled By: AM Drilling

Hole Size: 2"

Drill Method: Geoprobe Simco Earthprobe

Drill Date: 09-01-04

Sheet: 1 of 1

Project No: 2004-274

Project: SARSS Ashburnham

Client: MA DEP

Site Location: 17 Central St., Ashburnham, MA

Borehole Number: B-2

Field Geologist: AF

Environmental Strategies & Management, Inc.
184 West Main Street
Norton, MA 02766
508-285-9700

SUBSURFACE PROFILE				SAMPLE			PID Results (ppm) 200 400 600 800	Remarks
Depth	Symbol	Description	Depth/Elev.	Number	Recovery	Symbol		
0		Ground Surface	0					
		dark brown, dry, fine to medium SAND, some silt and gravel, coal	0				0.0	
1								
2			-2	MC-1				
		light grey, damp, silty SAND, brick debris	2				0.0	
3								
4			-4					
		light grey, damp, silty SAND, brick	4				0.0	
5								
6			-6	MC-2				
		black, wet, sandy SILT, fine to coarse tan sand, some gravel	6				0.0	
7								
8			-8					
		End of Borehole	8					
9								
10								
11								
12								
13								
14								
15								

Drilled By: AM Drilling

Hole Size: 2"

Drill Method: Geoprobe Simco Earthprobe

Drill Date: 09-01-04

Sheet: 1 of 1

Project No: 2004-274

Project: SARSS Ashburnham

Client: MA DEP

Site Location: 17 Central St., Ashburnham, MA

Borehole Number: B-3

Field Geologist: AF

Environmental Strategies & Management, Inc.
184 West Main Street
Norton, MA 02766
508-285-9700

SUBSURFACE PROFILE				SAMPLE			PID Results	Remarks
Depth	Symbol	Description	Depth/Elev.	Number	Recovery	Symbol	(ppm) 200 400 600 800	
0		Ground Surface	0					
		tan, dry, medium to fine SAND, some gravel	0	MC-1				
1								
2								
3								
4				MC-2				
5								
6			-6					
		tan, damp, medium to fine SAND, some gravel	6					
7			-8					
8		Refusal	8					
		End of Borehole						
9								
10								
11								
12								
13								
14								
15								

Drilled By: AM Drilling

Hole Size: 2"

Drill Method: Geoprobe Simco Earthprobe

Drill Date: 09-01-04

Sheet: 1 of 1

Project No: 2004-274

Project: SARSS Ashburnham

Client: MA DEP

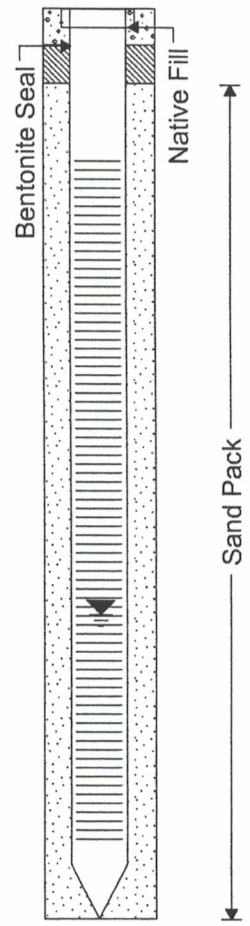
Site Location: 17 Central St., Ashburnham, MA

Well ID: ESM-01

Field Geologist: AF

Environmental Strategies & Management, Inc.
184 West Main Street
Norton, MA 02766
508-285-9700

SUBSURFACE PROFILE				SAMPLE			PID Results (ppm) 200 400 600 800	Well Details
Depth	Symbol	Description	Depth/Elev.	Number	Recovery	Symbol		
0		Ground Surface	0					
		tan, dry, medium SAND, some gravel	0				0.0	
1								
2		dark, brown, dry, med. SAND, trace silt and gravel	-2 / 2	MC-1			0.0	
3								
4		light gray, dry, GRAVEL, some sand and silt	-4 / 4				0.0	
5								
6		gray, wet, silty SAND,some gravel	-6 / 6	MC-2			0.0	
7								
8		black, wet, silty CLAY (brick debris)	-8 / 8				0.0	
9								
10		black, wet, silty SAND, trace clay, some gravel and brick	-10 / 10	MC-3			0.0	
11		tan, wet, fine SAND	-11 / 11					
12		End of Borehole	-12 / 12					
13								
14								
15								



Drilled By: AM Drilling

Hole Size: 2"

Drill Method: Geoprobe Simco Earthprobe

Drill Date: 9/01/04

Sheet: 1 of 1

Project No: 2004-274

Project: SARSS Ashburnham

Client: MA DEP

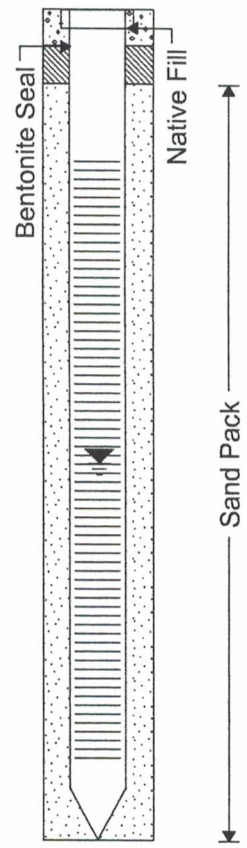
Site Location: 17 Central St.

Well ID: ESM-02

Field Geologist: AF/LM

Environmental Strategies & Management, Inc.
184 West Main Street
Norton, MA 02766
508-285-9700

SUBSURFACE PROFILE				SAMPLE			PID Results (ppm) 200 400 600 800	Well Details
Depth	Symbol	Description	Depth/Elev.	Number	Recovery	Symbol		
		Ground Surface	0					
0		dark brown/tan, dry, medium SAND, some gravel	0				0.0	
1								
2		light tan, dry,medium to fine SAND, some gravel	-2 / 2	MC-1			0.0	
3								
4		tan,dry, silty sand,med. SAND, trace gravel	-4 / 4				0.0	
5								
6		gray,wet, sandy SILT	-6 / 6	MC-2			0.0	
7								
8		dark gray, wet, silty SAND, trace coarse sand and gravel	-8 / 8				0.0	
9				MC-3				
10		refusal at 11'					0.0	
11		End of Borehole	-11 / 11					
12								
13								
14								
15								



Drilled By: AM Drilling

Hole Size: 2"

Drill Method: Geoprobe Simco Earthprobe

Drill Date: 9/01/04

Sheet: 1 of 1

Project No: 2004-274

Project: SARSS Ashburnham

Client: MA DEP

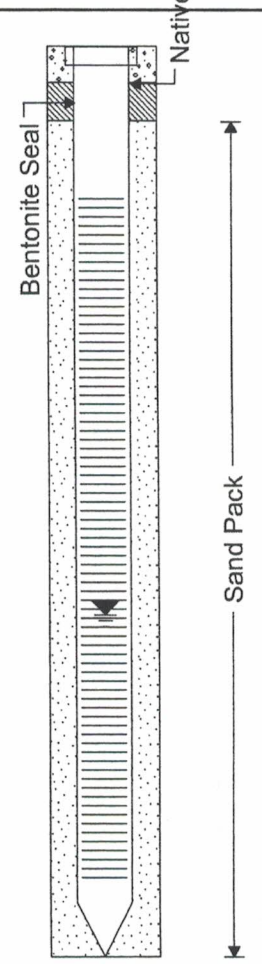
Site Location: 17 Central St., Ashburnham, MA

Well ID: ESM-03

Field Geologist: LM/AF

Environmental Strategies & Management, Inc.
184 West Main Street
Norton, MA 02766
508-285-9700

SUBSURFACE PROFILE				SAMPLE			PID Results	Well Details
Depth	Symbol	Description	Depth/Elev.	Number	Recovery	Symbol	(ppm) 200 400 600 800	
		Ground Surface	0					
0		tan, damp, fine-medium SAND, trace gravel	0				70.0	
1								
2		tan, damp, fine SAND, silty sand, solidly packed trace gravel	-2 / 2	MC-1			1.0	
3								
4		light gray, damp, SILT	-4 / 4				100.0	
5								
6		dark brown, damp, medium to fine SAND, some gravel	-6 / 6	MC-2			644.0	
7		dark brown, wet, SAND, some gravel	-7 / 7					
8		tan, wet, fine SAND, some coarse sand	-8 / 8				2.8	
9								
10		dark brown, wet, coarse SAND	-10 / 10	MC-3			68.7	
11								
12		End of Borehole	-12 / 12					
13								
14								
15								



Drilled By: AM Drilling

Hole Size: 2"

Drill Method: Geoprobe Simco Earthprobe

Drill Date: 9/01/04

Sheet: 1 of 1

Project No: 2004-274

Project: SARSS Ashburnham

Client: MA DEP

Site Location: 17 Central St., Ashburnham, MA

Well ID: ESM-04

Field Geologist: AF

Environmental Strategies & Management, Inc.
184 West Main Street
Norton, MA 02766
508-285-9700

SUBSURFACE PROFILE

Depth	Description	Depth/Elev.
	Ground Surface	0
0–2	tan, damp, fine SAND	0 / -2
2–4	tan, damp, fine to medium SAND, some gravel	2 / -4
4–6	tan, dry, fine SAND, some medium sand and gravel	4 / -6
6–7	dark gray, dry, SILT	6 / -7
7–8	dark gray, wet, coarse SAND and silt	7 / -8
8–10	tan, wet, coarse to medium SAND	8 / -10
10–12	tan, wet, silty SAND, some coarse to medium sand and gravel	10 / -12
	End of Borehole	12

SAMPLE

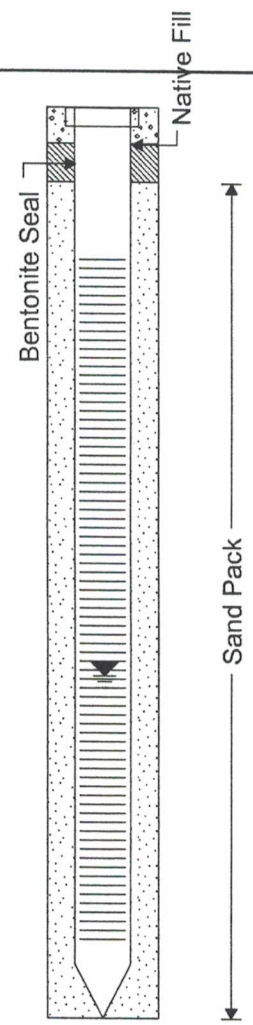
Number	Recovery	Symbol
MC-1		
MC-2		
MC-3		

PID Results

(ppm) 200 400 600 800

3.0
0.0
0.3
109.0
70.9
22.6

Well Details



Drilled By: AM Drilling

Hole Size: 2"

Drill Method: Geoprobe Simco Earthprobe

Drill Date: 9/01/04

Sheet: 1 of 1

GROUNDWATER ANALYTICAL

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

Telephone (508) 759-4441
FAX (508) 759-4475
www.groundwateranalytical.com

February 4, 2005

Mr. Doug Heely
Environmental Strategies & Management, Inc.
184 West Main Street
Norton, MA 02766

LABORATORY REPORT

Project: **SARSS Ashburnham/2004-274**
Lab ID: **80372**
Received: **01-21-05**

Dear Doug:

Enclosed are the analytical results for the above referenced project. The project was processed for Standard turnaround.

This letter authorizes the release of the analytical results, and should be considered a part of this report. This report contains a sample receipt report detailing the samples received, a project narrative indicating project changes and non-conformances, a quality control report, and a statement of our state certifications.

The analytical results contained in this report meet all applicable NELAC standards, except as may be specifically noted, or described in the project narrative. This report may only be used or reproduced in its entirety.

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

Should you have any questions concerning this report, please do not hesitate to contact me.

Sincerely,

Eric H. Jensen
Operations Manager

EHJ/smd
Enclosures

GROUNDWATER ANALYTICAL

Sample Receipt Report

Project: **SARSS Ashburnham/2004-274** Delivery: **GWA Courier** Temperature: **2'C**
Client: **Environmental Strategies & Management, Inc.** Airbill: **n/a** Chain of Custody:
Lab ID: **80372** Lab Receipt: **01-21-05** Custody Seal(s): **n/a**

Lab ID	Field ID		Matrix	Sampled	Method				Notes
80372-1	D-1		Soil	1/19/05 10:40	EPA 6010B TCLP As				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C529806	250 mL Glass	Greenwood	BX15475	None	n/a	n/a	01-18-05		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
80372-2	D-2		Soil	1/19/05 10:45	EPA 6010B As Total				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C529803	250 mL Glass	Greenwood	BX15475	None	n/a	n/a	01-18-05		

GROUNDWATER ANALYTICAL

Toxicity Characteristic Leaching Procedure (TCLP)
Trace Metals

Field ID:	**D-1**	Matrix:	**TCLP Leachate**
Project:	**SARSS Ashburnham/2004-274**	Container:	**250 mL Glass**
Client:	**Environmental Strategies & Management, Inc.**	Preservation:	**Cool**
Laboratory ID:	**80372-01**	Date Leached:	**01-25-05 16:00**
Sampled:	**01-19-05 10:40**	TCLP Fluid:	**1**
Received:	**01-21-05 17:50**		

Analysis Method	QC Batch ID	Prep Method	Prepared	Sample Volume	Instrument ID	Analyst
EPA 6010B[1]	MB-1427-W	EPA 3010A	01-26-05 08:59	50 mL	ICP-1 PE Optima 3000	CRL

CAS Number	Analyte	Concentration	Notes	Units	RCRA Limit	Reporting Limit	DF	Analyzed	Method
7440-38-2	Arsenic	BRL		mg/L	5.0	0.3	10	01-26-05 13:57	EPA 6010B[1]

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Sample leached in accordance with EPA Method 1311 prior to determinative analysis.

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

RCRA Limit indicates maximum concentration of contaminant under the TCLP Rule, as specified at 40 C.F.R. 261.24, Table 1.

DF Dilution Factor.

GROUNDWATER ANALYTICAL

TCLP Matrix Spike
Trace Metals

			Parent Sample	Matrix Spike
Field ID:	**D-1**			
Project:	**SARSS Ashburnham/2004-274**	Laboratory ID:	**80372-01**	**80372-01MS**
Client:	**Environmental Strategies & Management, Inc.**	Sampled:	**01-19-05 10:40**	**01-19-05 10:40**
Matrix:	**TCLP Leachate**	Received:	**01-21-05 17:50**	**01-21-05 17:50**
Container:	**250 mL Glass**	Leached:	**01-25-05 16:00**	**01-25-05 16:00**
Preservation:	**Cool**	TCLP Fluid:	**1**	**1**

Method	QC Batch ID	Prep Method	Prepared	Volume	DF	Analyzed	Instrument ID	Analyst
EPA 6010B	MB-1427-W	EPA 3010A	01-26-05 08:59	50 mL	10	01-26-05 14:04	ICP-1 PE Optima 3000	CRL

CAS Number	Analyte	Unspiked Sample (mg/L)	MS Spiked (mg/L)	MS Measured (mg/L)	MS Recovery	QC Limits	Method
7440-38-2	Arsenic	BRL	1.0	1.1	**114 %**	75-125%	EPA 6010B

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Sample leached in accordance with EPA Method 1311 prior to determinative analysis.

Report Notations:

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

DF Dilution Factor.

GROUNDWATER ANALYTICAL

Trace Metals

Field ID:	**D-2**	Matrix:	**Soil**
Project:	**SARSS Ashburnham/2004-274**	Container:	**250 mL Glass**
Client:	**Environmental Strategies & Management, Inc.**	Preservation:	**Cool**
Laboratory ID:	**80372-02**	Percent Solids:	**84**
Sampled:	**01-19-05 10:45**		
Received:	**01-21-05 17:50**		

Analysis Method	QC Batch ID	Prep Method	Prepared	Sample Weight	Instrument ID	Analyst
EPA 6010B[1]	MB-0539-S	EPA 3050B	01-26-05 13:19	0.5 g	ICP-1 PE 3000	CRL

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit	DF	Analyzed	Method
7440-38-2	Arsenic, Total	**13**		mg/Kg	1.2	1	01-26-05 17:11	EPA 6010B[1]

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

Report Notations:

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

DF Dilution Factor.

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Project Narrative

Project:	**SARSS Ashburnham/2004-274**	Lab ID:	**80372**
Client:	**Environmental Strategies & Management, Inc.**	Received:	**01-21-05 17:50**

A. Documentation and Client Communication

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

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

B. Method Modifications, Non-Conformances and Observations

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

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

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CHAIN-OF-CUSTODY RECORD AND WORK ORDER

№ 103369

Project Name: SPRSS Ashburnham	Firm: ES+M
Project Number: 2004-274	Address: 184 West Main St
Sampler Name: Amanda Freeman	City / State / Zip: Norton, MA 02766
Project Manager: Doug Heely	Telephone: 508 285 9700

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

TURNAROUND

- ☐ STANDARD (10 Business Days)
- ☐ PRIORITY (5 Business Days)
- ☐ RUSH (RAN- _____)
  (Rush requires Rush Authorization Number)
- ☐ Please Email to: _____
- ☐ Please FAX to: _____

BILLING

- ☐ Purchase Order No.: _____
- ☐ Third Party Billing: _____
- ☐ GWA Quote: _____

ANALYSIS REQUEST

OPTIONS: ☐ Tic Search

Volatiles: SDWA ☐ 524.2-MTBE; NPDES ☐ 624; RCRA/21E ☐ 8260B TCL+MTBE ☐ 8260B NH PETROLEUM ☐ 8260B

Volatiles: SDWA ☐ 502-MTBE ☐ 601; NPDES ☐ 602-MTBE ☐ 601/602-MTBE; RCRA/21E ☐ 8021B Aromatics ☐ 8021B Halocarbons

Volatiles: NPDES ☐ 625; RCRA/21E ☐ 8270C

Semivolatiles: ☐ Acid Only ☐ B/N Only ☐ Tic Search; SDWA ☐ 525.2; NPDES ☐ 625 PAHs only; RCRA/21E ☐ 8270C PAHs only

Pest/Herb/PCBs Extractable: SDWA ☐ 505 ☐ 508; NPDES ☐ 608 Pesticides ☐ 608 PCBs; RCRA/21E ☐ 8081A Pesticides ☐ 8082 PCBs

Pest/Herb/PCBs Vol.: SDWA ☐ 531.1 ☐ 515.1 ☐ 504.1 EDB/DBCP; NPDES ☐ 615; RCRA/21E ☐ 8151A Herbicides ☐ 8011 EDB/DBCP

Metals: Specify For Water Samples ☐ Total ☐ Dissolved; ☐ Lead and Copper; ☐ 13 Priority Pollutant; ☐ 8 RCRA ☐ 5 RCRA ☐ MA List Metals ☐ 23 TAL; ☑ Specify: TOTAL ARSENIC

Petroleum Hydrocarbon Ext. TPH: ☐ TPH-IR ☐ Diesel Range Organics (DRO) ☐ ME DRO ☐ CT ETPH ☐ MA DEP EPH w/all targets ☐ EPH Carbon Ranges only ☐ EPH w/4 PAHs ☐ Hydrocarbon Fingerprint (GC/FID by ASTM D3328-00-Mod.) ☐ TPH by GC/FID (8015B Mod) Quantitative Only

Petroleum Hydrocarbon Vol. TPH: ☐ Gasoline Range Organics (GRO) ☐ ME GRO ☐ MA DEP VPH w/all targets ☐ VPH Carbon ranges only

Haz. Waste: ☐ TCLP ☐ SPLP ☐ 8 Metals ☐ Pb only ☐ VOA ☐ Semi VOA ☐ Pesticides ☐ Herbicides ☐ Corrosivity (as pH) ☐ Reactivity ☐ Ignitability (as Flashpoint) ☐ Paint Filter ☐ MA Basic Disposal Criteria: 8260B, TPH by GC, PCBs, 5 Metals, Corrosivity, Ignitability, Reactivity

General Chemistry: ☐ Nitrate ☐ Nitrite ☐ Chloride ☐ Fluoride ☐ Sulfate ☐ Dissolved Phosphorus ☐ Ammonia ☐ TKN ☐ Total Phosphorus ☐ Total N (as NO2/NO3/TKN) ☐ Oil & Grease ☐ COD ☐ TOC ☐ BOD ☐ TDS ☐ TSS ☐ TS ☐ Alkalinity ☐ Cyanide, Total ☐ Cyanide, Physiologically Available ☐ pH ☐ Dissolved Oxygen ☐ Turbidity

Other: ☐ Total Coliform ☐ Fecal Coliform ☐ HPC

Sampling DATE	Sampling TIME	SAMPLE IDENTIFICATION	Matrix: GROUNDWATER	DRINKING WATER	WASTEWATER	SOIL	OTHER SOLID	OIL/ORGANIC LIQUID	Type: COMPOSITE	GRAB	Container(s): NUMBER	40mL VOA Vial	60mL/2 oz Glass	120mL/4 oz Amber Glass	250mL/8 oz Glass	500mL/16 oz Glass	1L/32 oz Amber Glass	250mL/8 oz Plastic	500mL/16 oz Plastic	1L/32 oz Plastic	120mL Sterile	Preservation: HCl	HNO_3	H_2SO_4	NaOH	Methanol	Sodium Bisulfate	ICE	Filtered: YES	NO	LABORATORY NUMBER (Lab Use Only)
9/05	10:40	D-1				✓			✓						✓												✓				
9/05	10:45	D-2				✓			✓						✓												✓				

REMARKS / SPECIAL INSTRUCTIONS

Dhs MCP Data Enhancement Affirmation
IS ✓ NO MCP QAPP Certification Required.

✓ NO MCP Data Enhancement Affirmation required.
Signature: [signature]

DATA QUALITY OBJECTIVES

Regulatory Program

State	Standard	Deliverables
☐ CT	☐ MCP GW-1/S-1	☐ PWS Form
☐ ME	☐ MCP GW-2/S-2	☐ MWRA
☐ MA	☐ NY STARS	☐ _____
☐ NH	☐ Drinking Water	
☐ NY	☐ Wastewater	
☐ RI	☑ Waste Disposal	
☐ VT	☐ Dredge Material	
☐ ___	☐ _____	

Project Specific QC

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

Project Specific QC Required
- ☐ Sample Duplicate
- ☐ Matrix Spike
- ☐ Matrix Spike Duplicate

Selection of QC Sample
- ☐ Please use sample: _____

CHAIN-OF-CUSTODY RECORD

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

Relinquished by Sampler: [signature]	Date 1/19/05	Time	Received by:	Receipt Temperature: ☐ Ice ☐ Refrigerated 2-6°C Recommended 2
Relinquished by:	Date 1/21/5	Time 1610	Received by: [signature]	Container Count:
Relinquished by: [signature]	Date 1/21/5	Time 1750	Received by Laboratory: CPaulliot	Shipping/Airbill Number:

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

Custody Seal Number:

GROUNDWATER ANALYTICAL

Quality Assurance/Quality Control

A. Program Overview

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

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

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

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

B. Definitions

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

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

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

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

GROUNDWATER ANALYTICAL

Quality Control Report
Laboratory Control Samples

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

Sample Type	Method	QC Batch ID	Prep Method	Prepared	Analyzed	Instrument ID	Analyst
LCS	EPA 6010B	MB-0539-SL	EPA 3050B	01-26-05 13:19	01-26-05 16:46	ICP-1 PE 3000	MWR
LCSD	EPA 6010B	MB-0539-SL	EPA 3050B	01-26-05 13:19	01-26-05 16:50	ICP-1 PE 3000	MWR

CAS Number	Analyte	LCS			LCS Duplicate				QC Limits		Method
		Spiked	Measured	Recovery	Spiked	Measured	Recovery	RPD	LCS	RPD	
7440-38-2	Arsenic	190	170	91%	190	170	93%	1 %	80-120 %	30 %	EPA 6010B

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

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

GROUNDWATER ANALYTICAL

Quality Control Report
Method Blank

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

Analysis Method	QC Batch ID	Prep Method	Prepared	Sample Volume	Instrument ID	Analyst
EPA 6010B	MB-0539-SB	EPA 3050B	01-26-05 13:19	0.5 g	ICP-1 PE 3000	MWR

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit	DF	Analyzed	Method
7440-38-2	Arsenic	BRL		mg/Kg	1	1	01-26-05 16:43	EPA 6010B

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

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

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

GROUNDWATER ANALYTICAL

Certifications and Approvals

Groundwater Analytical maintains environmental laboratory certification in a variety of states. Copies of our current certificates may be obtained from our website:

http://www.groundwateranalytical.com/qualifications.htm

CONNECTICUT, Department of Health Services, PH-0586

Categories: Potable Water, Wastewater, Solid Waste and Soil
http://www.dph.state.ct.us/BRS/Environmental_Lab/OutStateLabList.htm

FLORIDA, Department of Health, Bureau of Laboratories, E87643

Categories: SDWA, CWA, RCRA/CERCLA
http://www.floridadep.org/labs/qa/dohforms.htm

MAINE, Department of Human Services, MA103

Categories: Drinking Water and Wastewater
http://www.state.me.us/dhs/eng/water/Compliance.htm

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

Categories: Potable Water and Non-Potable Water
http://www.state.ma.us/dep/bspt/wes/files/certlabs.pdf

NEW HAMPSHIRE, Department of Environmental Services, 202703

Categories: Drinking Water and Wastewater
http://www.des.state.nh.us/asp/NHELAP/labsview.asp

NEW YORK, Department of Health, 11754

Categories: Potable Water, Non-Potable Water and Solid Waste
http://www.wadsworth.org/labcert/elap/comm.html

PENNSYLVANIA, Department of Environmental Protection, 68-665

Environmental Laboratory Registration (Non-drinking water and Non-wastewater)
http://www.dep.state.pa.us/Labs/Registered/

RHODE ISLAND, Department of Health, 54

Categories: Surface Water, Air, Wastewater, Potable Water, Sewage
http://www.healthri.org/labs/labsCT_MA.htm

U.S. Department of Agriculture, Soil Permit, S-53921

Foreign soil import permit

VERMONT, Department of Environmental Conservation, Water Supply Division

Category: Drinking Water
http://www.vermontdrinkingwater.org/wsops/labtable.PDF

GROUNDWATER ANALYTICAL

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February 4, 2005

Mr. Doug Heely
Environmental Strategies & Management, Inc.
184 West Main Street
Norton, MA 02766

LABORATORY REPORT

Project: **SARSS Ashburham/2004-274**
Lab ID: **80352**
Received: **01-21-05**

Dear Doug:

Enclosed are the analytical results for the above referenced project. The project was processed for Standard turnaround.

This letter authorizes the release of the analytical results, and should be considered a part of this report. This report contains a sample receipt report detailing the samples received, a project narrative indicating project changes and non-conformances, a quality control report, and a statement of our state certifications.

The analytical results contained in this report meet all applicable NELAC standards, except as may be specifically noted, or described in the project narrative. This report may only be used or reproduced in its entirety.

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

Should you have any questions concerning this report, please do not hesitate to contact me.

Sincerely,

Eric H. Jensen
Operations Manager

EHJ/smd
Enclosures

GROUNDWATER ANALYTICAL

Sample Receipt Report

Project: **SARSS Ashburham/2004-274** Delivery: **GWA Courier** Temperature: **2'C**
Client: **Environmental Strategies & Management, Inc.** Airbill: **n/a** Chain of Custody: **Present**
Lab ID: **80352** Lab Receipt: **01-21-05** Custody Seal(s): **n/a**

Lab ID	Field ID		Matrix	Sampled	Method				Notes
80352-1	SS-01		Soil	1/19/05 10:10	EPA 6010B As Total				
Con ID	Container	Vendor	QC Lot	Preserv	QC Lot	Prep	Ship		
C529805	250 mL Glass	Greenwood	BX15475	None	n/a	n/a	01-18-05		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
80352-2	SS-02		Soil	1/19/05 10:15	EPA 6010B As Total				
Con ID	Container	Vendor	QC Lot	Preserv	QC Lot	Prep	Ship		
C529804	250 mL Glass	Greenwood	BX15475	None	n/a	n/a	01-18-05		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
80352-3	SS-03		Soil	1/19/05 10:20	EPA 6010B As Total				
Con ID	Container	Vendor	QC Lot	Preserv	QC Lot	Prep	Ship		
C529807	250 mL Glass	Greenwood	BX15475	None	n/a	n/a	01-18-05		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
80352-4	SS-04		Soil	1/19/05 10:25	EPA 6010B As Total				
Con ID	Container	Vendor	QC Lot	Preserv	QC Lot	Prep	Ship		
C529802	250 mL Glass	Greenwood	BX15475	None	n/a	n/a	01-18-05		

GROUNDWATER ANALYTICAL

Data Certification

Project:	SARSS Ashburham/2004-274	Lab ID:	80352
Client:	Environmental Strategies & Management, Inc.	Received:	01-21-05 17:50

MA DEP Compendium of Analytical Methods

Project Location: n/a MA DEP RTN: n/a

This Form provides certifications for the following data set:

EPA 6010B: 80352-01,-02,-03,-04

Sample Matrices:	Groundwater	( )	Soil/Sediment	(X)	Drinking Water	( )	Other	( )		
MCP SW-846 Methods Used	8260B	( )	8151A	( )	8330	( )	6010B	(X)	7470A/1A	( )
	8270C	( )	8081A	( )	VPH	( )	6020	( )	9012A[2]	( )
As specified in MA DEP Compendium of Analytical Methods. (check all that apply)	8082	( )	8021B	( )	EPH	( )	7000 S[3]	( )	Other	( )

1. List Release Tracking Number (RTN), if known.
2. SW-846 Method 9012A (Equivalent to 9014) or MA DEP 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
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
C.	Does the analytical data included in this report meet all the requirements for "Presumptive Certainty," as described in Section 2.0 of the MA DEP document CAM VII A, *Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data*?	Yes
D.	VPH and EPH methods only: Was the VPH or EPH method run without significant modifications, as specified in Section 11.3?	n/a

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

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

All No answers are addressed in the attached Project Narrative.

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.

Signature:	EHJ	Position:	Operations Manager
Printed Name:	Eric H. Jensen	Date:	02-04-05

GROUNDWATER ANALYTICAL

Trace Metals

Field ID:	SS-01	Matrix:	Soil
Project:	SARSS Ashburham/2004-274	Container:	250 mL Glass
Client:	Environmental Strategies & Management, Inc.	Preservation:	Cool
Laboratory ID:	80352-01	Percent Solids:	87
Sampled:	01-19-05 10:10		
Received:	01-21-05 17:50		

Analysis Method	QC Batch ID	Prep Method	Prepared	Sample Weight	Instrument ID	Analyst
EPA 6010B[1]	MB-0537-S	EPA 3050B	01-25-05 11:50	0.5 g	ICP-1 PE 3000	CRL

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit	DF	Analyzed	Method
7440-38-2	Arsenic, Total	13		mg/Kg	1.2	1	01-26-05 11:15	EPA 6010B[1]

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

Report Notations:

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

DF Dilution Factor.

GROUNDWATER ANALYTICAL

Trace Metals

Field ID:	**SS-02**	Matrix:	**Soil**
Project:	**SARSS Ashburham/2004-274**	Container:	**250 mL Glass**
Client:	**Environmental Strategies & Management, Inc.**	Preservation:	**Cool**
Laboratory ID:	**80352-02**	Percent Solids:	**84**
Sampled:	**01-19-05 10:15**		
Received:	**01-21-05 17:50**		

Analysis Method	QC Batch ID	Prep Method	Prepared	Sample Weight	Instrument ID	Analyst
EPA 6010B[1]	MB-0537-S	EPA 3050B	01-25-05 11:50	0.5 g	ICP-1 PE 3000	CRL

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit	DF	Analyzed	Method
7440-38-2	Arsenic, Total	23		mg/Kg	1.2	1	01-26-05 11:26	EPA 6010B[1]

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

Report Notations:

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

DF Dilution Factor.

GROUNDWATER ANALYTICAL

Trace Metals

Field ID:	SS-03	Matrix:	Soil
Project:	SARSS Ashburham/2004-274	Container:	250 mL Glass
Client:	Environmental Strategies & Management, Inc.	Preservation:	Cool
Laboratory ID:	80352-03	Percent Solids:	81
Sampled:	01-19-05 10:20		
Received:	01-21-05 17:50		

Analysis Method	QC Batch ID	Prep Method	Prepared	Sample Weight	Instrument ID	Analyst
EPA 6010B[1]	MB-0537-S	EPA 3050B	01-25-05 11:50	0.5 g	ICP-1 PE 3000	CRL

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit	DF	Analyzed	Method
7440-38-2	Arsenic, Total	21		mg/Kg	1.3	1	01-26-05 11:29	EPA 6010B[1]

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

Report Notations:

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

DF Dilution Factor.

GROUNDWATER ANALYTICAL

Trace Metals

Field ID:	SS-04	Matrix:	Soil
Project:	SARSS Ashburham/2004-274	Container:	250 mL Glass
Client:	Environmental Strategies & Management, Inc.	Preservation:	Cool
Laboratory ID:	80352-04	Percent Solids:	85
Sampled:	01-19-05 10:25		
Received:	01-21-05 17:50		

Analysis Method	QC Batch ID	Prep Method	Prepared	Sample Weight	Instrument ID	Analyst
EPA 6010B[1]	MB-0537-S	EPA 3050B	01-25-05 11:50	0.5 g	ICP-1 PE 3000	CRL

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit	DF	Analyzed	Method
7440-38-2	Arsenic, Total	24		mg/Kg	1.2	1	01-26-05 11:33	EPA 6010B[1]

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

Report Notations:

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

DF Dilution Factor.

GROUNDWATER ANALYTICAL

Project Narrative

Project:	**SARSS Ashburham/2004-274**	Lab ID:	**80352**
Client:	**Environmental Strategies & Management, Inc.**	Received:	**01-21-05 17:50**

A. Documentation and Client Communication

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

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

B. Method Modifications, Non-Conformances and Observations

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

1. EPA 6010B Note: Samples 80352-01,-02,-03,-04. Samples were analyzed for selected target analytes, as requested by client.

ROUNDWATER ANALYTICAL

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Buzzards Bay, MA 02532
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www.groundwateranalytical.com

CHAIN-OF-CUSTODY RECORD AND WORK ORDER

№ 104182

Name: SS Ashburnham	Firm: ES+M
Number: 104-274	Address: 184 West Main St
r Name: nda Freeman	City / State / Zip: Norton, MA 02766
Manager: g Heely	Telephone: 508 285 9700

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

TURNAROUND

- ☑ STANDARD (10 Business Days)
- ☐ PRIORITY (5 Business Days)
- ☐ RUSH (RAN- _____)
  (Rush requires Rush Authorization Number)
- ☐ Please Email to: _____
- ☐ Please FAX to: _____

BILLING

- ☐ Purchase Order No.: _____
- ☐ Third Party Billing: _____
- ☐ GWA Quote: _____

ANALYSIS REQUEST

OPTIONS: ☐ TIC Search

Volatiles: SDWA ☐ 524.2-MTBE; NPDES ☐ 624; RCRA/21E ☐ 8260B TCL+MTBE ☐ 8260B NH PETROLEUM ☐ 8260B

Volatiles: NPDES ☐ 602-MTBE ☐ 601 ☐ 601/602-MTBE; RCRA/21E ☐ 8021B Aromatics ☐ 8021B Halocarbons ☐ 8021B

Semivolatiles: OPTIONS ☐ Acid Only ☐ B/N Only ☐ TIC Search; SDWA ☐ 525.2; NPDES ☐ 625; RCRA/21E ☐ 8270C

Pest/Herb/PCBs Extractable: NPDES ☐ 625 PAHs only; RCRA/21E ☐ 8270C PAHs only ☐ 8081A Pesticides ☐ 8082 PCBs

Pest/Herb/PCBs Extractable: NPDES ☐ 505 ☐ 508; RCRA/21E ☐ 508 Pesticides ☐ 508 PCBs ☐ 8151A Herbicides

Pest/Herb/PCBs Vol.: NPDES ☐ 531.1 ☐ 515.1 ☐ 504.1 EDB/DBCP; RCRA/21E ☐ 1613 Priority Pollutant ☐ 8011 EDB/DBCP

Metals: Specify For Water Samples ☐ Total ☐ Dissolved; NPDES ☐ Lead and Copper; RCRA/21E ☐ 8 RCRA ☐ 5 RCRA ☐ MA List Metals ☐ 23 TAL ☑ Specify TOTAL ARSENIC

Petroleum Hydrocarbon Ext. TPH: ☐ TPH-IR ☐ Diesel Range Organics (DRO) ☐ CT ETPH ☐ MA DEP EPH w/all targets ☐ Hydrocarbon Fingerprint (GC/FID by ASTM D3328-00-Mod.) ☐ TPH by GC/FID (8015B Mod) Quantitative Only ☐ Gasoline Range Organics (GRO) ☐ MA DEP VPH w/all targets ☐ ME DRO ☐ EPH Carbon Ranges only ☐ EPH w/4 PAHs

Petroleum Hydrocarbon Vol. TPH: ☐ VPH Carbon ranges only

Haz. Waste: ☐ TCLP ☐ 13 PP ☐ 13 Metals ☐ Pb only ☐ VOA ☐ Semi VOA ☐ Pesticides ☐ Herbicides ☐ Corrosivity (as pH) ☐ Reactivity ☐ Ignitability (as Flashpoint) ☐ Paint Filter ☐ MA Basic Disposal Criteria: 8260B, TPH by GC, PCBs, 5 Metals, Corrosivity, Ignitability, Reactivity

General Chemistry: ☐ Nitrate ☐ Nitrite ☐ Chloride ☐ Fluoride ☐ Sulfate ☐ Dissolved Phosphorus ☐ Ammonia ☐ TKN ☐ Total Phosphorus ☐ Total N (as NO2/NO3/TKN) ☐ Oil & Grease ☐ COD ☐ TOC ☐ BOD ☐ TDS ☐ TSS ☐ TS ☐ Alkalinity ☐ Cyanide, Total ☐ Cyanide, Physiologically Available ☐ pH ☐ Dissolved Oxygen ☐ Turbidity ☐ Total Coliform ☐ Fecal Coliform ☐ Lab

TIME	SAMPLE IDENTIFICATION	Matrix: GROUNDWATER	DRINKING WATER	WASTEWATER	SOIL	OTHER SOLID	OIL/ORGANIC LIQUID	Type: COMPOSITE	GRAB	Container(s): NUMBER	40mL VOA Vial	60mL/2 oz Glass	120mL/4 oz Amber Glass	250mL/8 oz Glass	500mL/16 oz Glass	1L/32 oz Amber Glass	250mL/8 oz Plastic	500mL/16 oz Plastic	1L/32 oz Plastic	120mL Sterile	Preservation: HCl	HNO3	H2SO4	NaOH	Methanol	Sodium Bisulfate	ICE	Filtered: YES	NO	LABORATORY NUMBER (Lab Use Only)
:10	SS-01				✓				✓	1				✓												✓				
:15	SS-02				✓				✓	1				✓												✓				
20	SS-03				✓				✓	1				✓												✓				
25	SS-04				✓				✓	1				✓												✓				

RKS / SPECIAL INSTRUCTIONS

[illegible]

DATA QUALITY OBJECTIVES

Regulatory Program

State	Standard	Deliverables
☐ CT	☐ MCP GW-1/S-1	☐ PWS Form
☐ ME	☑ MCP GW-2/S-2	☐ MWRA
☑ MA	☐ NY STARS	☐ _____
☐ NH	☐ Drinking Water	
☐ NY	☐ Wastewater	
☐ RI	☐ Waste Disposal	
☐ VT	☐ Dredge Material	
☐ ___	☐ _____	

Project Specific QC

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

Project Specific QC Required
- ☐ Sample Duplicate
- ☐ Matrix Spike
- ☐ Matrix Spike Duplicate

Selection of QC Sample
- ☐ Please use sample: _____

CHAIN-OF-CUSTODY RECORD

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

Relinquished by Sampler:	Date / Time: 1/19/05	Received by:	Receipt Temperature: ☐ Ice ☐ Refrigerated 2-6°C Recommended 2
Relinquished by:	Date / Time: 1/21/5 1610	Received by:	Container Count:
Relinquished by:	Date / Time: 1/21/5 1750	Received by Laboratory:	Shipping/Airbill Number:

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

Custody Seal Number:

GROUNDWATER ANALYTICAL

Quality Assurance/Quality Control

A. Program Overview

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

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

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

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

B. Definitions

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

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

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

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

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

GROUNDWATER ANALYTICAL

Quality Control Report
Laboratory Control Sample

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

Analysis Method	QC Batch ID	Prep Method	Prepared	Instrument ID	Analyst
EPA 6010B	MB-0537-SL	EPA 3050B	01-25-05 11:50	ICP-1 PE 3000	CRL

CAS Number	Analyte	Spiked	Measured	Recovery	QC Limits	Analyzed	Method
7440-38-2	Arsenic	190	170	90 %	80-120 %	01-26-05 11:02	EPA 6010B

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

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

GROUNDWATER ANALYTICAL

Quality Control Report
Method Blank

Category: Metals
Matrix: Soil

Analysis Method	QC Batch ID	Prep Method	Prepared	Sample Volume	Instrument ID	Analyst
EPA 6010B	MB-0537-SB	EPA 3050B	01-25-05 11:50	0.5 g	ICP-1 PE 3000	CRL

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit	DF	Analyzed	Method
7440-38-2	Arsenic	BRL		mg/Kg	1	1	01-26-05 10:59	EPA 6010B

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

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

GROUNDWATER ANALYTICAL

Certifications and Approvals

Groundwater Analytical maintains environmental laboratory certification in a variety of states. Copies of our current certificates may be obtained from our website:

http://www.groundwateranalytical.com/qualifications.htm

CONNECTICUT, Department of Health Services, PH-0586

Categories: Potable Water, Wastewater, Solid Waste and Soil
http://www.dph.state.ct.us/BRS/Environmental_Lab/OutStateLabList.htm

FLORIDA, Department of Health, Bureau of Laboratories, E87643

Categories: SDWA, CWA, RCRA/CERCLA
http://www.floridadep.org/labs/qa/dohforms.htm

MAINE, Department of Human Services, MA103

Categories: Drinking Water and Wastewater
http://www.state.me.us/dhs/eng/water/Compliance.htm

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

Categories: Potable Water and Non-Potable Water
http://www.state.ma.us/dep/bspt/wes/files/certlabs.pdf

NEW HAMPSHIRE, Department of Environmental Services, 202703

Categories: Drinking Water and Wastewater
http://www.des.state.nh.us/asp/NHELAP/labsview.asp

NEW YORK, Department of Health, 11754

Categories: Potable Water, Non-Potable Water and Solid Waste
http://www.wadsworth.org/labcert/elap/comm.html

PENNSYLVANIA, Department of Environmental Protection, 68-665

Environmental Laboratory Registration (Non-drinking water and Non-wastewater)
http://www.dep.state.pa.us/Labs/Registered/

RHODE ISLAND, Department of Health, 54

Categories: Surface Water, Air, Wastewater, Potable Water, Sewage
http://www.healthri.org/labs/labsCT_MA.htm

U.S. Department of Agriculture, Soil Permit, S-53921

Foreign soil import permit

VERMONT, Department of Environmental Conservation, Water Supply Division

Category: Drinking Water
http://www.vermontdrinkingwater.org/wsops/labtable.PDF

GROUNDWATER ANALYTICAL

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September 20, 2004

Mr. Doug Heely
Environmental Strategies & Management, Inc.
184 West Main Street
Norton, MA 02766

LABORATORY REPORT

Project: **SARSS/Ashburnham/2004-274**
Lab ID: **76317**
Received: **09-03-04**

Dear Doug:

Enclosed are the analytical results for the above referenced project. The project was processed for Standard turnaround.

This letter authorizes the release of the analytical results, and should be considered a part of this report. This report contains a sample receipt report detailing the samples received, a project narrative indicating project changes and non-conformances, a quality control report, and a statement of our state certifications.

The analytical results contained in this report meet all applicable NELAC standards, except as may be specifically noted, or described in the project narrative. This report may only be used or reproduced in its entirety.

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

Should you have any questions concerning this report, please do not hesitate to contact me.

Sincerely,

Eric H. Jensen
Operations Manager

EHJ/smd
Enclosures

GROUNDWATER ANALYTICAL

Sample Receipt Report

Project: **SARSS/Ashburnham/2004-274**
Client: **Environmental Strategies & Management, Inc.**
Lab ID: **76317**

Delivery: **GWA Courier**
Airbill: **n/a**
Lab Receipt: **09-03-04**

Temperature: **2.6'C**
Chain of Custody: **Present**
Custody Seal(s): **n/a**

Lab ID	Field ID		Matrix	Sampled	Method				Notes
76317-1	ESM-03 (6-8')		Soil	9/1/04 12:15	EPA 8260B Volatile Organics with Oxygenates				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C408869	40 mL VOA Vial	Proline	BX13526	NaHSO4	R-3849A	08-04-04	n/a		
C408871	40 mL VOA Vial	Proline	BX13526	NaHSO4	R-3849A	08-04-04	n/a		
C408870	40 mL VOA Vial	Proline	BX13526	NaHSO4	R-3849A	08-04-04	n/a		
C407344	40 mL VOA Vial	Proline	BX13309	Methanol	R-4021B	07-13-04	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
76317-2	ESM-04 (7-9')		Soil	9/1/04 13:30	EPA 8260B Volatile Organics with Oxygenates				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C408824	40 mL VOA Vial	Proline	BX13526	NaHSO4	R-3849A	08-04-04	n/a		
C408826	40 mL VOA Vial	Proline	BX13526	NaHSO4	R-3849A	08-04-04	n/a		
C408825	40 mL VOA Vial	Proline	BX13526	NaHSO4	R-3849A	08-04-04	n/a		
C407311	40 mL VOA Vial	Proline	BX13309	Methanol	R-4021B	07-13-04	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
76317-3	Field Dup		Soil	9/1/04 12:30	EPA 8260B Volatile Organics with Oxygenates				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C408874	40 mL VOA Vial	Proline	BX13526	NaHSO4	R-3849A	08-04-04	n/a		
C408873	40 mL VOA Vial	Proline	BX13526	NaHSO4	R-3849A	08-04-04	n/a		
C408872	40 mL VOA Vial	Proline	BX13526	NaHSO4	R-3849A	08-04-04	n/a		
C407343	40 mL VOA Vial	Proline	BX13309	Methanol	R-4021B	07-13-04	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
76317-4	AB-09 (18-24")		Soil	9/2/04 11:15	EPA 8260B Volatile Organics with Oxygenates				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C408861	40 mL VOA Vial	Proline	BX13526	NaHSO4	R-3849A	08-04-04	n/a		
C408862	40 mL VOA Vial	Proline	BX13526	NaHSO4	R-3849A	08-04-04	n/a		
C408877	40 mL VOA Vial	Proline	BX13526	NaHSO4	R-3849A	08-04-04	n/a		
C407329	40 mL VOA Vial	Proline	BX13309	Methanol	R-4021B	07-13-04	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
76317-5	AB-10/11 (0-2")		Soil	9/2/04 12:55	EPA 8260B Volatile Organics with Oxygenates				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C408822	40 mL VOA Vial	Proline	BX13526	NaHSO4	R-3849A	08-04-04	n/a		
C408823	40 mL VOA Vial	Proline	BX13526	NaHSO4	R-3849A	08-04-04	n/a		
C408821	40 mL VOA Vial	Proline	BX13526	NaHSO4	R-3849A	08-04-04	n/a		
C407312	40 mL VOA Vial	Proline	BX13309	Methanol	R-4021B	07-13-04	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
76317-6	S-06 (Surface)		Soil	9/2/04 14:00	EPA 8260B Volatile Organics with Oxygenates				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C408818	40 mL VOA Vial	Proline	BX13526	NaHSO4	R-3849A	08-04-04	n/a		
C408819	40 mL VOA Vial	Proline	BX13526	NaHSO4	R-3849A	08-04-04	n/a		
C408817	40 mL VOA Vial	Proline	BX13526	NaHSO4	R-3849A	08-04-04	n/a		
C407313	40 mL VOA Vial	Proline	BX13309	Methanol	R-4021B	07-13-04	n/a		

GROUNDWATER ANALYTICAL

Sample Receipt Report (Continued)

Project: **SARSS/Ashburnham/2004-274**
Client: **Environmental Strategies & Management, Inc.**
Lab ID: **76317**

Delivery: **GWA Courier**
Airbill: **n/a**
Lab Receipt: **09-03-04**

Temperature: **2.6'C**
Chain of Custody: **Present**
Custody Seal(s): **n/a**

Lab ID	Field ID		Matrix	Sampled	Method				Notes
76317-7	S-12 (Surface)		Soil	9/2/04 14:15	EPA 8260B Volatile Organics with Oxygenates				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C442470	40 mL VOA Vial	Proline	BX13787	NaHSO4	R-3849A	08-04-04	n/a		
C442471	40 mL VOA Vial	Proline	BX13787	NaHSO4	R-3849A	08-04-04	n/a		
C442472	40 mL VOA Vial	Proline	BX13787	NaHSO4	R-3849A	08-04-04	n/a		
C407338	40 mL VOA Vial	Proline	BX13309	Methanol	R-4021B	07-13-04	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
76317-8	ESM-01 (7-9')		Soil	9/1/04 10:00	MA DEP VPH with Targets				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C460925	60 mL Glass	Proline	BX13915	Methanol	R-4020A	07-28-04	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
76317-9	ESM-02 (7-8')		Soil	9/1/04 11:30	MA DEP VPH with Targets				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C488426	60 mL Glass	Industrial	BX13276	Methanol	R-4024K	07-21-04	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
76317-10	ESM-03 (6-8')		Soil	9/1/04 12:15	MA DEP VPH with Targets				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C460935	60 mL Glass	Proline	BX13915	Methanol	R-4020A	07-28-04	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
76317-11	ESM-04 (7-9')		Soil	9/1/04 13:30	MA DEP VPH with Targets				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C460919	60 mL Glass	Proline	BX13915	Methanol	R-4020A	07-28-04	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
76317-12	B-01 (7-8')		Soil	9/1/04 10:30	MA DEP VPH with Targets				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C488429	60 mL Glass	Industrial	BX13276	Methanol	R-4024K	07-21-04	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
76317-13	B-02 (6-7')		Soil	9/1/04 11:00	MA DEP VPH with Targets				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C488427	60 mL Glass	Industrial	BX13276	Methanol	R-4024K	07-21-04	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
76317-14	AB-07 (30-36")		Soil	9/2/04 10:45	MA DEP VPH with Targets				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C460930	60 mL Glass	Proline	BX13915	Methanol	R-4020A	07-28-04	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
76317-15	AB-08 (18-24")		Soil	9/2/04 10:15	MA DEP VPH with Targets				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C460922	60 mL Glass	Proline	BX13915	Methanol	R-4020A	07-28-04	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
76317-16	AB-09 (18-24")		Soil	9/2/04 11:15	MA DEP VPH with Targets				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C460920	60 mL Glass	Proline	BX13915	Methanol	R-4020A	07-28-04	n/a		

GROUNDWATER ANALYTICAL

Sample Receipt Report (Continued)

Project: **SARSS/Ashburnham/2004-274**
Client: **Environmental Strategies & Management, Inc.**
Lab ID: **76317**

Delivery: **GWA Courier**
Airbill: **n/a**
Lab Receipt: **09-03-04**

Temperature: **2.6'C**
Chain of Custody: **Present**
Custody Seal(s): **n/a**

Lab ID	Field ID		Matrix	Sampled	Method				Notes
76317-17	AB-10/11 (0-2")		Soil	9/2/04 12:55	MA DEP VPH with Targets				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C488419	60 mL Glass	Industrial	BX13276	Methanol	R-4024K	07-21-04	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
76317-18	AB-10/11 (4-6")		Soil	9/2/04 13:00	MA DEP VPH with Targets				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C460923	60 mL Glass	Proline	BX13915	Methanol	R-4020A	07-28-04	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
76317-19	S-06 (Surface)		Soil	9/2/04 14:00	MA DEP VPH with Targets				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C488412	60 mL Glass	Industrial	BX13276	Methanol	R-4024K	07-21-04	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
76317-20	S-12 (Surface)		Soil	9/2/04 14:15	MA DEP VPH with Targets				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C460931	60 mL Glass	Proline	BX13915	Methanol	R-4020A	07-28-04	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
76317-21	ESM-01 (7-9')		Soil	9/1/04 10:00	EPA 6010B/7471A 8 RCRA Metals MA DEP EPH with PAHs				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C510918	120 mL Amber Glass	Proline	BX14304	None	n/a	n/a	n/a		
C507877	250 mL Glass	Proline	BX14269	None	n/a	n/a	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
76317-22	ESM-02 (7-8')		Soil	9/1/04 11:30	MA DEP EPH with PAHs				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C510916	120 mL Amber Glass	Proline	BX14304	None	n/a	n/a	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
76317-23	ESM-03 (6-8')		Soil	9/1/04 12:15	EPA 6010B/7471A 8 RCRA Metals MA DEP EPH with PAHs				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C510920	120 mL Amber Glass	Proline	BX14304	None	n/a	n/a	n/a		
C507882	250 mL Glass	Proline	BX14269	None	n/a	n/a	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
76317-24	ESM-04 (7-9')		Soil	9/1/04 13:30	MA DEP EPH with PAHs				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C510924	120 mL Amber Glass	Proline	BX14304	None	n/a	n/a	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
76317-25	B-01 (7-8')		Soil	9/1/04 10:30	MA DEP EPH with PAHs				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C510935	120 mL Amber Glass	Proline	BX14304	None	n/a	n/a	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
76317-26	B-02 (6-7')		Soil	9/1/04 11:00	MA DEP EPH with PAHs				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C510927	120 mL Amber Glass	Proline	BX14304	None	n/a	n/a	n/a		

GROUNDWATER ANALYTICAL

Sample Receipt Report (Continued)

Project: **SARSS/Ashburnham/2004-274**
Client: **Environmental Strategies & Management, Inc.**
Lab ID: **76317**

Delivery: **GWA Courier**
Airbill: **n/a**
Lab Receipt: **09-03-04**

Temperature: **2.6'C**
Chain of Custody: **Present**
Custody Seal(s): **n/a**

Lab ID	Field ID		Matrix	Sampled	Method				Notes
76317-27	AB-03 (0-6")		Soil	9/1/04 14:00	EPA 6010B/7471A 8 RCRA Metals				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C507876	250 mL Glass	Proline	BX14269	None	n/a	n/a	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
76317-28	AB-04 (0-6")		Soil	9/1/04 14:15	EPA 6010B/7471A 8 RCRA Metals				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C507878	250 mL Glass	Proline	BX14269	None	n/a	n/a	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
76317-29	AB-07 (30-36")		Soil	9/2/04 10:45	EPA 6010B/7471A 8 RCRA Metals MA DEP EPH with PAHs				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C490524	250 mL Glass	Proline	BX13481	None	n/a	n/a	n/a		
C216155	120 mL Amber Glass	Proline	BX5970	None	n/a	n/a	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
76317-30	AB-08 (18-24")		Soil	9/2/04 10:15	EPA 6010B/7471A 8 RCRA Metals MA DEP EPH with PAHs				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C510914	120 mL Amber Glass	Proline	BX14304	None	n/a	n/a	n/a		
C507879	250 mL Glass	Proline	BX14269	None	n/a	n/a	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
76317-31	AB-09 (18-24")		Soil	9/2/04 11:15	EPA 6010B/7471A 8 RCRA Metals MA DEP EPH with PAHs				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C510922	120 mL Amber Glass	Proline	BX14304	None	n/a	n/a	n/a		
C507886	250 mL Glass	Proline	BX14269	None	n/a	n/a	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
76317-32	AB-10/11 (0-2")		Soil	9/2/04 12:55	EPA 6010B/7471A 8 RCRA Metals MA DEP EPH with PAHs				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C510930	120 mL Amber Glass	Proline	BX14304	None	n/a	n/a	n/a		
C507880	250 mL Glass	Proline	BX14269	None	n/a	n/a	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
76317-33	AB-10/11 (4-6")		Soil	9/2/04 13:00	EPA 6010B/7471A 8 RCRA Metals MA DEP EPH with PAHs				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C510912	120 mL Amber Glass	Proline	BX14304	None	n/a	n/a	n/a		
C507884	250 mL Glass	Proline	BX14269	None	n/a	n/a	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
76317-34	S-06 (Surface)		Soil	9/2/04 14:00	EPA 6010B/7471A 8 RCRA Metals MA DEP EPH with PAHs				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C510932	120 mL Amber Glass	Proline	BX14304	None	n/a	n/a	n/a		
C510614	250 mL Glass	Proline	BX14279	None	n/a	n/a	n/a		

GROUNDWATER ANALYTICAL

Sample Receipt Report (Continued)

Project: **SARSS/Ashburnham/2004-274**
Client: **Environmental Strategies & Management, Inc.**
Lab ID: **76317**

Delivery: **GWA Courier**
Airbill: **n/a**
Lab Receipt: **09-03-04**

Temperature: **2.6'C**
Chain of Custody: **Present**
Custody Seal(s): **n/a**

Lab ID	Field ID		Matrix	Sampled	Method				Notes
76317-35	S-12 (Surface)		Soil	9/2/04 14:15	EPA 6010B/7471A 8 RCRA Metals MA DEP EPH with PAHs				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C510928	120 mL Amber Glass	Proline	BX14304	None	n/a	n/a	n/a		
C507881	250 mL Glass	Proline	BX14269	None	n/a	n/a	n/a		

GROUNDWATER ANALYTICAL

Data Certification

Project:	SARSS/Ashburnham/2004-274	Lab ID:	76317
Client:	Environmental Strategies & Management, Inc.	Received:	09-03-04 18:30

MA DEP Compendium of Analytical Methods

Project Location: n/a MA DEP RTN: n/a

This Form provides certifications for the following data set:

EPA 8260B:	76317-01,-02,-03,-04,-05,-06,-07
MA DEP VPH:	76317-08,-09,-10,-11,-12,-13,-14,-15,-16,-17,-18,-19,-20
MA DEP EPH:	76317-21,-22,-23,-24,-25,-26,-29,-30,-31,-32,-33,-34,-35
EPA 6010B:	76317-21,-23,-27,-28,-29,-30,-31,-32,-33,-34,-35
EPA 7470A/1A:	76317-21,-23,-27,-28,-29,-30,-31,-32,-33,-34,-35

Sample Matrices:	Groundwater ( )	Soil/Sediment (X)	Drinking Water ( )	Other ( )	
MCP SW-846 Methods Used	8260B (X)	8151A ( )	8330 ( )	6010B (X)	7470A/1A (X)
	8270C ( )	8081A ( )	VPH (X)	6020 ( )	9012A[2] ( )
As specified in MA DEP Compendium of Analytical Methods. (check all that apply)	8082 ( )	8021B ( )	EPH (X)	7000 S[3] ( )	Other ( )

1. List Release Tracking Number (RTN), if known.
2. SW-846 Method 9012A (Equivalent to 9014) or MA DEP 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
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
C.	Does the analytical data included in this report meet all the requirements for "Presumptive Certainty," as described in Section 2.0 of the MA DEP document CAM VII A, *Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data*?	Yes
D.	VPH and EPH methods only: Was the VPH or EPH method run without significant modifications, as specified in Section 11.3?	Yes

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

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

All No answers are addressed in the attached Project Narrative.

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.

Signature:		Position:	Operations Manager
Printed Name:	Eric H. Jensen	Date:	09-20-04

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

GROUNDWATER ANALYTICAL

EPA Method 8260B
Volatile Organics by GC/MS

Field ID:	ESM-03 (6-8')	Matrix:	Soil
Project:	SARSS/Ashburnham/2004-274	Container:	40 mL VOA Vial
Client:	Environmental Strategies & Management	Preservation:	Methanol / Cool
Laboratory ID:	76317-01	QC Batch ID:	VM1-1439-E
Sampled:	09-01-04 12:15	Instrument ID:	MS-1 HP 5890
Received:	09-03-04 18:30	Sample Weight:	4.3 g
Analyzed:	09-14-04 10:13	Final Volume:	10 mL
Analyst:	LMG	% Solids:	92
		Dilution Factor:	2

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
75-71-8	Dichlorodifluoromethane	BRL		ug/Kg	2,500
74-87-3	Chloromethane	BRL		ug/Kg	2,500
75-01-4	Vinyl Chloride	BRL		ug/Kg	2,500
74-83-9	Bromomethane	BRL		ug/Kg	2,500
75-00-3	Chloroethane	BRL		ug/Kg	2,500
75-69-4	Trichlorofluoromethane	BRL		ug/Kg	2,500
60-29-7	Diethyl Ether	BRL		ug/Kg	2,500
75-35-4	1,1-Dichloroethene	BRL		ug/Kg	1,300
76-13-1	1,1,2-Trichlorotrifluoroethane	BRL		ug/Kg	13,000
67-64-1	Acetone	BRL		ug/Kg	13,000
75-15-0	Carbon Disulfide	BRL		ug/Kg	13,000
75-09-2	Methylene Chloride	BRL		ug/Kg	5,100
156-60-5	*trans*- 1,2-Dichloroethene	BRL		ug/Kg	1,300
1634-04-4	Methyl *tert*- butyl Ether (MTBE)	BRL		ug/Kg	1,300
75-34-3	1,1-Dichloroethane	BRL		ug/Kg	1,300
594-20-7	2,2-Dichloropropane	BRL		ug/Kg	1,300
156-59-2	*cis*- 1,2-Dichloroethene	BRL		ug/Kg	1,300
78-93-3	2-Butanone (MEK)	BRL		ug/Kg	13,000
74-97-5	Bromochloromethane	BRL		ug/Kg	1,300
109-99-9	Tetrahydrofuran (THF)	BRL		ug/Kg	13,000
67-66-3	Chloroform	BRL		ug/Kg	1,300
71-55-6	1,1,1-Trichloroethane	BRL		ug/Kg	1,300
56-23-5	Carbon Tetrachloride	BRL		ug/Kg	1,300
563-58-6	1,1-Dichloropropene	BRL		ug/Kg	1,300
71-43-2	Benzene	BRL		ug/Kg	1,300
107-06-2	1,2-Dichloroethane	BRL		ug/Kg	1,300
79-01-6	Trichloroethene	BRL		ug/Kg	1,300
78-87-5	1,2-Dichloropropane	BRL		ug/Kg	1,300
74-95-3	Dibromomethane	BRL		ug/Kg	1,300
75-27-4	Bromodichloromethane	BRL		ug/Kg	1,300
123-91-1	1,4-Dioxane	BRL		ug/Kg	1,300,000
10061-01-5	*cis*- 1,3-Dichloropropene	BRL		ug/Kg	1,300
108-10-1	4-Methyl-2-Pentanone (MIBK)	BRL		ug/Kg	13,000
108-88-3	Toluene	BRL		ug/Kg	1,300
10061-02-6	*trans*- 1,3-Dichloropropene	BRL		ug/Kg	1,300
79-00-5	1,1,2-Trichloroethane	BRL		ug/Kg	1,300
127-18-4	Tetrachloroethene	BRL		ug/Kg	1,300
142-28-9	1,3-Dichloropropane	BRL		ug/Kg	1,300
591-78-6	2-Hexanone	BRL		ug/Kg	13,000
124-48-1	Dibromochloromethane	BRL		ug/Kg	1,300
106-93-4	1,2-Dibromoethane (EDB)	BRL		ug/Kg	1,300
108-90-7	Chlorobenzene	BRL		ug/Kg	1,300
630-20-6	1,1,1,2-Tetrachloroethane	BRL		ug/Kg	1,300
100-41-4	Ethylbenzene	BRL		ug/Kg	1,300
108-38-3/106-42-3	*meta*- Xylene and *para*- Xylene	BRL		ug/Kg	1,300
95-47-6	*ortho*- Xylene	BRL		ug/Kg	1,300

GROUNDWATER ANALYTICAL

EPA Method 8260B
Volatile Organics by GC/MS

Field ID:	ESM-03 (6-8')	Matrix:	Soil
Project:	SARSS/Ashburnham/2004-274	Container:	40 mL VOA Vial
Client:	Environmental Strategies & Management	Preservation:	Methanol / Cool
Laboratory ID:	76317-01	QC Batch ID:	VM1-1439-E
Sampled:	09-01-04 12:15	Instrument ID:	MS-1 HP 5890
Received:	09-03-04 18:30	Sample Weight:	4.3 g
Analyzed:	09-14-04 10:13	Final Volume:	10 mL
Analyst:	LMG	% Solids:	92
		Dilution Factor:	2

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
100-42-5	Styrene	BRL		ug/Kg	1,300
75-25-2	Bromoform	BRL		ug/Kg	1,300
98-82-8	Isopropylbenzene	BRL		ug/Kg	1,300
108-86-1	Bromobenzene	BRL		ug/Kg	1,300
79-34-5	1,1,2,2-Tetrachloroethane	BRL		ug/Kg	1,300
96-18-4	1,2,3-Trichloropropane	BRL		ug/Kg	1,300
103-65-1	*n*-Propylbenzene	BRL		ug/Kg	1,300
95-49-8	2-Chlorotoluene	BRL		ug/Kg	1,300
108-67-8	1,3,5-Trimethylbenzene	BRL		ug/Kg	1,300
106-43-4	4-Chlorotoluene	BRL		ug/Kg	1,300
98-06-6	*tert*-Butylbenzene	BRL		ug/Kg	1,300
95-63-6	1,2,4-Trimethylbenzene	BRL		ug/Kg	1,300
135-98-8	*sec*-Butylbenzene	BRL		ug/Kg	1,300
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	1,300
99-87-6	4-Isopropyltoluene	BRL		ug/Kg	1,300
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	1,300
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	1,300
104-51-8	*n*-Butylbenzene	BRL		ug/Kg	1,300
96-12-8	1,2-Dibromo-3-chloropropane	BRL		ug/Kg	1,300
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	1,300
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	1,300
91-20-3	Naphthalene	BRL		ug/Kg	1,300
87-61-6	1,2,3-Trichlorobenzene	BRL		ug/Kg	1,300
75-65-0	*tert*-Butyl Alcohol (TBA)	BRL		ug/Kg	51,000
108-20-3	Di-isopropyl Ether (DIPE)	BRL		ug/Kg	1,300
637-92-3	Ethyl *tert*-butyl Ether (ETBE)	BRL		ug/Kg	1,300
994-05-8	*tert*-Amyl Methyl Ether (TAME)	BRL		ug/Kg	1,300

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
Dibromofluoromethane	2,500	2,200	**86** %	70 - 130 %
1,2-Dichloroethane-d_4	2,500	2,000	**79** %	70 - 130 %
Toluene-d_8	2,500	2,400	**97** %	70 - 130 %
4-Bromofluorobenzene	2,500	2,500	**102** %	70 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Sample preparation performed by EPA Method 5035A and EPA Method 5030B. Results are reported on a dry weight basis.

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

GROUNDWATER ANALYTICAL

EPA Method 8260B
Volatile Organics by GC/MS

Field ID:	ESM-04 (7-9')	Matrix:	Soil
Project:	SARSS/Ashburnham/2004-274	Container:	40 mL VOA Vial
Client:	Environmental Strategies & Management	Preservation:	Methanol / Cool
Laboratory ID:	76317-02	QC Batch ID:	VM1-1439-E
Sampled:	09-01-04 13:30	Instrument ID:	MS-1 HP 5890
Received:	09-03-04 18:30	Sample Weight:	10 g
Analyzed:	09-14-04 10:48	Final Volume:	10 mL
Analyst:	LMG	% Solids:	90
		Dilution Factor:	1

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
75-71-8	Dichlorodifluoromethane	BRL		ug/Kg	550
74-87-3	Chloromethane	BRL		ug/Kg	550
75-01-4	Vinyl Chloride	BRL		ug/Kg	550
74-83-9	Bromomethane	BRL		ug/Kg	550
75-00-3	Chloroethane	BRL		ug/Kg	550
75-69-4	Trichlorofluoromethane	BRL		ug/Kg	550
60-29-7	Diethyl Ether	BRL		ug/Kg	550
75-35-4	1,1-Dichloroethene	BRL		ug/Kg	280
76-13-1	1,1,2-Trichlorotrifluoroethane	BRL		ug/Kg	2,800
67-64-1	Acetone	BRL		ug/Kg	2,800
75-15-0	Carbon Disulfide	BRL		ug/Kg	2,800
75-09-2	Methylene Chloride	BRL		ug/Kg	1,100
156-60-5	*trans*- 1,2-Dichloroethene	BRL		ug/Kg	280
1634-04-4	Methyl *tert*- butyl Ether (MTBE)	BRL		ug/Kg	280
75-34-3	1,1-Dichloroethane	BRL		ug/Kg	280
594-20-7	2,2-Dichloropropane	BRL		ug/Kg	280
156-59-2	*cis*- 1,2-Dichloroethene	BRL		ug/Kg	280
78-93-3	2-Butanone (MEK)	BRL		ug/Kg	2,800
74-97-5	Bromochloromethane	BRL		ug/Kg	280
109-99-9	Tetrahydrofuran (THF)	BRL		ug/Kg	2,800
67-66-3	Chloroform	BRL		ug/Kg	280
71-55-6	1,1,1-Trichloroethane	BRL		ug/Kg	280
56-23-5	Carbon Tetrachloride	BRL		ug/Kg	280
563-58-6	1,1-Dichloropropene	BRL		ug/Kg	280
71-43-2	Benzene	BRL		ug/Kg	280
107-06-2	1,2-Dichloroethane	BRL		ug/Kg	280
79-01-6	Trichloroethene	BRL		ug/Kg	280
78-87-5	1,2-Dichloropropane	BRL		ug/Kg	280
74-95-3	Dibromomethane	BRL		ug/Kg	280
75-27-4	Bromodichloromethane	BRL		ug/Kg	280
123-91-1	1,4-Dioxane	BRL		ug/Kg	280,000
10061-01-5	*cis*- 1,3-Dichloropropene	BRL		ug/Kg	280
108-10-1	4-Methyl-2-Pentanone (MIBK)	BRL		ug/Kg	2,800
108-88-3	Toluene	BRL		ug/Kg	280
10061-02-6	*trans*- 1,3-Dichloropropene	BRL		ug/Kg	280
79-00-5	1,1,2-Trichloroethane	BRL		ug/Kg	280
127-18-4	Tetrachloroethene	BRL		ug/Kg	280
142-28-9	1,3-Dichloropropane	BRL		ug/Kg	280
591-78-6	2-Hexanone	BRL		ug/Kg	2,800
124-48-1	Dibromochloromethane	BRL		ug/Kg	280
106-93-4	1,2-Dibromoethane (EDB)	BRL		ug/Kg	280
108-90-7	Chlorobenzene	BRL		ug/Kg	280
630-20-6	1,1,1,2-Tetrachloroethane	BRL		ug/Kg	280
100-41-4	Ethylbenzene	BRL		ug/Kg	280
108-38-3/106-42-3	*meta*- Xylene and *para*- Xylene	BRL		ug/Kg	280
95-47-6	*ortho*- Xylene	BRL		ug/Kg	280

GROUNDWATER ANALYTICAL

EPA Method 8260B
Volatile Organics by GC/MS

Field ID:	ESM-04 (7-9')	Matrix:	Soil
Project:	SARSS/Ashburnham/2004-274	Container:	40 mL VOA Vial
Client:	Environmental Strategies & Management	Preservation:	Methanol / Cool
Laboratory ID:	76317-02	QC Batch ID:	VM1-1439-E
Sampled:	09-01-04 13:30	Instrument ID:	MS-1 HP 5890
Received:	09-03-04 18:30	Sample Weight:	10 g
Analyzed:	09-14-04 10:48	Final Volume:	10 mL
Analyst:	LMG	% Solids:	90
		Dilution Factor:	1

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
100-42-5	Styrene	BRL		ug/Kg	280
75-25-2	Bromoform	BRL		ug/Kg	280
98-82-8	Isopropylbenzene	BRL		ug/Kg	280
108-86-1	Bromobenzene	BRL		ug/Kg	280
79-34-5	1,1,2,2-Tetrachloroethane	BRL		ug/Kg	280
96-18-4	1,2,3-Trichloropropane	BRL		ug/Kg	280
103-65-1	*n*-Propylbenzene	BRL		ug/Kg	280
95-49-8	2-Chlorotoluene	BRL		ug/Kg	280
108-67-8	1,3,5-Trimethylbenzene	BRL		ug/Kg	280
106-43-4	4-Chlorotoluene	BRL		ug/Kg	280
98-06-6	*tert*-Butylbenzene	BRL		ug/Kg	280
95-63-6	1,2,4-Trimethylbenzene	BRL		ug/Kg	280
135-98-8	*sec*-Butylbenzene	BRL		ug/Kg	280
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	280
99-87-6	4-Isopropyltoluene	BRL		ug/Kg	280
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	280
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	280
104-51-8	*n*-Butylbenzene	BRL		ug/Kg	280
96-12-8	1,2-Dibromo-3-chloropropane	BRL		ug/Kg	280
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	280
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	280
91-20-3	Naphthalene	BRL		ug/Kg	280
87-61-6	1,2,3-Trichlorobenzene	BRL		ug/Kg	280
75-65-0	*tert*-Butyl Alcohol (TBA)	BRL		ug/Kg	11,000
108-20-3	Di-isopropyl Ether (DIPE)	BRL		ug/Kg	280
637-92-3	Ethyl *tert*-butyl Ether (ETBE)	BRL		ug/Kg	280
994-05-8	*tert*-Amyl Methyl Ether (TAME)	BRL		ug/Kg	280

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
Dibromofluoromethane	2,500	2,200	89 %	70 - 130 %
1,2-Dichloroethane-d_4	2,500	2,000	80 %	70 - 130 %
Toluene-d_8	2,500	2,400	95 %	70 - 130 %
4-Bromofluorobenzene	2,500	2,400	95 %	70 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Sample preparation performed by EPA Method 5035A and EPA Method 5030B. Results are reported on a dry weight basis.

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

GROUNDWATER ANALYTICAL

EPA Method 8260B
Volatile Organics by GC/MS

Field ID:	**Field Dup**	Matrix:	**Soil**
Project:	**SARSS/Ashburnham/2004-274**	Container:	**40 mL VOA Vial**
Client:	**Environmental Strategies & Management**	Preservation:	**Methanol / Cool**
Laboratory ID:	**76317-03**	QC Batch ID:	**VM1-1439-E**
Sampled:	**09-01-04 12:30**	Instrument ID:	**MS-1 HP 5890**
Received:	**09-03-04 18:30**	Sample Weight:	**11 g**
Analyzed:	**09-14-04 11:23**	Final Volume:	**10 mL**
Analyst:	**LMG**	% Solids:	**100**
		Dilution Factor:	**2**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
75-71-8	Dichlorodifluoromethane	BRL		ug/Kg	920
74-87-3	Chloromethane	BRL		ug/Kg	920
75-01-4	Vinyl Chloride	BRL		ug/Kg	920
74-83-9	Bromomethane	BRL		ug/Kg	920
75-00-3	Chloroethane	BRL		ug/Kg	920
75-69-4	Trichlorofluoromethane	BRL		ug/Kg	920
60-29-7	Diethyl Ether	BRL		ug/Kg	920
75-35-4	1,1-Dichloroethene	BRL		ug/Kg	460
76-13-1	1,1,2-Trichlorotrifluoroethane	BRL		ug/Kg	4,600
67-64-1	Acetone	BRL		ug/Kg	4,600
75-15-0	Carbon Disulfide	BRL		ug/Kg	4,600
75-09-2	Methylene Chloride	BRL		ug/Kg	1,800
156-60-5	*trans*- 1,2-Dichloroethene	BRL		ug/Kg	460
1634-04-4	Methyl *tert*- butyl Ether (MTBE)	BRL		ug/Kg	460
75-34-3	1,1-Dichloroethane	BRL		ug/Kg	460
594-20-7	2,2-Dichloropropane	BRL		ug/Kg	460
156-59-2	*cis*- 1,2-Dichloroethene	BRL		ug/Kg	460
78-93-3	2-Butanone (MEK)	BRL		ug/Kg	4,600
74-97-5	Bromochloromethane	BRL		ug/Kg	460
109-99-9	Tetrahydrofuran (THF)	BRL		ug/Kg	4,600
67-66-3	Chloroform	BRL		ug/Kg	460
71-55-6	1,1,1-Trichloroethane	BRL		ug/Kg	460
56-23-5	Carbon Tetrachloride	BRL		ug/Kg	460
563-58-6	1,1-Dichloropropene	BRL		ug/Kg	460
71-43-2	Benzene	BRL		ug/Kg	460
107-06-2	1,2-Dichloroethane	BRL		ug/Kg	460
79-01-6	Trichloroethene	BRL		ug/Kg	460
78-87-5	1,2-Dichloropropane	BRL		ug/Kg	460
74-95-3	Dibromomethane	BRL		ug/Kg	460
75-27-4	Bromodichloromethane	BRL		ug/Kg	460
123-91-1	1,4-Dioxane	BRL		ug/Kg	460,000
10061-01-5	*cis*- 1,3-Dichloropropene	BRL		ug/Kg	460
108-10-1	4-Methyl-2-Pentanone (MIBK)	BRL		ug/Kg	4,600
108-88-3	Toluene	**580**		ug/Kg	460
10061-02-6	*trans*- 1,3-Dichloropropene	BRL		ug/Kg	460
79-00-5	1,1,2-Trichloroethane	BRL		ug/Kg	460
127-18-4	Tetrachloroethene	BRL		ug/Kg	460
142-28-9	1,3-Dichloropropane	BRL		ug/Kg	460
591-78-6	2-Hexanone	BRL		ug/Kg	4,600
124-48-1	Dibromochloromethane	BRL		ug/Kg	460
106-93-4	1,2-Dibromoethane (EDB)	BRL		ug/Kg	460
108-90-7	Chlorobenzene	BRL		ug/Kg	460
630-20-6	1,1,1,2-Tetrachloroethane	BRL		ug/Kg	460
100-41-4	Ethylbenzene	BRL		ug/Kg	460
108-38-3/106-42-3	*meta*- Xylene and *para*- Xylene	**710**		ug/Kg	460
95-47-6	*ortho*- Xylene	BRL		ug/Kg	460

GROUNDWATER ANALYTICAL

EPA Method 8260B
Volatile Organics by GC/MS

Field ID:	**Field Dup**	Matrix:	**Soil**
Project:	**SARSS/Ashburnham/2004-274**	Container:	**40 mL VOA Vial**
Client:	**Environmental Strategies & Management**	Preservation:	**Methanol / Cool**
Laboratory ID:	**76317-03**	QC Batch ID:	**VM1-1439-E**
Sampled:	**09-01-04 12:30**	Instrument ID:	**MS-1 HP 5890**
Received:	**09-03-04 18:30**	Sample Weight:	**11 g**
Analyzed:	**09-14-04 11:23**	Final Volume:	**10 mL**
Analyst:	**LMG**	% Solids:	**100**
		Dilution Factor:	**2**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
100-42-5	Styrene	BRL		ug/Kg	460
75-25-2	Bromoform	BRL		ug/Kg	460
98-82-8	Isopropylbenzene	BRL		ug/Kg	460
108-86-1	Bromobenzene	BRL		ug/Kg	460
79-34-5	1,1,2,2-Tetrachloroethane	BRL		ug/Kg	460
96-18-4	1,2,3-Trichloropropane	BRL		ug/Kg	460
103-65-1	*n*-Propylbenzene	BRL		ug/Kg	460
95-49-8	2-Chlorotoluene	BRL		ug/Kg	460
108-67-8	1,3,5-Trimethylbenzene	BRL		ug/Kg	460
106-43-4	4-Chlorotoluene	BRL		ug/Kg	460
98-06-6	*tert*-Butylbenzene	BRL		ug/Kg	460
95-63-6	1,2,4-Trimethylbenzene	**640**		ug/Kg	460
135-98-8	*sec*-Butylbenzene	BRL		ug/Kg	460
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	460
99-87-6	4-Isopropyltoluene	BRL		ug/Kg	460
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	460
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	460
104-51-8	*n*-Butylbenzene	BRL		ug/Kg	460
96-12-8	1,2-Dibromo-3-chloropropane	BRL		ug/Kg	460
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	460
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	460
91-20-3	Naphthalene	BRL		ug/Kg	460
87-61-6	1,2,3-Trichlorobenzene	BRL		ug/Kg	460
75-65-0	*tert*-Butyl Alcohol (TBA)	BRL		ug/Kg	18,000
108-20-3	Di-isopropyl Ether (DIPE)	BRL		ug/Kg	460
637-92-3	Ethyl *tert*-butyl Ether (ETBE)	BRL		ug/Kg	460
994-05-8	*tert*-Amyl Methyl Ether (TAME)	BRL		ug/Kg	460

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
Dibromofluoromethane	2,500	2,100	**84** %	70 - 130 %
1,2-Dichloroethane-d_4	2,500	1,900	**75** %	70 - 130 %
Toluene-d_8	2,500	2,600	**102** %	70 - 130 %
4-Bromofluorobenzene	2,500	2,300	**92** %	70 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Sample preparation performed by EPA Method 5035A and EPA Method 5030B. Results are reported on a dry weight basis.

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

GROUNDWATER ANALYTICAL

EPA Method 8260B
Volatile Organics by GC/MS

Field ID:	**AB-09 (18-24")**	Matrix:	**Soil**
Project:	**SARSS/Ashburnham/2004-274**	Container:	**40 mL VOA Vial**
Client:	**Environmental Strategies & Management**	Preservation:	**NaHSO4 / Cool**
Laboratory ID:	**76317-04**	QC Batch ID:	**VM2-2703-S**
Sampled:	**09-02-04 11:15**	Instrument ID:	**MS-2 HP 5890**
Received:	**09-03-04 18:30**	Sample Weight:	**5.8 g**
Analyzed:	**09-16-04 08:53**	% Solids:	**83**
Analyst:	**LMG**	Dilution Factor:	**1**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
75-71-8	Dichlorodifluoromethane	BRL		ug/Kg	10
74-87-3	Chloromethane	BRL		ug/Kg	10
75-01-4	Vinyl Chloride	BRL		ug/Kg	10
74-83-9	Bromomethane	BRL		ug/Kg	10
75-00-3	Chloroethane	BRL		ug/Kg	10
75-69-4	Trichlorofluoromethane	BRL		ug/Kg	10
60-29-7	Diethyl Ether	BRL		ug/Kg	10
75-35-4	1,1-Dichloroethene	BRL		ug/Kg	5
76-13-1	1,1,2-Trichlorotrifluoroethane	BRL		ug/Kg	52
67-64-1	Acetone	BRL		ug/Kg	210
75-15-0	Carbon Disulfide	BRL		ug/Kg	52
75-09-2	Methylene Chloride	BRL		ug/Kg	52
156-60-5	*trans*- 1,2-Dichloroethene	BRL		ug/Kg	5
1634-04-4	Methyl *tert*- butyl Ether (MTBE)	**51**		ug/Kg	5
75-34-3	1,1-Dichloroethane	BRL		ug/Kg	5
594-20-7	2,2-Dichloropropane	BRL		ug/Kg	5
156-59-2	*cis*- 1,2-Dichloroethene	BRL		ug/Kg	5
78-93-3	2-Butanone (MEK)	BRL		ug/Kg	52
74-97-5	Bromochloromethane	BRL		ug/Kg	5
109-99-9	Tetrahydrofuran (THF)	BRL		ug/Kg	52
67-66-3	Chloroform	BRL		ug/Kg	5
71-55-6	1,1,1-Trichloroethane	BRL		ug/Kg	5
56-23-5	Carbon Tetrachloride	BRL		ug/Kg	5
563-58-6	1,1-Dichloropropene	BRL		ug/Kg	5
71-43-2	Benzene	BRL		ug/Kg	5
107-06-2	1,2-Dichloroethane	BRL		ug/Kg	5
79-01-6	Trichloroethene	BRL		ug/Kg	5
78-87-5	1,2-Dichloropropane	BRL		ug/Kg	5
74-95-3	Dibromomethane	BRL		ug/Kg	5
75-27-4	Bromodichloromethane	BRL		ug/Kg	5
123-91-1	1,4-Dioxane	BRL		ug/Kg	5200
10061-01-5	*cis*- 1,3-Dichloropropene	BRL		ug/Kg	5
108-10-1	4-Methyl-2-Pentanone (MIBK)	BRL		ug/Kg	52
108-88-3	Toluene	**9**		ug/Kg	5
10061-02-6	*trans*- 1,3-Dichloropropene	BRL		ug/Kg	5
79-00-5	1,1,2-Trichloroethane	BRL		ug/Kg	5
127-18-4	Tetrachloroethene	BRL		ug/Kg	5
142-28-9	1,3-Dichloropropane	BRL		ug/Kg	5
591-78-6	2-Hexanone	BRL		ug/Kg	52
124-48-1	Dibromochloromethane	BRL		ug/Kg	5
106-93-4	1,2-Dibromoethane (EDB)	BRL		ug/Kg	5
108-90-7	Chlorobenzene	BRL		ug/Kg	5
630-20-6	1,1,1,2-Tetrachloroethane	BRL		ug/Kg	5
100-41-4	Ethylbenzene	BRL		ug/Kg	5
108-38-3/106-42-3	*meta*- Xylene and *para*- Xylene	**7**		ug/Kg	5
95-47-6	*ortho*- Xylene	BRL		ug/Kg	5

GROUNDWATER ANALYTICAL

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

Field ID:	AB-09 (18-24")	Matrix:	Soil
Project:	SARSS/Ashburnham/2004-274	Container:	40 mL VOA Vial
Client:	Environmental Strategies & Management	Preservation:	NaHSO4 / Cool
Laboratory ID:	76317-04	QC Batch ID:	VM2-2703-S
Sampled:	09-02-04 11:15	Instrument ID:	MS-2 HP 5890
Received:	09-03-04 18:30	Sample Weight:	5.8 g
Analyzed:	09-16-04 08:53	% Solids:	83
Analyst:	LMG	Dilution Factor:	1

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
100-42-5	Styrene	BRL		ug/Kg	5
75-25-2	Bromoform	BRL		ug/Kg	5
98-82-8	Isopropylbenzene	BRL		ug/Kg	5
108-86-1	Bromobenzene	BRL		ug/Kg	5
79-34-5	1,1,2,2-Tetrachloroethane	BRL		ug/Kg	5
96-18-4	1,2,3-Trichloropropane	BRL		ug/Kg	5
103-65-1	*n*-Propylbenzene	BRL		ug/Kg	5
95-49-8	2-Chlorotoluene	BRL		ug/Kg	5
108-67-8	1,3,5-Trimethylbenzene	BRL		ug/Kg	5
106-43-4	4-Chlorotoluene	BRL		ug/Kg	5
98-06-6	*tert*-Butylbenzene	BRL		ug/Kg	5
95-63-6	1,2,4-Trimethylbenzene	**8**		ug/Kg	5
135-98-8	*sec*-Butylbenzene	BRL		ug/Kg	5
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	5
99-87-6	4-Isopropyltoluene	BRL		ug/Kg	5
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	5
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	5
104-51-8	*n*-Butylbenzene	BRL		ug/Kg	5
96-12-8	1,2-Dibromo-3-chloropropane	BRL		ug/Kg	5
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	5
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	5
91-20-3	Naphthalene	BRL		ug/Kg	5
87-61-6	1,2,3-Trichlorobenzene	BRL		ug/Kg	5
75-65-0	*tert*-Butyl Alcohol (TBA)	BRL		ug/Kg	210
108-20-3	Di-isopropyl Ether (DIPE)	BRL		ug/Kg	5
637-92-3	Ethyl *tert*-butyl Ether (ETBE)	BRL		ug/Kg	5
994-05-8	*tert*-Amyl Methyl Ether (TAME)	**6**		ug/Kg	5

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
Dibromofluoromethane	50	39	**79** %	70 - 130 %
1,2-Dichloroethane-d_4	50	38	**77** %	70 - 130 %
Toluene-d_8	50	37	**74** %	70 - 130 %
4-Bromofluorobenzene	50	54	**108** %	70 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Sample preparation performed by EPA Method 5035A. Results are reported on a dry weight basis.

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

GROUNDWATER ANALYTICAL

EPA Method 8260B
Volatile Organics by GC/MS

Field ID:	**AB-10/11 (0-2")**	Matrix:	**Soil**
Project:	**SARSS/Ashburnham/2004-274**	Container:	**40 mL VOA Vial**
Client:	**Environmental Strategies & Management**	Preservation:	**NaHSO4 / Cool**
Laboratory ID:	**76317-05**	QC Batch ID:	**VM2-2703-S**
Sampled:	**09-02-04 12:55**	Instrument ID:	**MS-2 HP 5890**
Received:	**09-03-04 18:30**	Sample Weight:	**5 g**
Analyzed:	**09-16-04 16:21**	% Solids:	**88**
Analyst:	**LMG**	Dilution Factor:	**1**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
75-71-8	Dichlorodifluoromethane	BRL		ug/Kg	11
74-87-3	Chloromethane	BRL		ug/Kg	11
75-01-4	Vinyl Chloride	BRL		ug/Kg	11
74-83-9	Bromomethane	BRL		ug/Kg	11
75-00-3	Chloroethane	BRL		ug/Kg	11
75-69-4	Trichlorofluoromethane	BRL		ug/Kg	11
60-29-7	Diethyl Ether	BRL		ug/Kg	11
75-35-4	1,1-Dichloroethene	BRL		ug/Kg	6
76-13-1	1,1,2-Trichlorotrifluoroethane	BRL		ug/Kg	57
67-64-1	Acetone	**430**		ug/Kg	230
75-15-0	Carbon Disulfide	BRL		ug/Kg	57
75-09-2	Methylene Chloride	BRL		ug/Kg	57
156-60-5	*trans*- 1,2-Dichloroethene	BRL		ug/Kg	6
1634-04-4	Methyl *tert*- butyl Ether (MTBE)	BRL		ug/Kg	6
75-34-3	1,1-Dichloroethane	BRL		ug/Kg	6
594-20-7	2,2-Dichloropropane	BRL		ug/Kg	6
156-59-2	*cis*- 1,2-Dichloroethene	BRL		ug/Kg	6
78-93-3	2-Butanone (MEK)	**89**		ug/Kg	57
74-97-5	Bromochloromethane	BRL		ug/Kg	6
109-99-9	Tetrahydrofuran (THF)	BRL		ug/Kg	57
67-66-3	Chloroform	BRL		ug/Kg	6
71-55-6	1,1,1-Trichloroethane	BRL		ug/Kg	6
56-23-5	Carbon Tetrachloride	BRL		ug/Kg	6
563-58-6	1,1-Dichloropropene	BRL		ug/Kg	6
71-43-2	Benzene	BRL		ug/Kg	6
107-06-2	1,2-Dichloroethane	BRL		ug/Kg	6
79-01-6	Trichloroethene	BRL		ug/Kg	6
78-87-5	1,2-Dichloropropane	BRL		ug/Kg	6
74-95-3	Dibromomethane	BRL		ug/Kg	6
75-27-4	Bromodichloromethane	BRL		ug/Kg	6
123-91-1	1,4-Dioxane	BRL		ug/Kg	5,700
10061-01-5	*cis*- 1,3-Dichloropropene	BRL		ug/Kg	6
108-10-1	4-Methyl-2-Pentanone (MIBK)	BRL		ug/Kg	57
108-88-3	Toluene	BRL		ug/Kg	6
10061-02-6	*trans*- 1,3-Dichloropropene	BRL		ug/Kg	6
79-00-5	1,1,2-Trichloroethane	BRL		ug/Kg	6
127-18-4	Tetrachloroethene	BRL		ug/Kg	6
142-28-9	1,3-Dichloropropane	BRL		ug/Kg	6
591-78-6	2-Hexanone	BRL		ug/Kg	57
124-48-1	Dibromochloromethane	BRL		ug/Kg	6
106-93-4	1,2-Dibromoethane (EDB)	BRL		ug/Kg	6
108-90-7	Chlorobenzene	BRL		ug/Kg	6
630-20-6	1,1,1,2-Tetrachloroethane	BRL		ug/Kg	6
100-41-4	Ethylbenzene	BRL		ug/Kg	6
108-38-3/106-42-3	*meta*- Xylene and *para*- Xylene	BRL		ug/Kg	6
95-47-6	*ortho*- Xylene	BRL		ug/Kg	6

GROUNDWATER ANALYTICAL

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

Field ID:	**AB-10/11 (0-2")**	Matrix:	**Soil**
Project:	**SARSS/Ashburnham/2004-274**	Container:	**40 mL VOA Vial**
Client:	**Environmental Strategies & Management**	Preservation:	**NaHSO4 / Cool**
Laboratory ID:	**76317-05**	QC Batch ID:	**VM2-2703-S**
Sampled:	**09-02-04 12:55**	Instrument ID:	**MS-2 HP 5890**
Received:	**09-03-04 18:30**	Sample Weight:	**5 g**
Analyzed:	**09-16-04 16:21**	% Solids:	**88**
Analyst:	**LMG**	Dilution Factor:	**1**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
100-42-5	Styrene	BRL		ug/Kg	6
75-25-2	Bromoform	BRL		ug/Kg	6
98-82-8	Isopropylbenzene	BRL		ug/Kg	6
108-86-1	Bromobenzene	BRL		ug/Kg	6
79-34-5	1,1,2,2-Tetrachloroethane	BRL		ug/Kg	6
96-18-4	1,2,3-Trichloropropane	BRL		ug/Kg	6
103-65-1	*n*-Propylbenzene	BRL		ug/Kg	6
95-49-8	2-Chlorotoluene	BRL		ug/Kg	6
108-67-8	1,3,5-Trimethylbenzene	BRL		ug/Kg	6
106-43-4	4-Chlorotoluene	BRL		ug/Kg	6
98-06-6	*tert*-Butylbenzene	BRL		ug/Kg	6
95-63-6	1,2,4-Trimethylbenzene	BRL		ug/Kg	6
135-98-8	*sec*-Butylbenzene	BRL		ug/Kg	6
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	6
99-87-6	4-Isopropyltoluene	BRL		ug/Kg	6
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	6
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	6
104-51-8	*n*-Butylbenzene	BRL		ug/Kg	6
96-12-8	1,2-Dibromo-3-chloropropane	BRL		ug/Kg	6
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	6
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	6
91-20-3	Naphthalene	BRL		ug/Kg	6
87-61-6	1,2,3-Trichlorobenzene	BRL		ug/Kg	6
75-65-0	*tert*-Butyl Alcohol (TBA)	BRL		ug/Kg	230
108-20-3	Di-isopropyl Ether (DIPE)	BRL		ug/Kg	6
637-92-3	Ethyl *tert*-butyl Ether (ETBE)	BRL		ug/Kg	6
994-05-8	*tert*-Amyl Methyl Ether (TAME)	BRL		ug/Kg	6

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
Dibromofluoromethane	50	47	**95 %**	70 - 130 %
1,2-Dichloroethane-d_4	50	52	**105 %**	70 - 130 %
Toluene-d_8	50	36	**72 %**	70 - 130 %
4-Bromofluorobenzene	50	65	**130 %**	70 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Sample preparation performed by EPA Method 5035A. Results are reported on a dry weight basis.

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

GROUNDWATER ANALYTICAL

EPA Method 8260B
Volatile Organics by GC/MS

Field ID:	S-06 (Surface)	Matrix:	Soil
Project:	SARSS/Ashburnham/2004-274	Container:	40 mL VOA Vial
Client:	Environmental Strategies & Management	Preservation:	NaHSO4 / Cool
Laboratory ID:	76317-06	QC Batch ID:	VM2-2703-S
Sampled:	09-02-04 14:00	Instrument ID:	MS-2 HP 5890
Received:	09-03-04 18:30	Sample Weight:	3.9 g
Analyzed:	09-16-04 10:08	% Solids:	97
Analyst:	LMG	Dilution Factor:	1

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
75-71-8	Dichlorodifluoromethane	BRL		ug/Kg	13
74-87-3	Chloromethane	BRL		ug/Kg	13
75-01-4	Vinyl Chloride	BRL		ug/Kg	13
74-83-9	Bromomethane	BRL		ug/Kg	13
75-00-3	Chloroethane	BRL		ug/Kg	13
75-69-4	Trichlorofluoromethane	BRL		ug/Kg	13
60-29-7	Diethyl Ether	BRL		ug/Kg	13
75-35-4	1,1-Dichloroethene	BRL		ug/Kg	7
76-13-1	1,1,2-Trichlorotrifluoroethane	BRL		ug/Kg	65
67-64-1	Acetone	BRL		ug/Kg	260
75-15-0	Carbon Disulfide	BRL		ug/Kg	65
75-09-2	Methylene Chloride	BRL		ug/Kg	65
156-60-5	*trans*- 1,2-Dichloroethene	BRL		ug/Kg	7
1634-04-4	Methyl *tert*- butyl Ether (MTBE)	BRL		ug/Kg	7
75-34-3	1,1-Dichloroethane	BRL		ug/Kg	7
594-20-7	2,2-Dichloropropane	BRL		ug/Kg	7
156-59-2	*cis*- 1,2-Dichloroethene	BRL		ug/Kg	7
78-93-3	2-Butanone (MEK)	BRL		ug/Kg	65
74-97-5	Bromochloromethane	BRL		ug/Kg	7
109-99-9	Tetrahydrofuran (THF)	BRL		ug/Kg	65
67-66-3	Chloroform	BRL		ug/Kg	7
71-55-6	1,1,1-Trichloroethane	BRL		ug/Kg	7
56-23-5	Carbon Tetrachloride	BRL		ug/Kg	7
563-58-6	1,1-Dichloropropene	BRL		ug/Kg	7
71-43-2	Benzene	BRL		ug/Kg	7
107-06-2	1,2-Dichloroethane	BRL		ug/Kg	7
79-01-6	Trichloroethene	BRL		ug/Kg	7
78-87-5	1,2-Dichloropropane	BRL		ug/Kg	7
74-95-3	Dibromomethane	BRL		ug/Kg	7
75-27-4	Bromodichloromethane	BRL		ug/Kg	7
123-91-1	1,4-Dioxane	BRL		ug/Kg	6,500
10061-01-5	*cis*- 1,3-Dichloropropene	BRL		ug/Kg	7
108-10-1	4-Methyl-2-Pentanone (MIBK)	BRL		ug/Kg	65
108-88-3	Toluene	BRL		ug/Kg	7
10061-02-6	*trans*- 1,3-Dichloropropene	BRL		ug/Kg	7
79-00-5	1,1,2-Trichloroethane	BRL		ug/Kg	7
127-18-4	Tetrachloroethene	BRL		ug/Kg	7
142-28-9	1,3-Dichloropropane	BRL		ug/Kg	7
591-78-6	2-Hexanone	BRL		ug/Kg	65
124-48-1	Dibromochloromethane	BRL		ug/Kg	7
106-93-4	1,2-Dibromoethane (EDB)	BRL		ug/Kg	7
108-90-7	Chlorobenzene	BRL		ug/Kg	7
630-20-6	1,1,1,2-Tetrachloroethane	BRL		ug/Kg	7
100-41-4	Ethylbenzene	BRL		ug/Kg	7
108-38-3/106-42-3	*meta*- Xylene and *para*- Xylene	BRL		ug/Kg	7
95-47-6	*ortho*- Xylene	BRL		ug/Kg	7

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

GROUNDWATER ANALYTICAL

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

Field ID:	**S-06 (Surface)**	Matrix:	**Soil**
Project:	**SARSS/Ashburnham/2004-274**	Container:	**40 mL VOA Vial**
Client:	**Environmental Strategies & Management**	Preservation:	**NaHSO4 / Cool**
Laboratory ID:	**76317-06**	QC Batch ID:	**VM2-2703-S**
Sampled:	**09-02-04 14:00**	Instrument ID:	**MS-2 HP 5890**
Received:	**09-03-04 18:30**	Sample Weight:	**3.9 g**
Analyzed:	**09-16-04 10:08**	% Solids:	**97**
Analyst:	**LMG**	Dilution Factor:	**1**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
100-42-5	Styrene	BRL		ug/Kg	7
75-25-2	Bromoform	BRL		ug/Kg	7
98-82-8	Isopropylbenzene	BRL		ug/Kg	7
108-86-1	Bromobenzene	BRL		ug/Kg	7
79-34-5	1,1,2,2-Tetrachloroethane	BRL		ug/Kg	7
96-18-4	1,2,3-Trichloropropane	BRL		ug/Kg	7
103-65-1	*n*-Propylbenzene	BRL		ug/Kg	7
95-49-8	2-Chlorotoluene	BRL		ug/Kg	7
108-67-8	1,3,5-Trimethylbenzene	BRL		ug/Kg	7
106-43-4	4-Chlorotoluene	BRL		ug/Kg	7
98-06-6	*tert*-Butylbenzene	BRL		ug/Kg	7
95-63-6	1,2,4-Trimethylbenzene	BRL		ug/Kg	7
135-98-8	*sec*-Butylbenzene	BRL		ug/Kg	7
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	7
99-87-6	4-Isopropyltoluene	BRL		ug/Kg	7
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	7
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	7
104-51-8	*n*-Butylbenzene	BRL		ug/Kg	7
96-12-8	1,2-Dibromo-3-chloropropane	BRL		ug/Kg	7
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	7
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	7
91-20-3	Naphthalene	BRL		ug/Kg	7
87-61-6	1,2,3-Trichlorobenzene	BRL		ug/Kg	7
75-65-0	*tert*-Butyl Alcohol (TBA)	BRL		ug/Kg	260
108-20-3	Di-isopropyl Ether (DIPE)	BRL		ug/Kg	7
637-92-3	Ethyl *tert*-butyl Ether (ETBE)	BRL		ug/Kg	7
994-05-8	*tert*-Amyl Methyl Ether (TAME)	BRL		ug/Kg	7

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
Dibromofluoromethane	50	49	**97** %	70 - 130 %
1,2-Dichloroethane-d_4	50	49	**99** %	70 - 130 %
Toluene-d_8	50	37	**74** %	70 - 130 %
4-Bromofluorobenzene	50	71	**142** % m	70 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Sample preparation performed by EPA Method 5035A. Results are reported on a dry weight basis.

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

GROUNDWATER ANALYTICAL

EPA Method 8260B
Volatile Organics by GC/MS

Field ID:	S-06 (Surface)	Matrix:	Soil
Project:	SARSS/Ashburnham/2004-274	Container:	40 mL VOA Vial
Client:	Environmental Strategies & Management	Preservation:	NaHSO4 / Cool
Laboratory ID:	76317-06RA1	QC Batch ID:	VM2-2703-S
Sampled:	09-02-04 14:00	Instrument ID:	MS-2 HP 5890
Received:	09-03-04 18:30	Sample Weight:	4.7 g
Analyzed:	09-16-04 15:44	% Solids:	97
Analyst:	LMG	Dilution Factor:	1

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
75-71-8	Dichlorodifluoromethane	BRL		ug/Kg	11
74-87-3	Chloromethane	BRL		ug/Kg	11
75-01-4	Vinyl Chloride	BRL		ug/Kg	11
74-83-9	Bromomethane	BRL		ug/Kg	11
75-00-3	Chloroethane	BRL		ug/Kg	11
75-69-4	Trichlorofluoromethane	BRL		ug/Kg	11
60-29-7	Diethyl Ether	BRL		ug/Kg	11
75-35-4	1,1-Dichloroethene	BRL		ug/Kg	6
76-13-1	1,1,2-Trichlorotrifluoroethane	BRL		ug/Kg	55
67-64-1	Acetone	BRL		ug/Kg	220
75-15-0	Carbon Disulfide	BRL		ug/Kg	55
75-09-2	Methylene Chloride	BRL		ug/Kg	55
156-60-5	*trans*- 1,2-Dichloroethene	BRL		ug/Kg	6
1634-04-4	Methyl *tert*- butyl Ether (MTBE)	BRL		ug/Kg	6
75-34-3	1,1-Dichloroethane	BRL		ug/Kg	6
594-20-7	2,2-Dichloropropane	BRL		ug/Kg	6
156-59-2	*cis*- 1,2-Dichloroethene	BRL		ug/Kg	6
78-93-3	2-Butanone (MEK)	BRL		ug/Kg	55
74-97-5	Bromochloromethane	BRL		ug/Kg	6
109-99-9	Tetrahydrofuran (THF)	BRL		ug/Kg	55
67-66-3	Chloroform	BRL		ug/Kg	6
71-55-6	1,1,1-Trichloroethane	BRL		ug/Kg	6
56-23-5	Carbon Tetrachloride	BRL		ug/Kg	6
563-58-6	1,1-Dichloropropene	BRL		ug/Kg	6
71-43-2	Benzene	BRL		ug/Kg	6
107-06-2	1,2-Dichloroethane	BRL		ug/Kg	6
79-01-6	Trichloroethene	BRL		ug/Kg	6
78-87-5	1,2-Dichloropropane	BRL		ug/Kg	6
74-95-3	Dibromomethane	BRL		ug/Kg	6
75-27-4	Bromodichloromethane	BRL		ug/Kg	6
123-91-1	1,4-Dioxane	BRL		ug/Kg	5,500
10061-01-5	*cis*- 1,3-Dichloropropene	BRL		ug/Kg	6
108-10-1	4-Methyl-2-Pentanone (MIBK)	BRL		ug/Kg	55
108-88-3	Toluene	BRL		ug/Kg	6
10061-02-6	*trans*- 1,3-Dichloropropene	BRL		ug/Kg	6
79-00-5	1,1,2-Trichloroethane	BRL		ug/Kg	6
127-18-4	Tetrachloroethene	BRL		ug/Kg	6
142-28-9	1,3-Dichloropropane	BRL		ug/Kg	6
591-78-6	2-Hexanone	BRL		ug/Kg	55
124-48-1	Dibromochloromethane	BRL		ug/Kg	6
106-93-4	1,2-Dibromoethane (EDB)	BRL		ug/Kg	6
108-90-7	Chlorobenzene	BRL		ug/Kg	6
630-20-6	1,1,1,2-Tetrachloroethane	BRL		ug/Kg	6
100-41-4	Ethylbenzene	BRL		ug/Kg	6
108-38-3/106-42-3	*meta*- Xylene and *para*- Xylene	BRL		ug/Kg	6
95-47-6	*ortho*- Xylene	BRL		ug/Kg	6

GROUNDWATER ANALYTICAL

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

Field ID:	S-06 (Surface)	Matrix:	Soil
Project:	SARSS/Ashburnham/2004-274	Container:	40 mL VOA Vial
Client:	Environmental Strategies & Management	Preservation:	NaHSO4 / Cool
Laboratory ID:	76317-06RA1	QC Batch ID:	VM2-2703-S
Sampled:	09-02-04 14:00	Instrument ID:	MS-2 HP 5890
Received:	09-03-04 18:30	Sample Weight:	4.7 g
Analyzed:	09-16-04 15:44	% Solids:	97
Analyst:	LMG	Dilution Factor:	1

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
100-42-5	Styrene	BRL		ug/Kg	6
75-25-2	Bromoform	BRL		ug/Kg	6
98-82-8	Isopropylbenzene	BRL		ug/Kg	6
108-86-1	Bromobenzene	BRL		ug/Kg	6
79-34-5	1,1,2,2-Tetrachloroethane	BRL		ug/Kg	6
96-18-4	1,2,3-Trichloropropane	BRL		ug/Kg	6
103-65-1	*n*-Propylbenzene	BRL		ug/Kg	6
95-49-8	2-Chlorotoluene	BRL		ug/Kg	6
108-67-8	1,3,5-Trimethylbenzene	BRL		ug/Kg	6
106-43-4	4-Chlorotoluene	BRL		ug/Kg	6
98-06-6	*tert*-Butylbenzene	BRL		ug/Kg	6
95-63-6	1,2,4-Trimethylbenzene	BRL		ug/Kg	6
135-98-8	*sec*-Butylbenzene	BRL		ug/Kg	6
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	6
99-87-6	4-Isopropyltoluene	BRL		ug/Kg	6
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	6
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	6
104-51-8	*n*-Butylbenzene	BRL		ug/Kg	6
96-12-8	1,2-Dibromo-3-chloropropane	BRL		ug/Kg	6
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	6
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	6
91-20-3	Naphthalene	BRL		ug/Kg	6
87-61-6	1,2,3-Trichlorobenzene	BRL		ug/Kg	6
75-65-0	*tert*-Butyl Alcohol (TBA)	BRL		ug/Kg	220
108-20-3	Di-isopropyl Ether (DIPE)	BRL		ug/Kg	6
637-92-3	Ethyl *tert*-butyl Ether (ETBE)	BRL		ug/Kg	6
994-05-8	*tert*-Amyl Methyl Ether (TAME)	BRL		ug/Kg	6

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
Dibromofluoromethane	50	46	**91** %	70 - 130 %
1,2-Dichloroethane-d_4	50	50	**101** %	70 - 130 %
Toluene-d_8	50	36	**72** %	70 - 130 %
4-Bromofluorobenzene	50	81	**161** % m	70 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Sample preparation performed by EPA Method 5035A. Results are reported on a dry weight basis.

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

m Surrogate recovery outside recommended limits due to sample matrix interference.

GROUNDWATER ANALYTICAL

EPA Method 8260B
Volatile Organics by GC/MS

Field ID:	S-12 (Surface)	Matrix:	Soil
Project:	SARSS/Ashburnham/2004-274	Container:	40 mL VOA Vial
Client:	Environmental Strategies & Management	Preservation:	NaHSO4 / Cool
Laboratory ID:	76317-07	QC Batch ID:	VM2-2703-S
Sampled:	09-02-04 14:15	Instrument ID:	MS-2 HP 5890
Received:	09-03-04 18:30	Sample Weight:	4.7 g
Analyzed:	09-16-04 10:45	% Solids:	70
Analyst:	LMG	Dilution Factor:	1

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
75-71-8	Dichlorodifluoromethane	BRL		ug/Kg	15
74-87-3	Chloromethane	BRL		ug/Kg	15
75-01-4	Vinyl Chloride	BRL		ug/Kg	15
74-83-9	Bromomethane	BRL		ug/Kg	15
75-00-3	Chloroethane	BRL		ug/Kg	15
75-69-4	Trichlorofluoromethane	BRL		ug/Kg	15
60-29-7	Diethyl Ether	BRL		ug/Kg	15
75-35-4	1,1-Dichloroethene	BRL		ug/Kg	8
76-13-1	1,1,2-Trichlorotrifluoroethane	BRL		ug/Kg	76
67-64-1	Acetone	310		ug/Kg	300
75-15-0	Carbon Disulfide	BRL		ug/Kg	76
75-09-2	Methylene Chloride	BRL		ug/Kg	76
156-60-5	*trans*- 1,2-Dichloroethene	BRL		ug/Kg	8
1634-04-4	Methyl *tert*- butyl Ether (MTBE)	BRL		ug/Kg	8
75-34-3	1,1-Dichloroethane	BRL		ug/Kg	8
594-20-7	2,2-Dichloropropane	BRL		ug/Kg	8
156-59-2	*cis*- 1,2-Dichloroethene	BRL		ug/Kg	8
78-93-3	2-Butanone (MEK)	BRL		ug/Kg	76
74-97-5	Bromochloromethane	BRL		ug/Kg	8
109-99-9	Tetrahydrofuran (THF)	BRL		ug/Kg	76
67-66-3	Chloroform	BRL		ug/Kg	8
71-55-6	1,1,1-Trichloroethane	BRL		ug/Kg	8
56-23-5	Carbon Tetrachloride	BRL		ug/Kg	8
563-58-6	1,1-Dichloropropene	BRL		ug/Kg	8
71-43-2	Benzene	BRL		ug/Kg	8
107-06-2	1,2-Dichloroethane	BRL		ug/Kg	8
79-01-6	Trichloroethene	BRL		ug/Kg	8
78-87-5	1,2-Dichloropropane	BRL		ug/Kg	8
74-95-3	Dibromomethane	BRL		ug/Kg	8
75-27-4	Bromodichloromethane	BRL		ug/Kg	8
123-91-1	1,4-Dioxane	BRL		ug/Kg	7,600
10061-01-5	*cis*- 1,3-Dichloropropene	BRL		ug/Kg	8
108-10-1	4-Methyl-2-Pentanone (MIBK)	BRL		ug/Kg	76
108-88-3	Toluene	BRL		ug/Kg	8
10061-02-6	*trans*- 1,3-Dichloropropene	BRL		ug/Kg	8
79-00-5	1,1,2-Trichloroethane	BRL		ug/Kg	8
127-18-4	Tetrachloroethene	BRL		ug/Kg	8
142-28-9	1,3-Dichloropropane	BRL		ug/Kg	8
591-78-6	2-Hexanone	BRL		ug/Kg	76
124-48-1	Dibromochloromethane	BRL		ug/Kg	8
106-93-4	1,2-Dibromoethane (EDB)	BRL		ug/Kg	8
108-90-7	Chlorobenzene	BRL		ug/Kg	8
630-20-6	1,1,1,2-Tetrachloroethane	BRL		ug/Kg	8
100-41-4	Ethylbenzene	BRL		ug/Kg	8
108-38-3/106-42-3	*meta*- Xylene and *para*- Xylene	BRL		ug/Kg	8
95-47-6	*ortho*- Xylene	BRL		ug/Kg	8

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GROUNDWATER ANALYTICAL

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

Field ID:	S-12 (Surface)	Matrix:	Soil
Project:	SARSS/Ashburnham/2004-274	Container:	40 mL VOA Vial
Client:	Environmental Strategies & Management	Preservation:	NaHSO4 / Cool
Laboratory ID:	76317-07	QC Batch ID:	VM2-2703-S
Sampled:	09-02-04 14:15	Instrument ID:	MS-2 HP 5890
Received:	09-03-04 18:30	Sample Weight:	4.7 g
Analyzed:	09-16-04 10:45	% Solids:	70
Analyst:	LMG	Dilution Factor:	1

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
100-42-5	Styrene	BRL		ug/Kg	8
75-25-2	Bromoform	BRL		ug/Kg	8
98-82-8	Isopropylbenzene	BRL		ug/Kg	8
108-86-1	Bromobenzene	BRL		ug/Kg	8
79-34-5	1,1,2,2-Tetrachloroethane	BRL		ug/Kg	8
96-18-4	1,2,3-Trichloropropane	BRL		ug/Kg	8
103-65-1	*n*-Propylbenzene	BRL		ug/Kg	8
95-49-8	2-Chlorotoluene	BRL		ug/Kg	8
108-67-8	1,3,5-Trimethylbenzene	BRL		ug/Kg	8
106-43-4	4-Chlorotoluene	BRL		ug/Kg	8
98-06-6	*tert*-Butylbenzene	BRL		ug/Kg	8
95-63-6	1,2,4-Trimethylbenzene	BRL		ug/Kg	8
135-98-8	*sec*-Butylbenzene	BRL		ug/Kg	8
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	8
99-87-6	4-Isopropyltoluene	BRL		ug/Kg	8
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	8
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	8
104-51-8	*n*-Butylbenzene	BRL		ug/Kg	8
96-12-8	1,2-Dibromo-3-chloropropane	BRL		ug/Kg	8
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	8
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	8
91-20-3	Naphthalene	BRL		ug/Kg	8
87-61-6	1,2,3-Trichlorobenzene	BRL		ug/Kg	8
75-65-0	*tert*-Butyl Alcohol (TBA)	BRL		ug/Kg	300
108-20-3	Di-isopropyl Ether (DIPE)	BRL		ug/Kg	8
637-92-3	Ethyl *tert*-butyl Ether (ETBE)	BRL		ug/Kg	8
994-05-8	*tert*-Amyl Methyl Ether (TAME)	BRL		ug/Kg	8

QC Surrogate Compound	Spiked	Measured	Recovery		QC Limits
Dibromofluoromethane	50	48	**97** %		70 - 130 %
1,2-Dichloroethane-d_4	50	55	**110** %		70 - 130 %
Toluene-d_8	50	34	**68** %	m	70 - 130 %
4-Bromofluorobenzene	50	85	**171** %	m	70 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Sample preparation performed by EPA Method 5035A. Results are reported on a dry weight basis.

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

m Surrogate recovery outside recommended limits due to sample matrix interference.

GROUNDWATER ANALYTICAL

EPA Method 8260B
Volatile Organics by GC/MS

Field ID:	S-12 (Surface)	Matrix:	Soil
Project:	SARSS/Ashburnham/2004-274	Container:	40 mL VOA Vial
Client:	Environmental Strategies & Management	Preservation:	NaHSO4 / Cool
Laboratory ID:	76317-07RA1	QC Batch ID:	VM2-2703-S
Sampled:	09-02-04 14:15	Instrument ID:	MS-2 HP 5890
Received:	09-03-04 18:30	Sample Weight:	4.8 g
Analyzed:	09-16-04 15:07	% Solids:	70
Analyst:	LMG	Dilution Factor:	1

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
75-71-8	Dichlorodifluoromethane	BRL		ug/Kg	15
74-87-3	Chloromethane	BRL		ug/Kg	15
75-01-4	Vinyl Chloride	BRL		ug/Kg	15
74-83-9	Bromomethane	BRL		ug/Kg	15
75-00-3	Chloroethane	BRL		ug/Kg	15
75-69-4	Trichlorofluoromethane	BRL		ug/Kg	15
60-29-7	Diethyl Ether	BRL		ug/Kg	15
75-35-4	1,1-Dichloroethene	BRL		ug/Kg	7
76-13-1	1,1,2-Trichlorotrifluoroethane	BRL		ug/Kg	74
67-64-1	Acetone	350		ug/Kg	290
75-15-0	Carbon Disulfide	BRL		ug/Kg	74
75-09-2	Methylene Chloride	BRL		ug/Kg	74
156-60-5	*trans*- 1,2-Dichloroethene	BRL		ug/Kg	7
1634-04-4	Methyl *tert*- butyl Ether (MTBE)	BRL		ug/Kg	7
75-34-3	1,1-Dichloroethane	BRL		ug/Kg	7
594-20-7	2,2-Dichloropropane	BRL		ug/Kg	7
156-59-2	*cis*- 1,2-Dichloroethene	BRL		ug/Kg	7
78-93-3	2-Butanone (MEK)	BRL		ug/Kg	74
74-97-5	Bromochloromethane	BRL		ug/Kg	7
109-99-9	Tetrahydrofuran (THF)	BRL		ug/Kg	74
67-66-3	Chloroform	BRL		ug/Kg	7
71-55-6	1,1,1-Trichloroethane	BRL		ug/Kg	7
56-23-5	Carbon Tetrachloride	BRL		ug/Kg	7
563-58-6	1,1-Dichloropropene	BRL		ug/Kg	7
71-43-2	Benzene	BRL		ug/Kg	7
107-06-2	1,2-Dichloroethane	BRL		ug/Kg	7
79-01-6	Trichloroethene	BRL		ug/Kg	7
78-87-5	1,2-Dichloropropane	BRL		ug/Kg	7
74-95-3	Dibromomethane	BRL		ug/Kg	7
75-27-4	Bromodichloromethane	BRL		ug/Kg	7
123-91-1	1,4-Dioxane	BRL		ug/Kg	7,400
10061-01-5	*cis*- 1,3-Dichloropropene	BRL		ug/Kg	7
108-10-1	4-Methyl-2-Pentanone (MIBK)	BRL		ug/Kg	74
108-88-3	Toluene	BRL		ug/Kg	7
10061-02-6	*trans*- 1,3-Dichloropropene	BRL		ug/Kg	7
79-00-5	1,1,2-Trichloroethane	BRL		ug/Kg	7
127-18-4	Tetrachloroethene	BRL		ug/Kg	7
142-28-9	1,3-Dichloropropane	BRL		ug/Kg	7
591-78-6	2-Hexanone	BRL		ug/Kg	74
124-48-1	Dibromochloromethane	BRL		ug/Kg	7
106-93-4	1,2-Dibromoethane (EDB)	BRL		ug/Kg	7
108-90-7	Chlorobenzene	BRL		ug/Kg	7
630-20-6	1,1,1,2-Tetrachloroethane	BRL		ug/Kg	7
100-41-4	Ethylbenzene	BRL		ug/Kg	7
108-38-3/106-42-3	*meta*- Xylene and *para*- Xylene	BRL		ug/Kg	7
95-47-6	*ortho*- Xylene	BRL		ug/Kg	7

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GROUNDWATER ANALYTICAL

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

Field ID:	S-12 (Surface)	Matrix:	Soil
Project:	SARSS/Ashburnham/2004-274	Container:	40 mL VOA Vial
Client:	Environmental Strategies & Management	Preservation:	NaHSO4 / Cool
Laboratory ID:	76317-07RA1	QC Batch ID:	VM2-2703-S
Sampled:	09-02-04 14:15	Instrument ID:	MS-2 HP 5890
Received:	09-03-04 18:30	Sample Weight:	4.8 g
Analyzed:	09-16-04 15:07	% Solids:	70
Analyst:	LMG	Dilution Factor:	1

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
100-42-5	Styrene	BRL		ug/Kg	7
75-25-2	Bromoform	BRL		ug/Kg	7
98-82-8	Isopropylbenzene	BRL		ug/Kg	7
108-86-1	Bromobenzene	BRL		ug/Kg	7
79-34-5	1,1,2,2-Tetrachloroethane	BRL		ug/Kg	7
96-18-4	1,2,3-Trichloropropane	BRL		ug/Kg	7
103-65-1	*n*-Propylbenzene	BRL		ug/Kg	7
95-49-8	2-Chlorotoluene	BRL		ug/Kg	7
108-67-8	1,3,5-Trimethylbenzene	BRL		ug/Kg	7
106-43-4	4-Chlorotoluene	BRL		ug/Kg	7
98-06-6	*tert*-Butylbenzene	BRL		ug/Kg	7
95-63-6	1,2,4-Trimethylbenzene	BRL		ug/Kg	7
135-98-8	*sec*-Butylbenzene	BRL		ug/Kg	7
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	7
99-87-6	4-Isopropyltoluene	BRL		ug/Kg	7
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	7
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	7
104-51-8	*n*-Butylbenzene	BRL		ug/Kg	7
96-12-8	1,2-Dibromo-3-chloropropane	BRL		ug/Kg	7
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	7
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	7
91-20-3	Naphthalene	BRL		ug/Kg	7
87-61-6	1,2,3-Trichlorobenzene	BRL		ug/Kg	7
75-65-0	*tert*-Butyl Alcohol (TBA)	BRL		ug/Kg	290
108-20-3	Di-isopropyl Ether (DIPE)	BRL		ug/Kg	7
637-92-3	Ethyl *tert*-butyl Ether (ETBE)	BRL		ug/Kg	7
994-05-8	*tert*-Amyl Methyl Ether (TAME)	BRL		ug/Kg	7

QC Surrogate Compound	Spiked	Measured	Recovery		QC Limits
Dibromofluoromethane	50	48	**97** %		70 - 130 %
1,2-Dichloroethane-d_4	50	57	**114** %		70 - 130 %
Toluene-d_8	50	32	**64** %	m	70 - 130 %
4-Bromofluorobenzene	50	110	**211** %	m	70 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Sample preparation performed by EPA Method 5035A. Results are reported on a dry weight basis.

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

GROUNDWATER ANALYTICAL

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

Field ID:	**ESM-01 (7-9')**	Matrix:	**Soil**
Project:	**SARSS/Ashburnham/2004-274**	Container:	**60 mL Glass**
Client:	**Environmental Strategies & Management**	Preservation:	**Methanol / Cool**
Laboratory ID:	**76317-08**	QC Batch ID:	**VG10-2179-E**
Sampled:	**09-01-04 10:00**	Instrument ID:	**GC-10 Agilent 6890**
Received:	**09-03-04 18:30**	Sample Weight:	**30 g**
Analyzed:	**09-14-04 18:15**	Final Volume:	**26 mL**
Analyst:	**PO**	% Solids:	**80**
		Dilution Factor:	**2**

VPH Ranges	Concentration	Notes	Units	Reporting Limit
n-C5 to n-C8 Aliphatic Hydrocarbons † ◊	BRL		mg/Kg	2.2
n-C9 to n-C12 Aliphatic Hydrocarbons † ⊗	BRL		mg/Kg	2.2
n-C9 to n-C10 Aromatic Hydrocarbons †	BRL		mg/Kg	2.2
Unadjusted n-C5 to n-C8 Aliphatic Hydrocarbons †	BRL		mg/Kg	2.2
Unadjusted n-C9 to n-C12 Aliphatic Hydrocarbons †	BRL		mg/Kg	2.2

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
1634-04-4	Methyl *tert*-butyl Ether ¤	BRL		mg/Kg	0.22
71-43-2	Benzene ¤	BRL		mg/Kg	0.22
108-88-3	Toluene ¤	BRL		mg/Kg	0.22
100-41-4	Ethylbenzene ‡	BRL		mg/Kg	0.22
108-38-3 and 106-42-3	*meta*- Xylene and *para*-Xylene ‡	BRL		mg/Kg	0.22
95-47-6	*ortho*- Xylene ‡	BRL		mg/Kg	0.22
91-20-3	Naphthalene	BRL		mg/Kg	1.1

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
2,5-Dibromotoluene (PID)	5.3	4.2	**80 %**	70 - 130 %
2,5-Dibromotoluene (FID)	5.3	4.2	**79 %**	70 - 130 %

QA/QC Certification

1. Were all QA/QC procedures required by the method followed? Yes
2. Were all performance/acceptance standards for the required QA/QC procedures achieved? Yes
3. Were any significant modifications made to the method, as specified in Section 11.3.2.1? No

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

Method Reference: Method for the Determination of Volatile Petroleum Hydrocarbons, MA DEP (Revision 1.1, 2004). Results are reported on a dry weight basis.

Report Notations:

- BRL — Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.
- † — Hydrocarbon range data excludes concentrations of any surrogate(s) and/or internal standards eluting in that range.
- ◊ — n-C5 to n-C8 Aliphatic Hydrocarbons range data excludes the method target analyte concentrations.
- ⊗ — n-C9 to n-C12 Aliphatic Hydrocarbons range data excludes the method target analyte concentrations and the concentration for the n-C9 to n-C10 Aromatic Hydrocarbons range.
- ¤ — Analyte elutes in the n-C5 to n-C8 Aliphatic Hydrocarbons range.
- ‡ — Analyte elutes in the n-C9 to n-C12 Aliphatic Hydrocarbons range.

GROUNDWATER ANALYTICAL

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

Field ID:	ESM-02 (7-8')	Matrix:	Soil
Project:	SARSS/Ashburnham/2004-274	Container:	60 mL Glass
Client:	Environmental Strategies & Management	Preservation:	Methanol / Cool
Laboratory ID:	76317-09	QC Batch ID:	VG10-2179-E
Sampled:	09-01-04 11:30	Instrument ID:	GC-10 Agilent 6890
Received:	09-03-04 18:30	Sample Weight:	38 g
Analyzed:	09-14-04 18:55	Final Volume:	26 mL
Analyst:	PO	% Solids:	81
		Dilution Factor:	1

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

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

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
2,5-Dibromotoluene (PID)	4.0	3.2	80 %	70 - 130 %
2,5-Dibromotoluene (FID)	4.0	3.4	83 %	70 - 130 %

QA/QC Certification

1. Were all QA/QC procedures required by the method followed? Yes
2. Were all performance/acceptance standards for the required QA/QC procedures achieved? Yes
3. Were any significant modifications made to the method, as specified in Section 11.3.2.1? No

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

Method Reference: Method for the Determination of Volatile Petroleum Hydrocarbons, MA DEP (Revision 1.1, 2004). Results are reported on a dry weight basis.

Report Notations:

- BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.
- † Hydrocarbon range data excludes concentrations of any surrogate(s) and/or internal standards eluting in that range.
- ◊ n-C5 to n-C8 Aliphatic Hydrocarbons range data excludes the method target analyte concentrations.
- ⊗ n-C9 to n-C12 Aliphatic Hydrocarbons range data excludes the method target analyte concentrations and the concentration for the n-C9 to n-C10 Aromatic Hydrocarbons range.
- ¤ Analyte elutes in the n-C5 to n-C8 Aliphatic Hydrocarbons range.
- ‡ Analyte elutes in the n-C9 to n-C12 Aliphatic Hydrocarbons range.

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GROUNDWATER ANALYTICAL

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

Field ID:	ESM-03 (6-8')	Matrix:	Soil
Project:	SARSS/Ashburnham/2004-274	Container:	60 mL Glass
Client:	Environmental Strategies & Management	Preservation:	Methanol / Cool
Laboratory ID:	76317-10	QC Batch ID:	VG10-2179-E
Sampled:	09-01-04 12:15	Instrument ID:	GC-10 Agilent 6890
Received:	09-03-04 18:30	Sample Weight:	36 g
Analyzed:	09-14-04 19:35	Final Volume:	26 mL
Analyst:	PO	% Solids:	92
		Dilution Factor:	5

VPH Ranges	Concentration	Notes	Units	Reporting Limit
n-C5 to n-C8 Aliphatic Hydrocarbons † ◊	160		mg/Kg	3.8
n-C9 to n-C12 Aliphatic Hydrocarbons † ⊗	130		mg/Kg	3.8
n-C9 to n-C10 Aromatic Hydrocarbons †	150		mg/Kg	3.8
Unadjusted n-C5 to n-C8 Aliphatic Hydrocarbons †	160		mg/Kg	3.8
Unadjusted n-C9 to n-C12 Aliphatic Hydrocarbons †	290		mg/Kg	3.8

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
1634-04-4	Methyl *tert*-butyl Ether ¤	BRL		mg/Kg	0.38
71-43-2	Benzene ¤	0.39		mg/Kg	0.38
108-88-3	Toluene ¤	0.56		mg/Kg	0.38
100-41-4	Ethylbenzene ‡	6.6		mg/Kg	0.38
108-38-3 and 106-42-3	*meta*-Xylene and *para*-Xylene ‡	0.82		mg/Kg	0.38
95-47-6	*ortho*- Xylene ‡	0.84		mg/Kg	0.38
91-20-3	Naphthalene	2.2		mg/Kg	1.9

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
2,5-Dibromotoluene (PID)	3.8	3.8	101 %	70 - 130 %
2,5-Dibromotoluene (FID)	3.8	3.3	89 %	70 - 130 %

QA/QC Certification

1. Were all QA/QC procedures required by the method followed? Yes
2. Were all performance/acceptance standards for the required QA/QC procedures achieved? Yes
3. Were any significant modifications made to the method, as specified in Section 11.3.2.1? No

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

Method Reference: Method for the Determination of Volatile Petroleum Hydrocarbons, MA DEP (Revision 1.1, 2004). Results are reported on a dry weight basis.

Report Notations:

- BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.
- † Hydrocarbon range data excludes concentrations of any surrogate(s) and/or internal standards eluting in that range.
- ◊ n-C5 to n-C8 Aliphatic Hydrocarbons range data excludes the method target analyte concentrations.
- ⊗ n-C9 to n-C12 Aliphatic Hydrocarbons range data excludes the method target analyte concentrations and the concentration for the n-C9 to n-C10 Aromatic Hydrocarbons range.
- ¤ Analyte elutes in the n-C5 to n-C8 Aliphatic Hydrocarbons range.
- ‡ Analyte elutes in the n-C9 to n-C12 Aliphatic Hydrocarbons range.

GROUNDWATER ANALYTICAL

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

Field ID:	**ESM-04 (7-9')**	Matrix:	**Soil**
Project:	**SARSS/Ashburnham/2004-274**	Container:	**60 mL Glass**
Client:	**Environmental Strategies & Management**	Preservation:	**Methanol / Cool**
Laboratory ID:	**76317-11**	QC Batch ID:	**VG10-2179-E**
Sampled:	**09-01-04 13:30**	Instrument ID:	**GC-10 Agilent 6890**
Received:	**09-03-04 18:30**	Sample Weight:	**39 g**
Analyzed:	**09-14-04 20:15**	Final Volume:	**26 mL**
Analyst:	**PO**	% Solids:	**90**
		Dilution Factor:	**2**

VPH Ranges	Concentration	Notes	Units	Reporting Limit
n-C5 to n-C8 Aliphatic Hydrocarbons † ◊	BRL		mg/Kg	1.5
n-C9 to n-C12 Aliphatic Hydrocarbons † ⊗	**9.2**		mg/Kg	1.5
n-C9 to n-C10 Aromatic Hydrocarbons †	**16**		mg/Kg	1.5
Unadjusted n-C5 to n-C8 Aliphatic Hydrocarbons †	BRL		mg/Kg	1.5
Unadjusted n-C9 to n-C12 Aliphatic Hydrocarbons †	25		mg/Kg	1.5

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
1634-04-4	Methyl *tert*-butyl Ether ¤	BRL		mg/Kg	0.15
71-43-2	Benzene ¤	BRL		mg/Kg	0.15
108-88-3	Toluene ¤	BRL		mg/Kg	0.15
100-41-4	Ethylbenzene ‡	BRL		mg/Kg	0.15
108-38-3 and 106-42-3	*meta*- Xylene and *para*-Xylene ‡	BRL		mg/Kg	0.15
95-47-6	*ortho*- Xylene ‡	BRL		mg/Kg	0.15
91-20-3	Naphthalene	BRL		mg/Kg	0.73

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
2,5-Dibromotoluene (PID)	3.6	3.2	**89 %**	70 - 130 %
2,5-Dibromotoluene (FID)	3.6	3.6	**101 %**	70 - 130 %

QA/QC Certification

1. Were all QA/QC procedures required by the method followed? Yes
2. Were all performance/acceptance standards for the required QA/QC procedures achieved? Yes
3. Were any significant modifications made to the method, as specified in Section 11.3.2.1? No

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

Method Reference: Method for the Determination of Volatile Petroleum Hydrocarbons, MA DEP (Revision 1.1, 2004). Results are reported on a dry weight basis.

Report Notations:

- BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.
- † Hydrocarbon range data excludes concentrations of any surrogate(s) and/or internal standards eluting in that range.
- ◊ n-C5 to n-C8 Aliphatic Hydrocarbons range data excludes the method target analyte concentrations.
- ⊗ n-C9 to n-C12 Aliphatic Hydrocarbons range data excludes the method target analyte concentrations and the concentration for the n-C9 to n-C10 Aromatic Hydrocarbons range.
- ¤ Analyte elutes in the n-C5 to n-C8 Aliphatic Hydrocarbons range.
- ‡ Analyte elutes in the n-C9 to n-C12 Aliphatic Hydrocarbons range.

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GROUNDWATER ANALYTICAL

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

Field ID:	**B-01 (7-8')**	Matrix:	**Soil**
Project:	**SARSS/Ashburnham/2004-274**	Container:	**60 mL Glass**
Client:	**Environmental Strategies & Management**	Preservation:	**Methanol / Cool**
Laboratory ID:	**76317-12**	QC Batch ID:	**VG10-2179-E**
Sampled:	**09-01-04 10:30**	Instrument ID:	**GC-10 Agilent 6890**
Received:	**09-03-04 18:30**	Sample Weight:	**42 g**
Analyzed:	**09-14-04 20:56**	Final Volume:	**26 mL**
Analyst:	**PO**	% Solids:	**80**
		Dilution Factor:	**1**

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

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

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
2,5-Dibromotoluene (PID)	3.7	3.3	**90 %**	70 - 130 %
2,5-Dibromotoluene (FID)	3.7	3.4	**90 %**	70 - 130 %

QA/QC Certification

1. Were all QA/QC procedures required by the method followed? Yes
2. Were all performance/acceptance standards for the required QA/QC procedures achieved? Yes
3. Were any significant modifications made to the method, as specified in Section 11.3.2.1? No

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

Method Reference: Method for the Determination of Volatile Petroleum Hydrocarbons, MA DEP (Revision 1.1, 2004). Results are reported on a dry weight basis.

Report Notations:

- BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.
- † Hydrocarbon range data excludes concentrations of any surrogate(s) and/or internal standards eluting in that range.
- ◊ n-C5 to n-C8 Aliphatic Hydrocarbons range data excludes the method target analyte concentrations.
- ⊗ n-C9 to n-C12 Aliphatic Hydrocarbons range data excludes the method target analyte concentrations and the concentration for the n-C9 to n-C10 Aromatic Hydrocarbons range.
- ¤ Analyte elutes in the n-C5 to n-C8 Aliphatic Hydrocarbons range.
- ‡ Analyte elutes in the n-C9 to n-C12 Aliphatic Hydrocarbons range.

GROUNDWATER ANALYTICAL

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

Field ID:	**B-02 (6-7')**	Matrix:	**Soil**
Project:	**SARSS/Ashburnham/2004-274**	Container:	**60 mL Glass**
Client:	**Environmental Strategies & Management**	Preservation:	**Methanol / Cool**
Laboratory ID:	**76317-13**	QC Batch ID:	**VG10-2179-E**
Sampled:	**09-01-04 11:00**	Instrument ID:	**GC-10 Agilent 6890**
Received:	**09-03-04 18:30**	Sample Weight:	**34 g**
Analyzed:	**09-14-04 22:16**	Final Volume:	**26 mL**
Analyst:	**PO**	% Solids:	**76**
		Dilution Factor:	**2**

VPH Ranges	Concentration	Notes	Units	Reporting Limit
n-C5 to n-C8 Aliphatic Hydrocarbons † ◊	BRL		mg/Kg	2.0
n-C9 to n-C12 Aliphatic Hydrocarbons † ⊗	BRL		mg/Kg	2.0
n-C9 to n-C10 Aromatic Hydrocarbons †	BRL		mg/Kg	2.0
Unadjusted n-C5 to n-C8 Aliphatic Hydrocarbons †	BRL		mg/Kg	2.0
Unadjusted n-C9 to n-C12 Aliphatic Hydrocarbons †	BRL		mg/Kg	2.0

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
1634-04-4	Methyl *tert*-butyl Ether ¤	BRL		mg/Kg	0.20
71-43-2	Benzene ¤	BRL		mg/Kg	0.20
108-88-3	Toluene ¤	BRL		mg/Kg	0.20
100-41-4	Ethylbenzene ‡	BRL		mg/Kg	0.20
108-38-3 and 106-42-3	*meta*- Xylene and *para*-Xylene ‡	BRL		mg/Kg	0.20
95-47-6	*ortho*- Xylene ‡	BRL		mg/Kg	0.20
91-20-3	Naphthalene	BRL		mg/Kg	0.98

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
2,5-Dibromotoluene (PID)	4.8	4.2	**88 %**	70 - 130 %
2,5-Dibromotoluene (FID)	4.8	4.0	**84 %**	70 - 130 %

QA/QC Certification

1. Were all QA/QC procedures required by the method followed? Yes
2. Were all performance/acceptance standards for the required QA/QC procedures achieved? Yes
3. Were any significant modifications made to the method, as specified in Section 11.3.2.1? No

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

Method Reference: Method for the Determination of Volatile Petroleum Hydrocarbons, MA DEP (Revision 1.1, 2004). Results are reported on a dry weight basis.

Report Notations:

- BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.
- † Hydrocarbon range data excludes concentrations of any surrogate(s) and/or internal standards eluting in that range.
- ◊ n-C5 to n-C8 Aliphatic Hydrocarbons range data excludes the method target analyte concentrations.
- ⊗ n-C9 to n-C12 Aliphatic Hydrocarbons range data excludes the method target analyte concentrations and the concentration for the n-C9 to n-C10 Aromatic Hydrocarbons range.
- ¤ Analyte elutes in the n-C5 to n-C8 Aliphatic Hydrocarbons range.
- ‡ Analyte elutes in the n-C9 to n-C12 Aliphatic Hydrocarbons range.

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GROUNDWATER ANALYTICAL

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

Field ID:	**AB-07 (30-36")**	Matrix:	**Soil**
Project:	**SARSS/Ashburnham/2004-274**	Container:	**60 mL Glass**
Client:	**Environmental Strategies & Management**	Preservation:	**Methanol / Cool**
Laboratory ID:	**76317-14**	QC Batch ID:	**VG10-2179-E**
Sampled:	**09-02-04 10:45**	Instrument ID:	**GC-10 Agilent 6890**
Received:	**09-03-04 18:30**	Sample Weight:	**35 g**
Analyzed:	**09-14-04 22:57**	Final Volume:	**26 mL**
Analyst:	**PO**	% Solids:	**86**
		Dilution Factor:	**1**

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

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

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
2,5-Dibromotoluene (PID)	4.1	3.3	**79 %**	70 - 130 %
2,5-Dibromotoluene (FID)	4.1	3.3	**81 %**	70 - 130 %

QA/QC Certification

1. Were all QA/QC procedures required by the method followed? Yes
2. Were all performance/acceptance standards for the required QA/QC procedures achieved? Yes
3. Were any significant modifications made to the method, as specified in Section 11.3.2.1? No

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

Method Reference: Method for the Determination of Volatile Petroleum Hydrocarbons, MA DEP (Revision 1.1, 2004). Results are reported on a dry weight basis.

Report Notations:

- BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.
- † Hydrocarbon range data excludes concentrations of any surrogate(s) and/or internal standards eluting in that range.
- ◊ n-C5 to n-C8 Aliphatic Hydrocarbons range data excludes the method target analyte concentrations.
- ⊗ n-C9 to n-C12 Aliphatic Hydrocarbons range data excludes the method target analyte concentrations and the concentration for the n-C9 to n-C10 Aromatic Hydrocarbons range.
- ¤ Analyte elutes in the n-C5 to n-C8 Aliphatic Hydrocarbons range.
- ‡ Analyte elutes in the n-C9 to n-C12 Aliphatic Hydrocarbons range.

GROUNDWATER ANALYTICAL

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

Field ID:	**AB-08 (18-24")**	Matrix:	**Soil**
Project:	**SARSS/Ashburnham/2004-274**	Container:	**60 mL Glass**
Client:	**Environmental Strategies & Management**	Preservation:	**Methanol / Cool**
Laboratory ID:	**76317-15**	QC Batch ID:	**VG10-2179-E**
Sampled:	**09-02-04 10:15**	Instrument ID:	**GC-10 Agilent 6890**
Received:	**09-03-04 18:30**	Sample Weight:	**40 g**
Analyzed:	**09-14-04 23:37**	Final Volume:	**26 mL**
Analyst:	**PO**	% Solids:	**96**
		Dilution Factor:	**1**

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

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

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
2,5-Dibromotoluene (PID)	3.3	3.1	**94 %**	70 - 130 %
2,5-Dibromotoluene (FID)	3.3	3.2	**98 %**	70 - 130 %

QA/QC Certification

1. Were all QA/QC procedures required by the method followed? Yes
2. Were all performance/acceptance standards for the required QA/QC procedures achieved? Yes
3. Were any significant modifications made to the method, as specified in Section 11.3.2.1? No

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

Method Reference: Method for the Determination of Volatile Petroleum Hydrocarbons, MA DEP (Revision 1.1, 2004). Results are reported on a dry weight basis.

Report Notations:

- BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.
- † Hydrocarbon range data excludes concentrations of any surrogate(s) and/or internal standards eluting in that range.
- ◊ n-C5 to n-C8 Aliphatic Hydrocarbons range data excludes the method target analyte concentrations.
- ⊗ n-C9 to n-C12 Aliphatic Hydrocarbons range data excludes the method target analyte concentrations and the concentration for the n-C9 to n-C10 Aromatic Hydrocarbons range.
- ¤ Analyte elutes in the n-C5 to n-C8 Aliphatic Hydrocarbons range.
- ‡ Analyte elutes in the n-C9 to n-C12 Aliphatic Hydrocarbons range.

GROUNDWATER ANALYTICAL

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

Field ID:	**AB-09 (18-24")**	Matrix:	**Soil**
Project:	**SARSS/Ashburnham/2004-274**	Container:	**60 mL Glass**
Client:	**Environmental Strategies & Management**	Preservation:	**Methanol / Cool**
Laboratory ID:	**76317-16**	QC Batch ID:	**VG10-2179-E**
Sampled:	**09-02-04 11:15**	Instrument ID:	**GC-10 Agilent 6890**
Received:	**09-03-04 18:30**	Sample Weight:	**39 g**
Analyzed:	**09-15-04 00:17**	Final Volume:	**26 mL**
Analyst:	**PO**	% Solids:	**83**
		Dilution Factor:	**2**

VPH Ranges	Concentration	Notes	Units	Reporting Limit
n-C5 to n-C8 Aliphatic Hydrocarbons † ◊	BRL		mg/Kg	1.6
n-C9 to n-C12 Aliphatic Hydrocarbons † ⊗	BRL		mg/Kg	1.6
n-C9 to n-C10 Aromatic Hydrocarbons †	**5.1**		mg/Kg	1.6

Unadjusted n-C5 to n-C8 Aliphatic Hydrocarbons †	BRL	mg/Kg	1.6
Unadjusted n-C9 to n-C12 Aliphatic Hydrocarbons †	6.8	mg/Kg	1.6

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
1634-04-4	Methyl *tert*-butyl Ether ¤	BRL		mg/Kg	0.16
71-43-2	Benzene ¤	BRL		mg/Kg	0.16
108-88-3	Toluene ¤	BRL		mg/Kg	0.16
100-41-4	Ethylbenzene ‡	BRL		mg/Kg	0.16
108-38-3 and 106-42-3	*meta*- Xylene and *para*-Xylene ‡	BRL		mg/Kg	0.16
95-47-6	*ortho*- Xylene ‡	BRL		mg/Kg	0.16
91-20-3	Naphthalene	BRL		mg/Kg	0.79

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
2,5-Dibromotoluene (PID)	3.9	3.7	**96 %**	70 - 130 %
2,5-Dibromotoluene (FID)	3.9	3.7	**97 %**	70 - 130 %

QA/QC Certification

1. Were all QA/QC procedures required by the method followed?	Yes
2. Were all performance/acceptance standards for the required QA/QC procedures achieved?	Yes
3. Were any significant modifications made to the method, as specified in Section 11.3.2.1?	No

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

Method Reference: Method for the Determination of Volatile Petroleum Hydrocarbons, MA DEP (Revision 1.1, 2004). Results are reported on a dry weight basis.

Report Notations:

- BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.
- † Hydrocarbon range data excludes concentrations of any surrogate(s) and/or internal standards eluting in that range.
- ◊ n-C5 to n-C8 Aliphatic Hydrocarbons range data excludes the method target analyte concentrations.
- ⊗ n-C9 to n-C12 Aliphatic Hydrocarbons range data excludes the method target analyte concentrations and the concentration for the n-C9 to n-C10 Aromatic Hydrocarbons range.
- ¤ Analyte elutes in the n-C5 to n-C8 Aliphatic Hydrocarbons range.
- ‡ Analyte elutes in the n-C9 to n-C12 Aliphatic Hydrocarbons range.

GROUNDWATER ANALYTICAL

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

Field ID:	**AB-10/11 (0-2")**	Matrix:	**Soil**
Project:	**SARSS/Ashburnham/2004-274**	Container:	**60 mL Glass**
Client:	**Environmental Strategies & Management**	Preservation:	**Methanol / Cool**
Laboratory ID:	**76317-17**	QC Batch ID:	**VG10-2180-E**
Sampled:	**09-02-04 12:55**	Instrument ID:	**GC-10 Agilent 6890**
Received:	**09-03-04 18:30**	Sample Weight:	**42 g**
Analyzed:	**09-15-04 20:48**	Final Volume:	**26 mL**
Analyst:	**PO**	% Solids:	**88**
		Dilution Factor:	**2**

VPH Ranges	Concentration	Notes	Units	Reporting Limit
n-C5 to n-C8 Aliphatic Hydrocarbons † ◊	BRL		mg/Kg	1.4
n-C9 to n-C12 Aliphatic Hydrocarbons † ⊗	BRL		mg/Kg	1.4
n-C9 to n-C10 Aromatic Hydrocarbons †	BRL		mg/Kg	1.4
Unadjusted n-C5 to n-C8 Aliphatic Hydrocarbons †	BRL		mg/Kg	1.4
Unadjusted n-C9 to n-C12 Aliphatic Hydrocarbons †	BRL		mg/Kg	1.4

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
1634-04-4	Methyl *tert*-butyl Ether ¤	BRL		mg/Kg	0.14
71-43-2	Benzene ¤	BRL		mg/Kg	0.14
108-88-3	Toluene ¤	BRL		mg/Kg	0.14
100-41-4	Ethylbenzene ‡	BRL		mg/Kg	0.14
108-38-3 and 106-42-3	*meta*- Xylene and *para*-Xylene ‡	BRL		mg/Kg	0.14
95-47-6	*ortho*- Xylene ‡	BRL		mg/Kg	0.14
91-20-3	Naphthalene	BRL		mg/Kg	0.69

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
2,5-Dibromotoluene (PID)	3.4	2.5	**72 %**	70 - 130 %
2,5-Dibromotoluene (FID)	3.4	2.6	**75 %**	70 - 130 %

QA/QC Certification

1. Were all QA/QC procedures required by the method followed?	Yes
2. Were all performance/acceptance standards for the required QA/QC procedures achieved?	Yes
3. Were any significant modifications made to the method, as specified in Section 11.3.2.1?	No

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

Method Reference: Method for the Determination of Volatile Petroleum Hydrocarbons, MA DEP (Revision 1.1, 2004). Results are reported on a dry weight basis.

Report Notations:

- BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.
- † Hydrocarbon range data excludes concentrations of any surrogate(s) and/or internal standards eluting in that range.
- ◊ n-C5 to n-C8 Aliphatic Hydrocarbons range data excludes the method target analyte concentrations.
- ⊗ n-C9 to n-C12 Aliphatic Hydrocarbons range data excludes the method target analyte concentrations and the concentration for the n-C9 to n-C10 Aromatic Hydrocarbons range.
- ¤ Analyte elutes in the n-C5 to n-C8 Aliphatic Hydrocarbons range.
- ‡ Analyte elutes in the n-C9 to n-C12 Aliphatic Hydrocarbons range.

GROUNDWATER ANALYTICAL

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

Field ID:	**AB-10/11 (4-6")**	Matrix:	**Soil**
Project:	**SARSS/Ashburnham/2004-274**	Container:	**60 mL Glass**
Client:	**Environmental Strategies & Management**	Preservation:	**Methanol / Cool**
Laboratory ID:	**76317-18**	QC Batch ID:	**VG10-2179-E**
Sampled:	**09-02-04 13:00**	Instrument ID:	**GC-10 Agilent 6890**
Received:	**09-03-04 18:30**	Sample Weight:	**34 g**
Analyzed:	**09-15-04 01:38**	Final Volume:	**26 mL**
Analyst:	**PO**	% Solids:	**95**
		Dilution Factor:	**2**

VPH Ranges	Concentration	Notes	Units	Reporting Limit
n-C5 to n-C8 Aliphatic Hydrocarbons † ◊	BRL		mg/Kg	1.6
n-C9 to n-C12 Aliphatic Hydrocarbons † ⊗	BRL		mg/Kg	1.6
n-C9 to n-C10 Aromatic Hydrocarbons †	BRL		mg/Kg	1.6
Unadjusted n-C5 to n-C8 Aliphatic Hydrocarbons †	BRL		mg/Kg	1.6
Unadjusted n-C9 to n-C12 Aliphatic Hydrocarbons †	BRL		mg/Kg	1.6

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
1634-04-4	Methyl *tert*-butyl Ether ¤	BRL		mg/Kg	0.16
71-43-2	Benzene ¤	BRL		mg/Kg	0.16
108-88-3	Toluene ¤	BRL		mg/Kg	0.16
100-41-4	Ethylbenzene ‡	BRL		mg/Kg	0.16
108-38-3 and 106-42-3	*meta*- Xylene and *para*-Xylene ‡	BRL		mg/Kg	0.16
95-47-6	*ortho*- Xylene ‡	BRL		mg/Kg	0.16
91-20-3	Naphthalene	BRL		mg/Kg	0.80

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
2,5-Dibromotoluene (PID)	3.9	3.7	**94** %	70 - 130 %
2,5-Dibromotoluene (FID)	3.9	3.9	**100** %	70 - 130 %

QA/QC Certification

1. Were all QA/QC procedures required by the method followed? Yes
2. Were all performance/acceptance standards for the required QA/QC procedures achieved? Yes
3. Were any significant modifications made to the method, as specified in Section 11.3.2.1? No

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

Method Reference: Method for the Determination of Volatile Petroleum Hydrocarbons, MA DEP (Revision 1.1, 2004). Results are reported on a dry weight basis.

Report Notations:

- BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.
- † Hydrocarbon range data excludes concentrations of any surrogate(s) and/or internal standards eluting in that range.
- ◊ n-C5 to n-C8 Aliphatic Hydrocarbons range data excludes the method target analyte concentrations.
- ⊗ n-C9 to n-C12 Aliphatic Hydrocarbons range data excludes the method target analyte concentrations and the concentration for the n-C9 to n-C10 Aromatic Hydrocarbons range.
- ¤ Analyte elutes in the n-C5 to n-C8 Aliphatic Hydrocarbons range.
- ‡ Analyte elutes in the n-C9 to n-C12 Aliphatic Hydrocarbons range.

GROUNDWATER ANALYTICAL

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

Field ID:	**S-06 (Surface)**	Matrix:	**Soil**
Project:	**SARSS/Ashburnham/2004-274**	Container:	**60 mL Glass**
Client:	**Environmental Strategies & Management**	Preservation:	**Methanol / Cool**
Laboratory ID:	**76317-19**	QC Batch ID:	**VG10-2179-E**
Sampled:	**09-02-04 14:00**	Instrument ID:	**GC-10 Agilent 6890**
Received:	**09-03-04 18:30**	Sample Weight:	**37 g**
Analyzed:	**09-15-04 02:18**	Final Volume:	**26 mL**
Analyst:	**PO**	% Solids:	**97**
		Dilution Factor:	**2**

VPH Ranges	Concentration	Notes	Units	Reporting Limit
n-C5 to n-C8 Aliphatic Hydrocarbons †◊	BRL		mg/Kg	1.4
n-C9 to n-C12 Aliphatic Hydrocarbons †⊗	BRL		mg/Kg	1.4
n-C9 to n-C10 Aromatic Hydrocarbons †	**4.0**		mg/Kg	1.4
Unadjusted n-C5 to n-C8 Aliphatic Hydrocarbons †	BRL		mg/Kg	1.4
Unadjusted n-C9 to n-C12 Aliphatic Hydrocarbons †	BRL		mg/Kg	1.4

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
1634-04-4	Methyl *tert*-butyl Ether ¤	BRL		mg/Kg	0.14
71-43-2	Benzene ¤	BRL		mg/Kg	0.14
108-88-3	Toluene ¤	BRL		mg/Kg	0.14
100-41-4	Ethylbenzene ‡	BRL		mg/Kg	0.14
108-38-3 and 106-42-3	*meta*- Xylene and *para*-Xylene ‡	BRL		mg/Kg	0.14
95-47-6	*ortho*- Xylene ‡	BRL		mg/Kg	0.14
91-20-3	Naphthalene	BRL		mg/Kg	0.70

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
2,5-Dibromotoluene (PID)	3.4	3.6	**103 %**	70 - 130 %
2,5-Dibromotoluene (FID)	3.4	2.8	**81 %**	70 - 130 %

QA/QC Certification

1. Were all QA/QC procedures required by the method followed?	Yes
2. Were all performance/acceptance standards for the required QA/QC procedures achieved?	Yes
3. Were any significant modifications made to the method, as specified in Section 11.3.2.1?	No

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

Method Reference: Method for the Determination of Volatile Petroleum Hydrocarbons, MA DEP (Revision 1.1, 2004). Results are reported on a dry weight basis.

Report Notations:

- BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.
- † Hydrocarbon range data excludes concentrations of any surrogate(s) and/or internal standards eluting in that range.
- ◊ n-C5 to n-C8 Aliphatic Hydrocarbons range data excludes the method target analyte concentrations.
- ⊗ n-C9 to n-C12 Aliphatic Hydrocarbons range data excludes the method target analyte concentrations and the concentration for the n-C9 to n-C10 Aromatic Hydrocarbons range.
- ¤ Analyte elutes in the n-C5 to n-C8 Aliphatic Hydrocarbons range.
- ‡ Analyte elutes in the n-C9 to n-C12 Aliphatic Hydrocarbons range.

GROUNDWATER ANALYTICAL

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

Field ID:	**S-12 (Surface)**	Matrix:	**Soil**
Project:	**SARSS/Ashburnham/2004-274**	Container:	**60 mL Glass**
Client:	**Environmental Strategies & Management**	Preservation:	**Methanol / Cool**
Laboratory ID:	**76317-20**	QC Batch ID:	**VG10-2180-E**
Sampled:	**09-02-04 14:15**	Instrument ID:	**GC-10 Agilent 6890**
Received:	**09-03-04 18:30**	Sample Weight:	**33 g**
Analyzed:	**09-15-04 21:29**	Final Volume:	**26 mL**
Analyst:	**PO**	% Solids:	**70**
		Dilution Factor:	**2**

VPH Ranges	Concentration	Notes	Units	Reporting Limit
n-C5 to n-C8 Aliphatic Hydrocarbons † ◊	BRL		mg/Kg	2.2
n-C9 to n-C12 Aliphatic Hydrocarbons † ⊗	BRL		mg/Kg	2.2
n-C9 to n-C10 Aromatic Hydrocarbons †	BRL		mg/Kg	2.2
Unadjusted n-C5 to n-C8 Aliphatic Hydrocarbons †	BRL		mg/Kg	2.2
Unadjusted n-C9 to n-C12 Aliphatic Hydrocarbons †	BRL		mg/Kg	2.2

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
1634-04-4	Methyl *tert*-butyl Ether ¤	BRL		mg/Kg	0.22
71-43-2	Benzene ¤	BRL		mg/Kg	0.22
108-88-3	Toluene ¤	BRL		mg/Kg	0.22
100-41-4	Ethylbenzene ‡	BRL		mg/Kg	0.22
108-38-3 and 106-42-3	*meta*-Xylene and *para*-Xylene ‡	BRL		mg/Kg	0.22
95-47-6	*ortho*- Xylene ‡	BRL		mg/Kg	0.22
91-20-3	Naphthalene	BRL		mg/Kg	1.1

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
2,5-Dibromotoluene (PID)	5.3	3.7	70 %	70 - 130 %
2,5-Dibromotoluene (FID)	5.3	3.7	70 %	70 - 130 %

QA/QC Certification

1. Were all QA/QC procedures required by the method followed? Yes
2. Were all performance/acceptance standards for the required QA/QC procedures achieved? Yes
3. Were any significant modifications made to the method, as specified in Section 11.3.2.1? No

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

Method Reference: Method for the Determination of Volatile Petroleum Hydrocarbons, MA DEP (Revision 1.1, 2004). Results are reported on a dry weight basis.

Report Notations:

- BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.
- † Hydrocarbon range data excludes concentrations of any surrogate(s) and/or internal standards eluting in that range.
- ◊ n-C5 to n-C8 Aliphatic Hydrocarbons range data excludes the method target analyte concentrations.
- ⊗ n-C9 to n-C12 Aliphatic Hydrocarbons range data excludes the method target analyte concentrations and the concentration for the n-C9 to n-C10 Aromatic Hydrocarbons range.
- ¤ Analyte elutes in the n-C5 to n-C8 Aliphatic Hydrocarbons range.
- ‡ Analyte elutes in the n-C9 to n-C12 Aliphatic Hydrocarbons range.

GROUNDWATER ANALYTICAL

Trace Metals

Field ID:	**ESM-01 (7-9')**	Matrix:	**Soil**
Project:	**SARSS/Ashburnham/2004-274**	Container:	**120 mL Glass**
Client:	**Environmental Strategies & Management, Inc.**	Preservation:	**Cool**
Laboratory ID:	**76317-21**	Percent Solids:	**80**
Sampled:	**09-01-04 10:00**		
Received:	**09-03-04 18:30**		

Analysis Method	QC Batch ID	Prep Method	Prepared	Sample Weight	Instrument ID	Analyst
EPA 6010B[1]	MB-0439-S	EPA 3050B	09-07-04 09:30	0.5 g	ICP-1 PE 3000	CRL
EPA 7471A[2]	MP-1656-S	EPA 7471A	09-09-04 11:30	0.6 g	CVAA-1 PE FIMS	CRL

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit	DF	Analyzed	Method
7440-38-2	Arsenic, Total	**13**		mg/Kg	1.2	1	09-07-04 18:49	EPA 6010B[1]
7440-39-3	Barium, Total	**56**		mg/Kg	24	1	09-07-04 18:48	EPA 6010B[1]
7440-43-9	Cadmium, Total	BRL		mg/Kg	0.60	1	09-07-04 18:49	EPA 6010B[1]
7440-47-3	Chromium, Total	**14**		mg/Kg	12	1	09-07-04 18:48	EPA 6010B[1]
7439-92-1	Lead, Total	**87**		mg/Kg	12	1	09-07-04 18:49	EPA 6010B[1]
7439-97-6	Mercury, Total	**0.24**		mg/Kg	0.040	1	09-09-04 16:28	EPA 7471A[2]
7782-49-2	Selenium, Total	BRL		mg/Kg	12	1	09-07-04 18:49	EPA 6010B[1]
7440-22-4	Silver, Total	BRL		mg/Kg	6.0	1	09-07-04 18:48	EPA 6010B[1]

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

Report Notations:

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

DF Dilution Factor.

GROUNDWATER ANALYTICAL

Trace Metals

Field ID:	**ESM-03 (6-8')**	Matrix:	**Soil**
Project:	**SARSS/Ashburnham/2004-274**	Container:	**120 mL Glass**
Client:	**Environmental Strategies & Management, Inc.**	Preservation:	**Cool**
Laboratory ID:	**76317-23**	Percent Solids:	**92**
Sampled:	**09-01-04 12:15**		
Received:	**09-03-04 18:30**		

Analysis Method	QC Batch ID	Prep Method	Prepared	Sample Weight	Instrument ID	Analyst
EPA 6010B[1]	MB-0439-S	EPA 3050B	09-07-04 09:30	0.5 g	ICP-1 PE 3000	CRL
EPA 7471A[2]	MP-1656-S	EPA 7471A	09-09-04 11:30	0.6 g	CVAA-1 PE FIMS	CRL

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit	DF	Analyzed	Method
7440-38-2	Arsenic, Total	**16**		mg/Kg	1.1	1	09-07-04 18:53	EPA 6010B[1]
7440-39-3	Barium, Total	**37**		mg/Kg	21	1	09-07-04 18:53	EPA 6010B[1]
7440-43-9	Cadmium, Total	**0.61**		mg/Kg	0.53	1	09-07-04 18:53	EPA 6010B[1]
7440-47-3	Chromium, Total	BRL		mg/Kg	11	1	09-07-04 18:53	EPA 6010B[1]
7439-92-1	Lead, Total	**63**		mg/Kg	11	1	09-07-04 18:53	EPA 6010B[1]
7439-97-6	Mercury, Total	BRL		mg/Kg	0.035	1	09-09-04 16:31	EPA 7471A[2]
7782-49-2	Selenium, Total	BRL		mg/Kg	11	1	09-07-04 18:53	EPA 6010B[1]
7440-22-4	Silver, Total	BRL		mg/Kg	5.3	1	09-07-04 18:53	EPA 6010B[1]

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

Report Notations:

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DF Dilution Factor.

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

GROUNDWATER ANALYTICAL

Trace Metals

Field ID:	**AB-03 (0-6")**	Matrix:	**Soil**
Project:	**SARSS/Ashburnham/2004-274**	Container:	**250 mL Glass**
Client:	**Environmental Strategies & Management, Inc.**	Preservation:	**Cool**
Laboratory ID:	**76317-27**	Percent Solids:	**87**
Sampled:	**09-01-04 14:00**		
Received:	**09-03-04 18:30**		

Analysis Method	QC Batch ID	Prep Method	Prepared	Sample Weight	Instrument ID	Analyst
EPA 6010B[1]	MB-0439-S	EPA 3050B	09-07-04 09:30	0.5 g	ICP-1 PE 3000	CRL
EPA 7471A[2]	MP-1656-S	EPA 7471A	09-09-04 11:30	0.6 g	CVAA-1 PE FIMS	CRL

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit	DF	Analyzed	Method
7440-38-2	Arsenic, Total	**8.6**		mg/Kg	1.1	1	09-07-04 18:57	EPA 6010B[1]
7440-39-3	Barium, Total	BRL		mg/Kg	23	1	09-07-04 18:57	EPA 6010B[1]
7440-43-9	Cadmium, Total	BRL		mg/Kg	0.56	1	09-07-04 18:57	EPA 6010B[1]
7440-47-3	Chromium, Total	BRL		mg/Kg	11	1	09-07-04 18:57	EPA 6010B[1]
7439-92-1	Lead, Total	**18**		mg/Kg	11	1	09-07-04 18:57	EPA 6010B[1]
7439-97-6	Mercury, Total	BRL		mg/Kg	0.038	1	09-09-04 16:34	EPA 7471A[2]
7782-49-2	Selenium, Total	BRL		mg/Kg	11	1	09-07-04 18:57	EPA 6010B[1]
7440-22-4	Silver, Total	BRL		mg/Kg	5.6	1	09-07-04 18:57	EPA 6010B[1]

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

Report Notations:

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

DF Dilution Factor.

GROUNDWATER ANALYTICAL

Trace Metals

Field ID:	**AB-04 (0-6"')**	Matrix:	**Soil**
Project:	**SARSS/Ashburnham/2004-274**	Container:	**250 mL Glass**
Client:	**Environmental Strategies & Management, Inc.**	Preservation:	**Cool**
Laboratory ID:	**76317-28**	Percent Solids:	**84**
Sampled:	**09-01-04 14:15**		
Received:	**09-03-04 18:30**		

Analysis Method	QC Batch ID	Prep Method	Prepared	Sample Weight	Instrument ID	Analyst
EPA 6010B[1]	MB-0439-S	EPA 3050B	09-07-04 09:30	0.5 g	ICP-1 PE 3000	CRL
EPA 7471A[2]	MP-1656-S	EPA 7471A	09-09-04 11:30	0.6 g	CVAA-1 PE FIMS	CRL

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit	DF	Analyzed	Method
7440-38-2	Arsenic, Total	**35**		mg/Kg	1.2	1	09-07-04 19:01	EPA 6010B[1]
7440-39-3	Barium, Total	**27**		mg/Kg	23	1	09-07-04 19:01	EPA 6010B[1]
7440-43-9	Cadmium, Total	BRL		mg/Kg	0.58	1	09-07-04 19:01	EPA 6010B[1]
7440-47-3	Chromium, Total	BRL		mg/Kg	12	1	09-07-04 19:01	EPA 6010B[1]
7439-92-1	Lead, Total	**38**		mg/Kg	12	1	09-07-04 19:01	EPA 6010B[1]
7439-97-6	Mercury, Total	**0.045**		mg/Kg	0.039	1	09-09-04 16:43	EPA 7471A[2]
7782-49-2	Selenium, Total	BRL		mg/Kg	12	1	09-07-04 19:01	EPA 6010B[1]
7440-22-4	Silver, Total	BRL		mg/Kg	5.8	1	09-07-04 19:01	EPA 6010B[1]

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

Report Notations:

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

DF Dilution Factor.

GROUNDWATER ANALYTICAL

Trace Metals

Field ID:	**AB-07 (33-36"')**	Matrix:	**Soil**
Project:	**SARSS/Ashburnham/2004-274**	Container:	**120 mL Glass**
Client:	**Environmental Strategies & Management, Inc.**	Preservation:	**Cool**
Laboratory ID:	**76317-29**	Percent Solids:	**86**
Sampled:	**09-02-04 10:45**		
Received:	**09-03-04 18:30**		

Analysis Method	QC Batch ID	Prep Method	Prepared	Sample Weight	Instrument ID	Analyst
EPA 6010B[1]	MB-0439-S	EPA 3050B	09-07-04 09:30	0.5 g	ICP-1 PE 3000	CRL
EPA 7471A[2]	MP-1656-S	EPA 7471A	09-09-04 11:30	0.6 g	CVAA-1 PE FIMS	CRL

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit	DF	Analyzed	Method
7440-38-2	Arsenic, Total	**2.0**		mg/Kg	1.1	1	09-07-04 19:06	EPA 6010B[1]
7440-39-3	Barium, Total	BRL		mg/Kg	23	1	09-07-04 19:06	EPA 6010B[1]
7440-43-9	Cadmium, Total	BRL		mg/Kg	0.56	1	09-07-04 19:06	EPA 6010B[1]
7440-47-3	Chromium, Total	BRL		mg/Kg	11	1	09-07-04 19:05	EPA 6010B[1]
7439-92-1	Lead, Total	BRL		mg/Kg	11	1	09-07-04 19:06	EPA 6010B[1]
7439-97-6	Mercury, Total	BRL		mg/Kg	0.038	1	09-09-04 16:47	EPA 7471A[2]
7782-49-2	Selenium, Total	BRL		mg/Kg	11	1	09-07-04 19:06	EPA 6010B[1]
7440-22-4	Silver, Total	BRL		mg/Kg	5.6	1	09-07-04 19:05	EPA 6010B[1]

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

Report Notations:

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

DF Dilution Factor.

GROUNDWATER ANALYTICAL

Trace Metals

Field ID:	**AB-08 (18-24")**	Matrix:	**Soil**
Project:	**SARSS/Ashburnham/2004-274**	Container:	**120 mL Glass**
Client:	**Environmental Strategies & Management, Inc.**	Preservation:	**Cool**
Laboratory ID:	**76317-30**	Percent Solids:	**96**
Sampled:	**09-02-04 10:15**		
Received:	**09-03-04 18:30**		

Analysis Method	QC Batch ID	Prep Method	Prepared	Sample Weight	Instrument ID	Analyst
EPA 6010B[1]	MB-0439-S	EPA 3050B	09-07-04 09:30	0.5 g	ICP-1 PE 3000	CRL
EPA 7471A[2]	MP-1656-S	EPA 7471A	09-09-04 11:30	0.6 g	CVAA-1 PE FIMS	CRL

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit	DF	Analyzed	Method
7440-38-2	Arsenic, Total	**4.8**		mg/Kg	1.0	1	09-07-04 19:18	EPA 6010B[1]
7440-39-3	Barium, Total	BRL		mg/Kg	20	1	09-07-04 19:18	EPA 6010B[1]
7440-43-9	Cadmium, Total	BRL		mg/Kg	0.50	1	09-07-04 19:18	EPA 6010B[1]
7440-47-3	Chromium, Total	BRL		mg/Kg	10	1	09-07-04 19:17	EPA 6010B[1]
7439-92-1	Lead, Total	**49**		mg/Kg	10	1	09-07-04 19:18	EPA 6010B[1]
7439-97-6	Mercury, Total	BRL		mg/Kg	0.034	1	09-09-04 16:50	EPA 7471A[2]
7782-49-2	Selenium, Total	BRL		mg/Kg	10	1	09-07-04 19:18	EPA 6010B[1]
7440-22-4	Silver, Total	BRL		mg/Kg	5.0	1	09-07-04 19:17	EPA 6010B[1]

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

Report Notations:

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

DF Dilution Factor.

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

GROUNDWATER ANALYTICAL

Trace Metals

Field ID:	**AB-09 (18-24")**	Matrix:	**Soil**
Project:	**SARSS/Ashburnham/2004-274**	Container:	**120 mL Glass**
Client:	**Environmental Strategies & Management, Inc.**	Preservation:	**Cool**
Laboratory ID:	**76317-31**	Percent Solids:	**83**
Sampled:	**09-02-04 11:15**		
Received:	**09-03-04 18:30**		

Analysis Method	QC Batch ID	Prep Method	Prepared	Sample Weight	Instrument ID	Analyst
EPA 6010B[1]	MB-0439-S	EPA 3050B	09-07-04 09:30	0.5 g	ICP-1 PE 3000	CRL
EPA 7471A[2]	MP-1656-S	EPA 7471A	09-09-04 11:30	0.6 g	CVAA-1 PE FIMS	CRL

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit	DF	Analyzed	Method
7440-38-2	Arsenic, Total	**11**		mg/Kg	1.2	1	09-07-04 19:22	EPA 6010B[1]
7440-39-3	Barium, Total	**38**		mg/Kg	23	1	09-07-04 19:22	EPA 6010B[1]
7440-43-9	Cadmium, Total	BRL		mg/Kg	0.58	1	09-07-04 19:22	EPA 6010B[1]
7440-47-3	Chromium, Total	**17**		mg/Kg	12	1	09-07-04 19:22	EPA 6010B[1]
7439-92-1	Lead, Total	**160**		mg/Kg	12	1	09-07-04 19:22	EPA 6010B[1]
7439-97-6	Mercury, Total	**0.23**		mg/Kg	0.040	1	09-09-04 16:53	EPA 7471A[2]
7782-49-2	Selenium, Total	BRL		mg/Kg	12	1	09-07-04 19:22	EPA 6010B[1]
7440-22-4	Silver, Total	BRL		mg/Kg	5.8	1	09-07-04 19:22	EPA 6010B[1]

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

Report Notations:

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

DF Dilution Factor.

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

GROUNDWATER ANALYTICAL

Trace Metals

Field ID:	**AB-10/11 (0-2")**	Matrix:	**Soil**
Project:	**SARSS/Ashburnham/2004-274**	Container:	**120 mL Glass**
Client:	**Environmental Strategies & Management, Inc.**	Preservation:	**Cool**
Laboratory ID:	**76317-32**	Percent Solids:	**88**
Sampled:	**09-02-04 12:55**		
Received:	**09-03-04 18:30**		

Analysis Method	QC Batch ID	Prep Method	Prepared	Sample Weight	Instrument ID	Analyst
EPA 6010B[1]	MB-0439-S	EPA 3050B	09-07-04 09:30	0.5 g	ICP-1 PE 3000	CRL
EPA 7471A[2]	MP-1656-S	EPA 7471A	09-09-04 11:30	0.6 g	CVAA-1 PE FIMS	CRL

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit	DF	Analyzed	Method
7440-38-2	Arsenic, Total	**7.7**		mg/Kg	1.1	1	09-07-04 19:26	EPA 6010B[1]
7440-39-3	Barium, Total	**47**		mg/Kg	22	1	09-07-04 19:26	EPA 6010B[1]
7440-43-9	Cadmium, Total	**0.97**		mg/Kg	0.56	1	09-07-04 19:26	EPA 6010B[1]
7440-47-3	Chromium, Total	**24**		mg/Kg	11	1	09-07-04 19:26	EPA 6010B[1]
7439-92-1	Lead, Total	**81**		mg/Kg	11	1	09-07-04 19:26	EPA 6010B[1]
7439-97-6	Mercury, Total	BRL		mg/Kg	0.039	1	09-09-04 16:56	EPA 7471A[2]
7782-49-2	Selenium, Total	BRL		mg/Kg	11	1	09-07-04 19:26	EPA 6010B[1]
7440-22-4	Silver, Total	BRL		mg/Kg	5.6	1	09-07-04 19:26	EPA 6010B[1]

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

Report Notations:

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

DF Dilution Factor.

GROUNDWATER ANALYTICAL

Trace Metals

Field ID:	**AB-10/11 (4-6")**	Matrix:	**Soil**
Project:	**SARSS/Ashburnham/2004-274**	Container:	**120 mL Glass**
Client:	**Environmental Strategies & Management, Inc.**	Preservation:	**Cool**
Laboratory ID:	**76317-33**	Percent Solids:	**95**
Sampled:	**09-02-04 13:00**		
Received:	**09-03-04 18:30**		

Analysis Method	QC Batch ID	Prep Method	Prepared	Sample Weight	Instrument ID	Analyst
EPA 6010B[1]	MB-0439-S	EPA 3050B	09-07-04 09:30	0.5 g	ICP-1 PE 3000	CRL
EPA 7471A[2]	MP-1656-S	EPA 7471A	09-09-04 11:30	0.6 g	CVAA-1 PE FIMS	CRL

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit	DF	Analyzed	Method
7440-38-2	Arsenic, Total	**7.4**		mg/Kg	1.0	1	09-07-04 19:30	EPA 6010B[1]
7440-39-3	Barium, Total	**37**		mg/Kg	20	1	09-07-04 19:30	EPA 6010B[1]
7440-43-9	Cadmium, Total	BRL		mg/Kg	0.51	1	09-07-04 19:30	EPA 6010B[1]
7440-47-3	Chromium, Total	**13**		mg/Kg	10	1	09-07-04 19:30	EPA 6010B[1]
7439-92-1	Lead, Total	**85**		mg/Kg	10	1	09-07-04 19:30	EPA 6010B[1]
7439-97-6	Mercury, Total	BRL		mg/Kg	0.034	1	09-09-04 16:59	EPA 7471A[2]
7782-49-2	Selenium, Total	BRL		mg/Kg	10	1	09-07-04 19:30	EPA 6010B[1]
7440-22-4	Silver, Total	BRL		mg/Kg	5.1	1	09-07-04 19:30	EPA 6010B[1]

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

Report Notations:

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

DF Dilution Factor.

GROUNDWATER ANALYTICAL

Trace Metals

Field ID:	**S-06 (Surface)**	Matrix:	**Soil**
Project:	**SARSS/Ashburnham/2004-274**	Container:	**120 mL Glass**
Client:	**Environmental Strategies & Management, Inc.**	Preservation:	**Cool**
Laboratory ID:	**76317-34**	Percent Solids:	**97**
Sampled:	**09-02-04 14:00**		
Received:	**09-03-04 18:30**		

Analysis Method	QC Batch ID	Prep Method	Prepared	Sample Weight	Instrument ID	Analyst
EPA 6010B[1]	MB-0439-S	EPA 3050B	09-07-04 09:30	0.5 g	ICP-1 PE 3000	CRL
EPA 7471A[2]	MP-1656-S	EPA 7471A	09-09-04 11:30	0.6 g	CVAA-1 PE FIMS	CRL

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit	DF	Analyzed	Method
7440-38-2	Arsenic, Total	**4.6**		mg/Kg	1.0	1	09-07-04 19:35	EPA 6010B[1]
7440-39-3	Barium, Total	BRL		mg/Kg	20	1	09-07-04 19:35	EPA 6010B[1]
7440-43-9	Cadmium, Total	BRL		mg/Kg	0.50	1	09-07-04 19:35	EPA 6010B[1]
7440-47-3	Chromium, Total	BRL		mg/Kg	10	1	09-07-04 19:34	EPA 6010B[1]
7439-92-1	Lead, Total	BRL		mg/Kg	10	1	09-07-04 19:35	EPA 6010B[1]
7439-97-6	Mercury, Total	BRL		mg/Kg	0.034	1	09-09-04 17:02	EPA 7471A[2]
7782-49-2	Selenium, Total	BRL		mg/Kg	10	1	09-07-04 19:35	EPA 6010B[1]
7440-22-4	Silver, Total	BRL		mg/Kg	5.0	1	09-07-04 19:34	EPA 6010B[1]

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

Report Notations:

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

DF Dilution Factor.

GROUNDWATER ANALYTICAL

Trace Metals

Field ID:	**S-12 (Surface)**	Matrix:	**Soil**
Project:	**SARSS/Ashburnham/2004-274**	Container:	**120 mL Glass**
Client:	**Environmental Strategies & Management, Inc.**	Preservation:	**Cool**
Laboratory ID:	**76317-35**	Percent Solids:	**89**
Sampled:	**09-02-04 14:15**		
Received:	**09-03-04 18:30**		

Analysis Method	QC Batch ID	Prep Method	Prepared	Sample Weight	Instrument ID	Analyst
EPA 6010B[1]	MB-0439-S	EPA 3050B	09-07-04 09:30	0.5 g	ICP-1 PE 3000	CRL
EPA 7471A[2]	MP-1656-S	EPA 7471A	09-09-04 11:30	0.6 g	CVAA-1 PE FIMS	CRL

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit	DF	Analyzed	Method
7440-38-2	Arsenic, Total	**20**		mg/Kg	1.1	1	09-07-04 19:39	EPA 6010B[1]
7440-39-3	Barium, Total	**46**		mg/Kg	22	1	09-07-04 19:39	EPA 6010B[1]
7440-43-9	Cadmium, Total	BRL		mg/Kg	0.55	1	09-07-04 19:39	EPA 6010B[1]
7440-47-3	Chromium, Total	**18**		mg/Kg	11	1	09-07-04 19:39	EPA 6010B[1]
7439-92-1	Lead, Total	**40**		mg/Kg	11	1	09-07-04 19:39	EPA 6010B[1]
7439-97-6	Mercury, Total	**0.062**		mg/Kg	0.037	1	09-09-04 17:05	EPA 7471A[2]
7782-49-2	Selenium, Total	BRL		mg/Kg	11	1	09-07-04 19:39	EPA 6010B[1]
7440-22-4	Silver, Total	BRL		mg/Kg	5.5	1	09-07-04 19:39	EPA 6010B[1]

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

Report Notations:

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

DF Dilution Factor.

GROUNDWATER ANALYTICAL

Massachusetts DEP EPH Method
Extractable Petroleum Hydrocarbons by GC/FID

Field ID:	ESM-01 (7-9')	Matrix:	Soil
Project:	SARSS/Ashburnham/2004-274	Container:	120 mL Amber Glass
Client:	Environmental Strategies & Management, Inc.	Preservation:	Cool
Laboratory ID:	76317-21	QC Batch ID:	EP-1948-M
Sampled:	09-01-04 10:00	Instrument ID:	GC-9 Agilent 6890
Received:	09-03-04 18:30	Sample Weight:	15 g
Extracted:	09-13-04 17:00	Final Volume:	1 mL
Analyzed (AL):	09-17-04 07:09	% Solids:	80
Analyzed (AR):	09-17-04 07:54	Aliphatic Dilution Factor:	1
Analyst:	MM	Aromatic Dilution Factor:	1

EPH Ranges	Concentration	Notes	Units	Reporting Limit
n-C9 to n-C18 Aliphatic Hydrocarbons †	BRL		mg/Kg	37
n-C19 to n-C36 Aliphatic Hydrocarbons †	BRL		mg/Kg	37
n-C11 to n-C22 Aromatic Hydrocarbons †◊	BRL		mg/Kg	37
Unadjusted n-C11 to n-C22 Aromatic Hydrocarbons †	BRL		mg/Kg	37

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
91-20-3	Naphthalene	BRL		mg/Kg	0.61
91-57-6	2-Methylnaphthalene	BRL		mg/Kg	0.61
85-01-8	Phenanthrene	BRL		mg/Kg	0.61
83-32-9	Acenaphthene	BRL		mg/Kg	0.61
208-96-8	Acenaphthylene	BRL		mg/Kg	0.61
86-73-7	Fluorene	BRL		mg/Kg	0.61
120-12-7	Anthracene	BRL		mg/Kg	0.61
206-44-0	Fluoranthene	BRL		mg/Kg	0.61
129-00-0	Pyrene	BRL		mg/Kg	0.61
56-55-3	Benzo[a]anthracene	BRL		mg/Kg	0.61
218-01-9	Chrysene	BRL		mg/Kg	0.61
205-99-2	Benzo[b]fluoranthene	BRL		mg/Kg	0.61
207-08-9	Benzo[k]fluoranthene	BRL		mg/Kg	0.61
50-32-8	Benzo[a]pyrene	BRL		mg/Kg	0.61
193-39-5	Indeno[1,2,3-c,d]pyrene	BRL		mg/Kg	0.61
53-70-3	Dibenzo[a,h]anthracene	BRL		mg/Kg	0.61
191-24-2	Benzo[g,h,i]perylene	BRL		mg/Kg	0.61

QC Surrogate Compound		Spiked	Measured	Recovery	QC Limits
Fractionation:	2-Fluorobiphenyl	3.3	2.8	87 %	40 - 140 %
	2-Bromonaphthalene	3.3	2.8	85 %	40 - 140 %
Extraction:	Chloro-octadecane	3.3	2.5	77 %	40 - 140 %
	ortho-Terphenyl	3.3	2.8	85 %	40 - 140 %

QA/QC Certification

1. Were all QA/QC procedures required by the method followed? Yes
2. Were all performance/acceptance standards for the required QA/QC procedures achieved? Yes
3. Were any significant modifications made to the method, as specified in Section 11.3.1.1? No

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

Method Reference: Method for the Determination of Extractable Petroleum Hydrocarbons, MA DEP (Revision 1.1, 2004).
Sample extraction performed by microwave accelerated solvent extraction technique. Results are reported on a dry weight basis.

Report Notations:

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

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

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

GROUNDWATER ANALYTICAL

Massachusetts DEP EPH Method
Extractable Petroleum Hydrocarbons by GC/FID

Field ID:	ESM-02 (7-8')	Matrix:	Soil
Project:	SARSS/Ashburnham/2004-274	Container:	120 mL Amber Glass
Client:	Environmental Strategies & Management, Inc.	Preservation:	Cool
Laboratory ID:	76317-22	QC Batch ID:	EP-1948-M
Sampled:	09-01-04 11:30	Instrument ID:	GC-9 Agilent 6890
Received:	09-03-04 18:30	Sample Weight:	15 g
Extracted:	09-13-04 17:00	Final Volume:	1 mL
Analyzed (AL):	09-17-04 01:58	% Solids:	81
Analyzed (AR):	09-17-04 02:42	Aliphatic Dilution Factor:	1
Analyst:	MM	Aromatic Dilution Factor:	1

EPH Ranges	Concentration	Notes	Units	Reporting Limit
n-C9 to n-C18 Aliphatic Hydrocarbons †	BRL		mg/Kg	36
n-C19 to n-C36 Aliphatic Hydrocarbons †	BRL		mg/Kg	36
n-C11 to n-C22 Aromatic Hydrocarbons †◊	BRL		mg/Kg	36
Unadjusted n-C11 to n-C22 Aromatic Hydrocarbons †	BRL		mg/Kg	36

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
91-20-3	Naphthalene	BRL		mg/Kg	0.60
91-57-6	2-Methylnaphthalene	BRL		mg/Kg	0.60
85-01-8	Phenanthrene	BRL		mg/Kg	0.60
83-32-9	Acenaphthene	BRL		mg/Kg	0.60
208-96-8	Acenaphthylene	BRL		mg/Kg	0.60
86-73-7	Fluorene	BRL		mg/Kg	0.60
120-12-7	Anthracene	BRL		mg/Kg	0.60
206-44-0	Fluoranthene	BRL		mg/Kg	0.60
129-00-0	Pyrene	BRL		mg/Kg	0.60
56-55-3	Benzo[a]anthracene	BRL		mg/Kg	0.60
218-01-9	Chrysene	BRL		mg/Kg	0.60
205-99-2	Benzo[b]fluoranthene	BRL		mg/Kg	0.60
207-08-9	Benzo[k]fluoranthene	BRL		mg/Kg	0.60
50-32-8	Benzo[a]pyrene	BRL		mg/Kg	0.60
193-39-5	Indeno[1,2,3-c,d]pyrene	BRL		mg/Kg	0.60
53-70-3	Dibenzo[a,h]anthracene	BRL		mg/Kg	0.60
191-24-2	Benzo[g,h,i]perylene	BRL		mg/Kg	0.60

QC Surrogate Compound		Spiked	Measured	Recovery	QC Limits
Fractionation:	2-Fluorobiphenyl	3.2	2.6	**81 %**	40 - 140 %
	2-Bromonaphthalene	3.2	2.5	**77 %**	40 - 140 %
Extraction:	Chloro-octadecane	3.2	2.6	**80 %**	40 - 140 %
	ortho-Terphenyl	3.2	3.0	**92 %**	40 - 140 %

QA/QC Certification

1. Were all QA/QC procedures required by the method followed?	Yes
2. Were all performance/acceptance standards for the required QA/QC procedures achieved?	Yes
3. Were any significant modifications made to the method, as specified in Section 11.3.1.1?	No

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

Method Reference: Method for the Determination of Extractable Petroleum Hydrocarbons, MA DEP (Revision 1.1, 2004).
Sample extraction performed by microwave accelerated solvent extraction technique. Results are reported on a dry weight basis.

Report Notations:

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

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

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

GROUNDWATER ANALYTICAL

Massachusetts DEP EPH Method
Extractable Petroleum Hydrocarbons by GC/FID

Field ID:	ESM-03 (6-8')	Matrix:	Soil
Project:	SARSS/Ashburnham/2004-274	Container:	120 mL Amber Glass
Client:	Environmental Strategies & Management, Inc.	Preservation:	Cool
Laboratory ID:	76317-23	QC Batch ID:	EP-1948-M
Sampled:	09-01-04 12:15	Instrument ID:	GC-9 Agilent 6890
Received:	09-03-04 18:30	Sample Weight:	15 g
Extracted:	09-13-04 17:00	Final Volume:	1 mL
Analyzed (AL):	09-17-04 11:37	% Solids:	92
Analyzed (AR):	09-17-04 12:21	Aliphatic Dilution Factor:	1
Analyst:	MM	Aromatic Dilution Factor:	1

EPH Ranges	Concentration	Notes	Units	Reporting Limit
n-C9 to n-C18 Aliphatic Hydrocarbons †	820		mg/Kg	32
n-C19 to n-C36 Aliphatic Hydrocarbons †	950		mg/Kg	32
n-C11 to n-C22 Aromatic Hydrocarbons †◊	510		mg/Kg	32
Unadjusted n-C11 to n-C22 Aromatic Hydrocarbons †	520		mg/Kg	32

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
91-20-3	Naphthalene	0.77		mg/Kg	0.53
91-57-6	2-Methylnaphthalene	1.3		mg/Kg	0.53
85-01-8	Phenanthrene	BRL		mg/Kg	0.53
83-32-9	Acenaphthene	BRL		mg/Kg	0.53
208-96-8	Acenaphthylene	BRL		mg/Kg	0.53
86-73-7	Fluorene	BRL		mg/Kg	0.53
120-12-7	Anthracene	BRL		mg/Kg	0.53
206-44-0	Fluoranthene	BRL		mg/Kg	0.53
129-00-0	Pyrene	BRL		mg/Kg	0.53
56-55-3	Benzo[a]anthracene	BRL		mg/Kg	0.53
218-01-9	Chrysene	BRL		mg/Kg	0.53
205-99-2	Benzo[b]fluoranthene	BRL		mg/Kg	0.53
207-08-9	Benzo[k]fluoranthene	BRL		mg/Kg	0.53
50-32-8	Benzo[a]pyrene	BRL		mg/Kg	0.53
193-39-5	Indeno[1,2,3-c,d]pyrene	BRL		mg/Kg	0.53
53-70-3	Dibenzo[a,h]anthracene	BRL		mg/Kg	0.53
191-24-2	Benzo[g,h,i]perylene	BRL		mg/Kg	0.53

QC Surrogate Compound		Spiked	Measured	Recovery	QC Limits
Fractionation:	2-Fluorobiphenyl	2.8	1.8	64 %	40 - 140 %
	2-Bromonaphthalene	2.8	2.1	72 %	40 - 140 %
Extraction:	Chloro-octadecane	2.8	2.3	80 %	40 - 140 %
	ortho-Terphenyl	2.8	1.6	58 %	40 - 140 %

QA/QC Certification

1. Were all QA/QC procedures required by the method followed?	Yes
2. Were all performance/acceptance standards for the required QA/QC procedures achieved?	Yes
3. Were any significant modifications made to the method, as specified in Section 11.3.1.1?	No

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

Method Reference: Method for the Determination of Extractable Petroleum Hydrocarbons, MA DEP (Revision 1.1, 2004).
Sample extraction performed by microwave accelerated solvent extraction technique. Results are reported on a dry weight basis.

Report Notations:

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

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

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

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

GROUNDWATER ANALYTICAL

Massachusetts DEP EPH Method
Extractable Petroleum Hydrocarbons by GC/FID

Field ID:	ESM-04 (7-9')	Matrix:	Soil
Project:	SARSS/Ashburnham/2004-274	Container:	120 mL Amber Glass
Client:	Environmental Strategies & Management, Inc.	Preservation:	Cool
Laboratory ID:	76317-24	QC Batch ID:	EP-1948-M
Sampled:	09-01-04 13:30	Instrument ID:	GC-9 Agilent 6890
Received:	09-03-04 18:30	Sample Weight:	15 g
Extracted:	09-13-04 17:00	Final Volume:	1 mL
Analyzed (AL):	09-18-04 04:48	% Solids:	90
Analyzed (AR):	09-18-04 05:33	Aliphatic Dilution Factor:	1
Analyst:	MM	Aromatic Dilution Factor:	1

EPH Ranges	Concentration	Notes	Units	Reporting Limit
n-C9 to n-C18 Aliphatic Hydrocarbons †	120		mg/Kg	33
n-C19 to n-C36 Aliphatic Hydrocarbons †	150		mg/Kg	33
n-C11 to n-C22 Aromatic Hydrocarbons †◊	120		mg/Kg	33
Unadjusted n-C11 to n-C22 Aromatic Hydrocarbons †	120		mg/Kg	33

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
91-20-3	Naphthalene	BRL		mg/Kg	0.54
91-57-6	2-Methylnaphthalene	BRL		mg/Kg	0.54
85-01-8	Phenanthrene	BRL		mg/Kg	0.54
83-32-9	Acenaphthene	BRL		mg/Kg	0.54
208-96-8	Acenaphthylene	BRL		mg/Kg	0.54
86-73-7	Fluorene	BRL		mg/Kg	0.54
120-12-7	Anthracene	BRL		mg/Kg	0.54
206-44-0	Fluoranthene	BRL		mg/Kg	0.54
129-00-0	Pyrene	BRL		mg/Kg	0.54
56-55-3	Benzo[a]anthracene	BRL		mg/Kg	0.54
218-01-9	Chrysene	BRL		mg/Kg	0.54
205-99-2	Benzo[b]fluoranthene	BRL		mg/Kg	0.54
207-08-9	Benzo[k]fluoranthene	BRL		mg/Kg	0.54
50-32-8	Benzo[a]pyrene	BRL		mg/Kg	0.54
193-39-5	Indeno[1,2,3-c,d]pyrene	BRL		mg/Kg	0.54
53-70-3	Dibenzo[a,h]anthracene	BRL		mg/Kg	0.54
191-24-2	Benzo[g,h,i]perylene	BRL		mg/Kg	0.54

QC Surrogate Compound		Spiked	Measured	Recovery	QC Limits
Fractionation:	2-Fluorobiphenyl	2.9	2.4	84 %	40 - 140 %
	2-Bromonaphthalene	2.9	2.6	90 %	40 - 140 %
Extraction:	Chloro-octadecane	2.9	1.8	62 %	40 - 140 %
	ortho-Terphenyl	2.9	2.4	82 %	40 - 140 %

QA/QC Certification

1. Were all QA/QC procedures required by the method followed? Yes
2. Were all performance/acceptance standards for the required QA/QC procedures achieved? Yes
3. Were any significant modifications made to the method, as specified in Section 11.3.1.1? No

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

Method Reference: Method for the Determination of Extractable Petroleum Hydrocarbons, MA DEP (Revision 1.1, 2004).
Sample extraction performed by microwave accelerated solvent extraction technique. Results are reported on a dry weight basis.

Report Notations:

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

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

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

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

GROUNDWATER ANALYTICAL

Massachusetts DEP EPH Method
Extractable Petroleum Hydrocarbons by GC/FID

Field ID:	B-01 (7-8')	Matrix:	Soil
Project:	SARSS/Ashburnham/2004-274	Container:	120 mL Amber Glass
Client:	Environmental Strategies & Management, Inc.	Preservation:	Cool
Laboratory ID:	76317-25	QC Batch ID:	EP-1948-M
Sampled:	09-01-04 10:30	Instrument ID:	GC-9 Agilent 6890
Received:	09-03-04 18:30	Sample Weight:	15 g
Extracted:	09-13-04 17:00	Final Volume:	1 mL
Analyzed (AL):	09-17-04 10:08	% Solids:	80
Analyzed (AR):	09-17-04 10:52	Aliphatic Dilution Factor:	1
Analyst:	MM	Aromatic Dilution Factor:	1

EPH Ranges	Concentration	Notes	Units	Reporting Limit
n-C9 to n-C18 Aliphatic Hydrocarbons †	BRL		mg/Kg	37
n-C19 to n-C36 Aliphatic Hydrocarbons †	39		mg/Kg	37
n-C11 to n-C22 Aromatic Hydrocarbons †◊	BRL		mg/Kg	37
Unadjusted n-C11 to n-C22 Aromatic Hydrocarbons †	BRL		mg/Kg	37

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
91-20-3	Naphthalene	BRL		mg/Kg	0.62
91-57-6	2-Methylnaphthalene	BRL		mg/Kg	0.62
85-01-8	Phenanthrene	BRL		mg/Kg	0.62
83-32-9	Acenaphthene	BRL		mg/Kg	0.62
208-96-8	Acenaphthylene	BRL		mg/Kg	0.62
86-73-7	Fluorene	BRL		mg/Kg	0.62
120-12-7	Anthracene	BRL		mg/Kg	0.62
206-44-0	Fluoranthene	BRL		mg/Kg	0.62
129-00-0	Pyrene	BRL		mg/Kg	0.62
56-55-3	Benzo[a]anthracene	BRL		mg/Kg	0.62
218-01-9	Chrysene	BRL		mg/Kg	0.62
205-99-2	Benzo[b]fluoranthene	BRL		mg/Kg	0.62
207-08-9	Benzo[k]fluoranthene	BRL		mg/Kg	0.62
50-32-8	Benzo[a]pyrene	BRL		mg/Kg	0.62
193-39-5	Indeno[1,2,3-c,d]pyrene	BRL		mg/Kg	0.62
53-70-3	Dibenzo[a,h]anthracene	BRL		mg/Kg	0.62
191-24-2	Benzo[g,h,i]perylene	BRL		mg/Kg	0.62

QC Surrogate Compound		Spiked	Measured	Recovery	QC Limits
Fractionation:	2-Fluorobiphenyl	3.3	2.7	82 %	40 - 140 %
	2-Bromonaphthalene	3.3	2.9	88 %	40 - 140 %
Extraction:	Chloro-octadecane	3.3	2.5	76 %	40 - 140 %
	ortho-Terphenyl	3.3	2.9	88 %	40 - 140 %

QA/QC Certification

1. Were all QA/QC procedures required by the method followed?	Yes
2. Were all performance/acceptance standards for the required QA/QC procedures achieved?	Yes
3. Were any significant modifications made to the method, as specified in Section 11.3.1.1?	No

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

Method Reference: Method for the Determination of Extractable Petroleum Hydrocarbons, MA DEP (Revision 1.1, 2004).
Sample extraction performed by microwave accelerated solvent extraction technique. Results are reported on a dry weight basis.

Report Notations:

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

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

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

GROUNDWATER ANALYTICAL

Massachusetts DEP EPH Method
Extractable Petroleum Hydrocarbons by GC/FID

Field ID:	B-02 (6-7')	Matrix:	Soil
Project:	SARSS/Ashburnham/2004-274	Container:	120 mL Amber Glass
Client:	Environmental Strategies & Management, Inc.	Preservation:	Cool
Laboratory ID:	76317-26	QC Batch ID:	EP-1948-M
Sampled:	09-01-04 11:00	Instrument ID:	GC-9 Agilent 6890
Received:	09-03-04 18:30	Sample Weight:	15 g
Extracted:	09-13-04 17:00	Final Volume:	1 mL
Analyzed (AL):	09-17-04 08:38	% Solids:	76
Analyzed (AR):	09-17-04 09:23	Aliphatic Dilution Factor:	1
Analyst:	MM	Aromatic Dilution Factor:	1

EPH Ranges	Concentration	Notes	Units	Reporting Limit
n-C9 to n-C18 Aliphatic Hydrocarbons †	BRL		mg/Kg	39
n-C19 to n-C36 Aliphatic Hydrocarbons †	BRL		mg/Kg	39
n-C11 to n-C22 Aromatic Hydrocarbons †◊	BRL		mg/Kg	39
Unadjusted n-C11 to n-C22 Aromatic Hydrocarbons †	BRL		mg/Kg	39

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
91-20-3	Naphthalene	BRL		mg/Kg	0.64
91-57-6	2-Methylnaphthalene	BRL		mg/Kg	0.64
85-01-8	Phenanthrene	BRL		mg/Kg	0.64
83-32-9	Acenaphthene	BRL		mg/Kg	0.64
208-96-8	Acenaphthylene	BRL		mg/Kg	0.64
86-73-7	Fluorene	BRL		mg/Kg	0.64
120-12-7	Anthracene	BRL		mg/Kg	0.64
206-44-0	Fluoranthene	BRL		mg/Kg	0.64
129-00-0	Pyrene	BRL		mg/Kg	0.64
56-55-3	Benzo[a]anthracene	BRL		mg/Kg	0.64
218-01-9	Chrysene	BRL		mg/Kg	0.64
205-99-2	Benzo[b]fluoranthene	BRL		mg/Kg	0.64
207-08-9	Benzo[k]fluoranthene	BRL		mg/Kg	0.64
50-32-8	Benzo[a]pyrene	BRL		mg/Kg	0.64
193-39-5	Indeno[1,2,3-c,d]pyrene	BRL		mg/Kg	0.64
53-70-3	Dibenzo[a,h]anthracene	BRL		mg/Kg	0.64
191-24-2	Benzo[g,h,i]perylene	BRL		mg/Kg	0.64

QC Surrogate Compound		Spiked	Measured	Recovery	QC Limits
Fractionation:	2-Fluorobiphenyl	3.4	2.7	79 %	40 - 140 %
	2-Bromonaphthalene	3.4	2.6	77 %	40 - 140 %
Extraction:	Chloro-octadecane	3.4	2.7	79 %	40 - 140 %
	ortho-Terphenyl	3.4	2.9	84 %	40 - 140 %

QA/QC Certification

1. Were all QA/QC procedures required by the method followed?	Yes
2. Were all performance/acceptance standards for the required QA/QC procedures achieved?	Yes
3. Were any significant modifications made to the method, as specified in Section 11.3.1.1?	No

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

Method Reference: Method for the Determination of Extractable Petroleum Hydrocarbons, MA DEP (Revision 1.1, 2004).
Sample extraction performed by microwave accelerated solvent extraction technique. Results are reported on a dry weight basis.

Report Notations:

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

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

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

GROUNDWATER ANALYTICAL

Massachusetts DEP EPH Method
Extractable Petroleum Hydrocarbons by GC/FID

Field ID:	AB-07 (30-36")	Matrix:	Soil
Project:	SARSS/Ashburnham/2004-274	Container:	120 mL Amber Glass
Client:	Environmental Strategies & Management, Inc.	Preservation:	Cool
Laboratory ID:	76317-29	QC Batch ID:	EP-1948-M
Sampled:	09-02-04 10:45	Instrument ID:	GC-9 Agilent 6890
Received:	09-03-04 18:30	Sample Weight:	16 g
Extracted:	09-13-04 17:00	Final Volume:	1 mL
Analyzed (AL):	09-17-04 03:27	% Solids:	86
Analyzed (AR):	09-17-04 04:11	Aliphatic Dilution Factor:	1
Analyst:	MM	Aromatic Dilution Factor:	1

EPH Ranges	Concentration	Notes	Units	Reporting Limit
n-C9 to n-C18 Aliphatic Hydrocarbons †	BRL		mg/Kg	33
n-C19 to n-C36 Aliphatic Hydrocarbons †	45		mg/Kg	33
n-C11 to n-C22 Aromatic Hydrocarbons †◊	BRL		mg/Kg	33
Unadjusted n-C11 to n-C22 Aromatic Hydrocarbons †	BRL		mg/Kg	33

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
91-20-3	Naphthalene	BRL		mg/Kg	0.55
91-57-6	2-Methylnaphthalene	BRL		mg/Kg	0.55
85-01-8	Phenanthrene	BRL		mg/Kg	0.55
83-32-9	Acenaphthene	BRL		mg/Kg	0.55
208-96-8	Acenaphthylene	BRL		mg/Kg	0.55
86-73-7	Fluorene	BRL		mg/Kg	0.55
120-12-7	Anthracene	BRL		mg/Kg	0.55
206-44-0	Fluoranthene	BRL		mg/Kg	0.55
129-00-0	Pyrene	BRL		mg/Kg	0.55
56-55-3	Benzo[a]anthracene	BRL		mg/Kg	0.55
218-01-9	Chrysene	BRL		mg/Kg	0.55
205-99-2	Benzo[b]fluoranthene	BRL		mg/Kg	0.55
207-08-9	Benzo[k]fluoranthene	BRL		mg/Kg	0.55
50-32-8	Benzo[a]pyrene	BRL		mg/Kg	0.55
193-39-5	Indeno[1,2,3-c,d]pyrene	BRL		mg/Kg	0.55
53-70-3	Dibenzo[a,h]anthracene	BRL		mg/Kg	0.55
191-24-2	Benzo[g,h,i]perylene	BRL		mg/Kg	0.55

QC Surrogate Compound		Spiked	Measured	Recovery	QC Limits
Fractionation:	2-Fluorobiphenyl	3.0	2.4	82 %	40 - 140 %
	2-Bromonaphthalene	3.0	2.2	76 %	40 - 140 %
Extraction:	Chloro-octadecane	3.0	2.4	82 %	40 - 140 %
	ortho-Terphenyl	3.0	2.8	95 %	40 - 140 %

QA/QC Certification

1. Were all QA/QC procedures required by the method followed? Yes
2. Were all performance/acceptance standards for the required QA/QC procedures achieved? Yes
3. Were any significant modifications made to the method, as specified in Section 11.3.1.1? No

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

Method Reference: Method for the Determination of Extractable Petroleum Hydrocarbons, MA DEP (Revision 1.1, 2004).
Sample extraction performed by microwave accelerated solvent extraction technique. Results are reported on a dry weight basis.

Report Notations:

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

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

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

GROUNDWATER ANALYTICAL

Massachusetts DEP EPH Method
Extractable Petroleum Hydrocarbons by GC/FID

Field ID:	AB-08 (18-24")	Matrix:	Soil
Project:	SARSS/Ashburnham/2004-274	Container:	120 mL Amber Glass
Client:	Environmental Strategies & Management, Inc.	Preservation:	Cool
Laboratory ID:	76317-30	QC Batch ID:	EP-1948-M
Sampled:	09-02-04 10:15	Instrument ID:	GC-9 Agilent 6890
Received:	09-03-04 18:30	Sample Weight:	15 g
Extracted:	09-13-04 17:00	Final Volume:	1 mL
Analyzed (AL):	09-17-04 05:40	% Solids:	96
Analyzed (AR):	09-17-04 06:25	Aliphatic Dilution Factor:	1
Analyst:	MM	Aromatic Dilution Factor:	1

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

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
91-20-3	Naphthalene	BRL		mg/Kg	0.51
91-57-6	2-Methylnaphthalene	BRL		mg/Kg	0.51
85-01-8	Phenanthrene	BRL		mg/Kg	0.51
83-32-9	Acenaphthene	BRL		mg/Kg	0.51
208-96-8	Acenaphthylene	BRL		mg/Kg	0.51
86-73-7	Fluorene	BRL		mg/Kg	0.51
120-12-7	Anthracene	BRL		mg/Kg	0.51
206-44-0	Fluoranthene	BRL		mg/Kg	0.51
129-00-0	Pyrene	BRL		mg/Kg	0.51
56-55-3	Benzo[a]anthracene	BRL		mg/Kg	0.51
218-01-9	Chrysene	BRL		mg/Kg	0.51
205-99-2	Benzo[b]fluoranthene	BRL		mg/Kg	0.51
207-08-9	Benzo[k]fluoranthene	BRL		mg/Kg	0.51
50-32-8	Benzo[a]pyrene	BRL		mg/Kg	0.51
193-39-5	Indeno[1,2,3-c,d]pyrene	BRL		mg/Kg	0.51
53-70-3	Dibenzo[a,h]anthracene	BRL		mg/Kg	0.51
191-24-2	Benzo[g,h,i]perylene	BRL		mg/Kg	0.51

QC Surrogate Compound		Spiked	Measured	Recovery	QC Limits
Fractionation:	2-Fluorobiphenyl	2.7	2.3	85 %	40 - 140 %
	2-Bromonaphthalene	2.7	2.2	80 %	40 - 140 %
Extraction:	Chloro-octadecane	2.7	2.2	81 %	40 - 140 %
	ortho-Terphenyl	2.7	2.5	92 %	40 - 140 %

QA/QC Certification

1. Were all QA/QC procedures required by the method followed? Yes
2. Were all performance/acceptance standards for the required QA/QC procedures achieved? Yes
3. Were any significant modifications made to the method, as specified in Section 11.3.1.1? No

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

Method Reference: Method for the Determination of Extractable Petroleum Hydrocarbons, MA DEP (Revision 1.1, 2004).
Sample extraction performed by microwave accelerated solvent extraction technique. Results are reported on a dry weight basis.

Report Notations:

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

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

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

GROUNDWATER ANALYTICAL

Massachusetts DEP EPH Method
Extractable Petroleum Hydrocarbons by GC/FID

Field ID:	AB-09 (18-24")	Matrix:	Soil
Project:	SARSS/Ashburnham/2004-274	Container:	120 mL Amber Glass
Client:	Environmental Strategies & Management, Inc.	Preservation:	Cool
Laboratory ID:	76317-31	QC Batch ID:	EP-1948-M
Sampled:	09-02-04 11:15	Instrument ID:	GC-9 Agilent 6890
Received:	09-03-04 18:30	Sample Weight:	16 g
Extracted:	09-13-04 17:00	Final Volume:	1 mL
Analyzed (AL):	09-18-04 01:50	% Solids:	83
Analyzed (AR):	09-18-04 02:35	Aliphatic Dilution Factor:	1
Analyst:	MM	Aromatic Dilution Factor:	1

EPH Ranges	Concentration	Notes	Units	Reporting Limit
n-C9 to n-C18 Aliphatic Hydrocarbons †	BRL		mg/Kg	35
n-C19 to n-C36 Aliphatic Hydrocarbons †	360		mg/Kg	35
n-C11 to n-C22 Aromatic Hydrocarbons †◊	88		mg/Kg	35
Unadjusted n-C11 to n-C22 Aromatic Hydrocarbons †	92		mg/Kg	35

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
91-20-3	Naphthalene	BRL		mg/Kg	0.58
91-57-6	2-Methylnaphthalene	BRL		mg/Kg	0.58
85-01-8	Phenanthrene	BRL		mg/Kg	0.58
83-32-9	Acenaphthene	BRL		mg/Kg	0.58
208-96-8	Acenaphthylene	BRL		mg/Kg	0.58
86-73-7	Fluorene	BRL		mg/Kg	0.58
120-12-7	Anthracene	BRL		mg/Kg	0.58
206-44-0	Fluoranthene	BRL		mg/Kg	0.58
129-00-0	Pyrene	BRL		mg/Kg	0.58
56-55-3	Benzo[a]anthracene	BRL		mg/Kg	0.58
218-01-9	Chrysene	BRL		mg/Kg	0.58
205-99-2	Benzo[b]fluoranthene	BRL		mg/Kg	0.58
207-08-9	Benzo[k]fluoranthene	BRL		mg/Kg	0.58
50-32-8	Benzo[a]pyrene	BRL		mg/Kg	0.58
193-39-5	Indeno[1,2,3-c,d]pyrene	BRL		mg/Kg	0.58
53-70-3	Dibenzo[a,h]anthracene	BRL		mg/Kg	0.58
191-24-2	Benzo[g,h,i]perylene	BRL		mg/Kg	0.58

QC Surrogate Compound		Spiked	Measured	Recovery	QC Limits
Fractionation:	2-Fluorobiphenyl	3.1	2.2	73 %	40 - 140 %
	2-Bromonaphthalene	3.1	1.9	61 %	40 - 140 %
Extraction:	Chloro-octadecane	3.1	1.4	45 %	40 - 140 %
	ortho-Terphenyl	3.1	1.7	55 %	40 - 140 %

QA/QC Certification

1. Were all QA/QC procedures required by the method followed? Yes
2. Were all performance/acceptance standards for the required QA/QC procedures achieved? Yes
3. Were any significant modifications made to the method, as specified in Section 11.3.1.1? No

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

Method Reference: Method for the Determination of Extractable Petroleum Hydrocarbons, MA DEP (Revision 1.1, 2004).
Sample extraction performed by microwave accelerated solvent extraction technique. Results are reported on a dry weight basis.

Report Notations:

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

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

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

GROUNDWATER ANALYTICAL

Massachusetts DEP EPH Method
Extractable Petroleum Hydrocarbons by GC/FID

Field ID:	AB-10/11 (0-2")	Matrix:	Soil
Project:	SARSS/Ashburnham/2004-274	Container:	120 mL Amber Glass
Client:	Environmental Strategies & Management, Inc.	Preservation:	Cool
Laboratory ID:	76317-32	QC Batch ID:	EP-1948-M
Sampled:	09-02-04 12:55	Instrument ID:	GC-9 Agilent 6890
Received:	09-03-04 18:30	Sample Weight:	16 g
Extracted:	09-13-04 17:00	Final Volume:	1 mL
Analyzed (AL):	09-18-04 17:00	% Solids:	88
Analyzed (AR):	09-18-04 17:44	Aliphatic Dilution Factor:	5
Analyst:	MM	Aromatic Dilution Factor:	5

EPH Ranges	Concentration	Notes	Units	Reporting Limit
n-C9 to n-C18 Aliphatic Hydrocarbons †	680		mg/Kg	160
n-C19 to n-C36 Aliphatic Hydrocarbons †	13,000		mg/Kg	160
n-C11 to n-C22 Aromatic Hydrocarbons †◊	2,200		mg/Kg	160
Unadjusted n-C11 to n-C22 Aromatic Hydrocarbons †	2,200		mg/Kg	160

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
91-20-3	Naphthalene	BRL		mg/Kg	2.7
91-57-6	2-Methylnaphthalene	BRL		mg/Kg	2.7
85-01-8	Phenanthrene	BRL		mg/Kg	2.7
83-32-9	Acenaphthene	BRL		mg/Kg	2.7
208-96-8	Acenaphthylene	BRL		mg/Kg	2.7
86-73-7	Fluorene	BRL		mg/Kg	2.7
120-12-7	Anthracene	BRL		mg/Kg	2.7
206-44-0	Fluoranthene	BRL		mg/Kg	2.7
129-00-0	Pyrene	BRL		mg/Kg	2.7
56-55-3	Benzo[a]anthracene	BRL		mg/Kg	2.7
218-01-9	Chrysene	BRL		mg/Kg	2.7
205-99-2	Benzo[b]fluoranthene	BRL		mg/Kg	2.7
207-08-9	Benzo[k]fluoranthene	BRL		mg/Kg	2.7
50-32-8	Benzo[a]pyrene	BRL		mg/Kg	2.7
193-39-5	Indeno[1,2,3-c,d]pyrene	BRL		mg/Kg	2.7
53-70-3	Dibenzo[a,h]anthracene	BRL		mg/Kg	2.7
191-24-2	Benzo[g,h,i]perylene	BRL		mg/Kg	2.7

QC Surrogate Compound		Spiked	Measured	Recovery	QC Limits
Fractionation:	2-Fluorobiphenyl	2.9	d	d	40 - 140 %
	2-Bromonaphthalene	2.9	d	d	40 - 140 %
Extraction:	Chloro-octadecane	2.9	d	d	40 - 140 %
	ortho-Terphenyl	2.9	d	d	40 - 140 %

QA/QC Certification

1. Were all QA/QC procedures required by the method followed? Yes
2. Were all performance/acceptance standards for the required QA/QC procedures achieved? No
3. Were any significant modifications made to the method, as specified in Section 11.3.1.1? No

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

Method Reference: Method for the Determination of Extractable Petroleum Hydrocarbons, MA DEP (Revision 1.1, 2004).
Sample extraction performed by microwave accelerated solvent extraction technique. Results are reported on a dry weight basis.

Report Notations:

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

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

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

d Surrogate recovery not measurable due to required sample dilution.

GROUNDWATER ANALYTICAL

Massachusetts DEP EPH Method
Extractable Petroleum Hydrocarbons by GC/FID

Field ID:	AB-10/11 (4-6")	Matrix:	Soil
Project:	SARSS/Ashburnham/2004-274	Container:	120 mL Amber Glass
Client:	Environmental Strategies & Management, Inc.	Preservation:	Cool
Laboratory ID:	76317-33	QC Batch ID:	EP-1948-M
Sampled:	09-02-04 13:00	Instrument ID:	GC-9 Agilent 6890
Received:	09-03-04 18:30	Sample Weight:	15 g
Extracted:	09-13-04 17:00	Final Volume:	1 mL
Analyzed (AL):	09-18-04 03:19	% Solids:	95
Analyzed (AR):	09-18-04 04:04	Aliphatic Dilution Factor:	1
Analyst:	MM	Aromatic Dilution Factor:	1

EPH Ranges	Concentration	Notes	Units	Reporting Limit
n-C9 to n-C18 Aliphatic Hydrocarbons †	57		mg/Kg	31
n-C19 to n-C36 Aliphatic Hydrocarbons †	1,300		mg/Kg	31
n-C11 to n-C22 Aromatic Hydrocarbons †◊	270		mg/Kg	31
Unadjusted n-C11 to n-C22 Aromatic Hydrocarbons †	270		mg/Kg	31

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
91-20-3	Naphthalene	BRL		mg/Kg	0.52
91-57-6	2-Methylnaphthalene	BRL		mg/Kg	0.52
85-01-8	Phenanthrene	BRL		mg/Kg	0.52
83-32-9	Acenaphthene	BRL		mg/Kg	0.52
208-96-8	Acenaphthylene	BRL		mg/Kg	0.52
86-73-7	Fluorene	BRL		mg/Kg	0.52
120-12-7	Anthracene	BRL		mg/Kg	0.52
206-44-0	Fluoranthene	BRL		mg/Kg	0.52
129-00-0	Pyrene	BRL		mg/Kg	0.52
56-55-3	Benzo[a]anthracene	BRL		mg/Kg	0.52
218-01-9	Chrysene	BRL		mg/Kg	0.52
205-99-2	Benzo[b]fluoranthene	BRL		mg/Kg	0.52
207-08-9	Benzo[k]fluoranthene	BRL		mg/Kg	0.52
50-32-8	Benzo[a]pyrene	BRL		mg/Kg	0.52
193-39-5	Indeno[1,2,3-c,d]pyrene	BRL		mg/Kg	0.52
53-70-3	Dibenzo[a,h]anthracene	BRL		mg/Kg	0.52
191-24-2	Benzo[g,h,i]perylene	BRL		mg/Kg	0.52

QC Surrogate Compound		Spiked	Measured	Recovery	QC Limits
Fractionation:	2-Fluorobiphenyl	2.8	1.8	66 %	40 - 140 %
	2-Bromonaphthalene	2.8	1.4	50 %	40 - 140 %
Extraction:	Chloro-octadecane	2.8	1.9	69 %	40 - 140 %
	ortho-Terphenyl	2.8	1.5	56 %	40 - 140 %

QA/QC Certification

1. Were all QA/QC procedures required by the method followed? Yes
2. Were all performance/acceptance standards for the required QA/QC procedures achieved? Yes
3. Were any significant modifications made to the method, as specified in Section 11.3.1.1? No

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

Method Reference: Method for the Determination of Extractable Petroleum Hydrocarbons, MA DEP (Revision 1.1, 2004).
Sample extraction performed by microwave accelerated solvent extraction technique. Results are reported on a dry weight basis.

Report Notations:

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

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

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

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

GROUNDWATER ANALYTICAL

Massachusetts DEP EPH Method
Extractable Petroleum Hydrocarbons by GC/FID

Field ID:	S-06 (Surface)	Matrix:	Soil
Project:	SARSS/Ashburnham/2004-274	Container:	120 mL Amber Glass
Client:	Environmental Strategies & Management, Inc.	Preservation:	Cool
Laboratory ID:	76317-34	QC Batch ID:	EP-1948-M
Sampled:	09-02-04 14:00	Instrument ID:	GC-9 Agilent 6890
Received:	09-03-04 18:30	Sample Weight:	16 g
Extracted:	09-13-04 17:00	Final Volume:	1 mL
Analyzed (AL):	09-18-04 15:35	% Solids:	97
Analyzed (AR):	09-18-04 16:15	Aliphatic Dilution Factor:	5
Analyst:	MM	Aromatic Dilution Factor:	2

EPH Ranges	Concentration	Notes	Units	Reporting Limit
n-C9 to n-C18 Aliphatic Hydrocarbons †	BRL		mg/Kg	150
n-C19 to n-C36 Aliphatic Hydrocarbons †	6,200		mg/Kg	150
n-C11 to n-C22 Aromatic Hydrocarbons †◊	1,000		mg/Kg	59
Unadjusted n-C11 to n-C22 Aromatic Hydrocarbons †	1,000		mg/Kg	59

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
91-20-3	Naphthalene	BRL		mg/Kg	0.70
91-57-6	2-Methylnaphthalene	3.3		mg/Kg	0.70
85-01-8	Phenanthrene	BRL		mg/Kg	0.70
83-32-9	Acenaphthene	BRL		mg/Kg	0.70
208-96-8	Acenaphthylene	BRL		mg/Kg	0.70
86-73-7	Fluorene	BRL		mg/Kg	0.70
120-12-7	Anthracene	BRL		mg/Kg	0.70
206-44-0	Fluoranthene	BRL		mg/Kg	0.70
129-00-0	Pyrene	BRL		mg/Kg	0.70
56-55-3	Benzo[a]anthracene	BRL		mg/Kg	0.70
218-01-9	Chrysene	BRL		mg/Kg	0.70
205-99-2	Benzo[b]fluoranthene	BRL		mg/Kg	0.70
207-08-9	Benzo[k]fluoranthene	BRL		mg/Kg	0.70
50-32-8	Benzo[a]pyrene	BRL		mg/Kg	0.70
193-39-5	Indeno[1,2,3-c,d]pyrene	BRL		mg/Kg	0.70
53-70-3	Dibenzo[a,h]anthracene	BRL		mg/Kg	0.70
191-24-2	Benzo[g,h,i]perylene	BRL		mg/Kg	0.70

QC Surrogate Compound		Spiked	Measured	Recovery	QC Limits
Fractionation:	2-Fluorobiphenyl	2.6	1.8	68 %	40 - 140 %
	2-Bromonaphthalene	2.6	1.5	55 %	40 - 140 %
Extraction:	Chloro-octadecane	2.6	d	d	40 - 140 %
	ortho-Terphenyl	2.6	1.8	68 %	40 - 140 %

QA/QC Certification

1. Were all QA/QC procedures required by the method followed?	Yes
2. Were all performance/acceptance standards for the required QA/QC procedures achieved?	No
3. Were any significant modifications made to the method, as specified in Section 11.3.1.1?	No

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

Method Reference: Method for the Determination of Extractable Petroleum Hydrocarbons, MA DEP (Revision 1.1, 2004).
Sample extraction performed by microwave accelerated solvent extraction technique. Results are reported on a dry weight basis.

Report Notations:

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

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

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

d Surrogate recovery not measurable due to required sample dilution.

GROUNDWATER ANALYTICAL

Massachusetts DEP EPH Method
Extractable Petroleum Hydrocarbons by GC/FID

Field ID:	S-12 (Surface)	Matrix:	Soil
Project:	SARSS/Ashburnham/2004-274	Container:	120 mL Amber Glass
Client:	Environmental Strategies & Management, Inc.	Preservation:	Cool
Laboratory ID:	76317-35	QC Batch ID:	EP-1948-M
Sampled:	09-02-04 14:15	Instrument ID:	GC-9 Agilent 6890
Received:	09-03-04 18:30	Sample Weight:	16 g
Extracted:	09-13-04 17:00	Final Volume:	1 mL
Analyzed (AL):	09-18-04 17:00	% Solids:	70
Analyzed (AR):	09-18-04 17:44	Aliphatic Dilution Factor:	5
Analyst:	MM	Aromatic Dilution Factor:	2

EPH Ranges	Concentration	Notes	Units	Reporting Limit
n-C9 to n-C18 Aliphatic Hydrocarbons †	**1,600**		mg/Kg	210
n-C19 to n-C36 Aliphatic Hydrocarbons †	**19,000**		mg/Kg	210
n-C11 to n-C22 Aromatic Hydrocarbons †◊	**4,600**		mg/Kg	83
Unadjusted n-C11 to n-C22 Aromatic Hydrocarbons †	4,600		mg/Kg	83

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
91-20-3	Naphthalene	BRL		mg/Kg	0.70
91-57-6	2-Methylnaphthalene	BRL		mg/Kg	0.70
85-01-8	Phenanthrene	**0.97**		mg/Kg	0.70
83-32-9	Acenaphthene	BRL		mg/Kg	0.70
208-96-8	Acenaphthylene	BRL		mg/Kg	0.70
86-73-7	Fluorene	BRL		mg/Kg	0.70
120-12-7	Anthracene	**0.70**		mg/Kg	0.70
206-44-0	Fluoranthene	BRL		mg/Kg	0.70
129-00-0	Pyrene	**1.5**		mg/Kg	0.70
56-55-3	Benzo[a]anthracene	BRL		mg/Kg	0.70
218-01-9	Chrysene	BRL		mg/Kg	0.70
205-99-2	Benzo[b]fluoranthene	BRL		mg/Kg	0.70
207-08-9	Benzo[k]fluoranthene	BRL		mg/Kg	0.70
50-32-8	Benzo[a]pyrene	BRL		mg/Kg	0.70
193-39-5	Indeno[1,2,3-c,d]pyrene	BRL		mg/Kg	0.70
53-70-3	Dibenzo[a,h]anthracene	BRL		mg/Kg	0.70
191-24-2	Benzo[g,h,i]perylene	BRL		mg/Kg	0.70

QC Surrogate Compound		Spiked	Measured	Recovery	QC Limits
Fractionation:	2-Fluorobiphenyl	3.7	2.2	**59 %**	40 - 140 %
	2-Bromonaphthalene	3.7	2.2	**59 %**	40 - 140 %
Extraction:	Chloro-octadecane	3.7	d	**d**	40 - 140 %
	ortho-Terphenyl	3.7	3.0	**82 %**	40 - 140 %

QA/QC Certification

1. Were all QA/QC procedures required by the method followed?	Yes
2. Were all performance/acceptance standards for the required QA/QC procedures achieved?	No
3. Were any significant modifications made to the method, as specified in Section 11.3.1.1?	No

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

Method Reference: Method for the Determination of Extractable Petroleum Hydrocarbons, MA DEP (Revision 1.1, 2004).
Sample extraction performed by microwave accelerated solvent extraction technique. Results are reported on a dry weight basis.

Report Notations:

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

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

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

d Surrogate recovery not measurable due to required sample dilution.

GROUNDWATER ANALYTICAL

Project Narrative

Project: **SARSS/Ashburnham/2004-274**
Client: **Environmental Strategies & Management, Inc.**

Lab ID: **76317**
Received: **09-03-04 18:30**

A. Documentation and Client Communication

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

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

B. Method Modifications, Non-Conformances and Observations

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

1. EPA 6010B Note: Samples 76317-21,-23,-27,-28,-29,-30,-31,-32,-33,-34,-35. Samples were analyzed for selected target analytes, as requested by client.
2. EPA 8260B Non-conformance: Sample 76317-06 had the internal standard with a low recovery at 24% due to matrix interference. Sample reanalysis confirms matrix interference.
3. EPA 8260B Non-conformance: Sample 76317-06. Sample had surrogate 4-Bromofluorobenzene above recommended recovery limits due to sample matrix interference. Results for original analysis and confirmatory re-analysis are reported for sample.
4. EPA 8260B Non-conformance: Sample 76317-07 had the internal standard with a low recovery at 10.6% due to matrix interference. Sample reanalysis confirms matrix interference.
5. EPA 8260B Non-conformance: Sample 76317-07. Sample had surrogate 4-Bromofluorobenzene above recommended recovery limits due to sample matrix interference. Results for original analysis and confirmatory re-analysis are reported for sample.
6. EPA 8260B Non-conformance: Sample 76317-07. Sample had surrogate Toluene-d8 below recommended recovery limits due to sample matrix interference. Results for original analysis and confirmatory re-analysis are reported for sample.
7. EPA 8260B Non-conformance: Samples 76317-04 through -07. Laboratory control sample (LCS) analyte 1,4-Dioxane was above recommended recovery limits for QC batch VM2-2703-S.
8. EPA 8260B Note: Samples 76317-01 through -03. Sample were diluted prior to analysis. Dilution was required due to presence of non-target analyte interference.
9. MA DEP EPH Non-conformance: Samples 76317-32, -34, and -35. Sample had surrogate recoveries outside recommended limits due to required sample dilution.
10. MA DEP EPH Note: Samples 76317-32, -34 and -35. Sample were diluted prior to analysis. Dilution was required due to presence of non-target analyte interference.
11. MA DEP VPH Non-conformance: Sample 76317-20. Sample had surrogate 2,5-Dibromotoluene below recommended recovery limits. Sample was not re-analyzed due to likely interference from high percent moisture (>25%) content of sample.
12. MA DEP VPH Note: Samples 76317-08, -13, -16, -17, -18, -19 and -20. Sample were diluted prior to analysis. Dilution was required due to observed foaming characteristics of sample. Sample foaming interfers with purge and trap sample concentration.
13. MA DEP VPH Note: Samples 76317-10 and -11. Sample were diluted prior to analysis. Dilution was required due to presence of non-target analyte interference.

GROUNDWATER ANALYTICAL

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Buzzards Bay, MA 02532
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www.groundwateranalytical.com

CHAIN-OF-CUSTODY RECORD AND WORK ORDER

№ 099659

ect Name: ess / ASHBURNHAM	Firm: ES+M
ect Number: 2004-274	Address: 184 West Main St
pler Name: nanda Freeman izen Mattison	City / State / Zip: Norton,
ect Manager: oug Heely	Telephone: 508 285 9700

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

TURNAROUND

- ☑ STANDARD (10 Business Days)
- ☐ PRIORITY (5 Business Days)
- ☐ RUSH (RAN- _____)
  (Rush requires Rush Authorization Number)
- ☐ Please Email to: _____
- ☐ Please FAX to: _____

BILLING

- ☐ Purchase Order No.: _____
- ☐ Third Party Billing: _____
- ☐ GWA Quote: _____

ANALYSIS REQUEST

OPTIONS: ☐ TIC Search; ☐ Acid Only ☐ B/N Only ☐ TIC Search

SDWA: ☐ 524.2+MTBE; ☐ 525.2; ☐ 505 ☐ 508; ☐ 531.1; ☐ 515.1; ☐ 504.1 EDB/DBCP; ☐ Lead and Copper

NPDES: ☐ 624; ☐ 602+MTBE; ☐ 601; ☐ 601/602+MTBE; ☐ 625; ☐ 625 PAHs only; ☐ 608 Pesticides; ☐ 608 PCBs; ☐ 615; ☐ 13 Priority Pollutant

RCRA/21E: ☐ 8260B TCL+MTBE; ☐ 8260B NH PETROLEUM; ☐ 8260B; ☐ 8260B Aromatics; ☐ 8021B Halocarbons; ☐ 8021B; ☐ 8270C; ☐ 8270C PAHs only; ☐ 8081A Pesticides; ☐ 8082 PCBs; ☐ 8151A Herbicides; ☐ 8011 EDB/DBCP; ☐ 13 RCRA; ☐ 5 RCRA; ☐ MA List Metals; ☐ 23 TAL; ☐ Specify:

Metals: Specify For Water Samples ☐ Total ☐ Dissolved

Petroleum Hydrocarbon — Ext. TPH: ☐ TPH-IR; ☐ Diesel Range Organics (DRO) ☐ ME DRO; ☐ CT ETPH; ☐ MA DEP EPH w/all targets ☐ EPH Carbon Ranges only ☐ EPH w/4 PAHs; ☐ Hydrocarbon Fingerprint (GC/FID by ASTM D3328-00-Mod.); ☐ TPH by GC/FID (8015B Mod) Quantitative Only; ☐ Gasoline Range Organics (GRO) ☐ ME GRO; ☐ MA DEP VPH w/all targets ☐ VPH Carbon ranges only — Vol. TPH

Haz. Waste: ☐ TCLP ☐ SPLP ☐ 8 Metals ☐ Pb only ☐ VOA ☐ Semi VOA ☐ Pesticides ☐ Herbicides; ☐ Corrosivity (as pH) ☐ Reactivity ☐ Ignitability (as Flashpoint) ☐ Paint Filter; ☐ MA Basic Disposal Criteria: 8260B, TPH by GC, PCBs, 5 Metals, Corrosivity, Ignitability, Reactivity

General Chemistry: ☐ Nitrate ☐ Nitrite ☐ Chloride ☐ Fluoride ☐ Sulfate; ☐ Dissolved Phosphorus; ☐ Ammonia ☐ TKN ☐ Total Phosphorus ☐ Total N (as N02/N03/TKN); ☐ Oil & Grease; ☐ COD ☐ TOC; ☐ BOD ☐ TDS ☐ TSS ☐ TS ☐ Alkalinity; ☐ Cyanide, Total ☐ Cyanide, Physiologically Available

Other: ☐ pH ☐ Dissolved Oxygen ☐ Turbidity; ☐ Total Coliform ☐ Fecal Coliform ☐ HPC

Sampling Date	Time	SAMPLE IDENTIFICATION	Matrix: GROUNDWATER	DRINKING WATER	WASTEWATER	SOIL	OTHER SOLID	OIL/ORGANIC LIQUID	Type: COMPOSITE	GRAB	Container(s): NUMBER	40mL VOA Vial	60mL/2 oz Glass	120mL/4 oz Amber Glass	250mL/8 oz Glass	500mL/16 oz Glass	1L/32 oz Amber Glass	250mL/8 oz Plastic	500mL/16 oz Plastic	1L/32 oz Plastic	120mL Sterile	Preservation: HCl	HNO_3	H_2SO_4	NaOH	Methanol	Sodium Bisulfate	ICE	Filtered: YES	NO	LABORATORY NUMBER (Lab Use Only)
04	10:00	ESM-01 (7-9')				✓				✓	3		✓	✓	✓											✓	✓			✓	8 21
04	11:30	ESM-02 (7-8')				✓				✓	2		✓	✓												✓	✓			✓	9 22
04	12:15	ESM-03 (6-8')				✓				✓	7	✓	✓	✓	✓											✓	✓			✓	1, 10 23
04	1:30	ESM-04 (7-9')				✓				✓	6	✓	✓	✓												✓	✓			✓	2, 11 24
04	12:30	field dup				✓				✓	4	✓														✓	✓			✓	3 ~~25~~
04	10:30	B-01 (7-8')				✓				✓	2		✓	✓												✓	✓			✓	12 25
04	11:00	B-02 (6-7')				✓				✓	2		✓	✓												✓	✓			✓	13 26
04	2:00	AB-03 (0-6")				✓				✓	1				✓												✓			✓	27
04	2:15	AB-04 (0-6")				✓				✓	1				✓												✓			✓	28
04	10:45	AB-07 (30-36")				✓				✓	3		✓	✓	✓											✓	✓			✓	14 29
04	10:15	AB-08 (18-24")				✓				✓	3		✓	✓	✓											✓	✓			✓	15 30
04	11:15	AB-09 (18-24")				✓				✓	7	✓	✓	✓	✓											✓	✓			✓	16 31

REMARKS / SPECIAL INSTRUCTIONS

DEP MCP Data Enhancement Affirmation

YES NO MCP Data Certification is required.

YES NO [illegible] analyses required.
[illegible] of contingent duplicate samples.
(Trip Blanks are also required, if VOA samples collected)

Signature: Amanda Freeman

DATA QUALITY OBJECTIVES

Regulatory Program

State	Standard	Deliverables
☐ CT	☑ MCP GW-1/S-1	☐ PWS Form
☐ ME	☐ MCP GW-2/S-2	☐ MWRA
☑ MA	☐ NY STARS	☐ _____
☐ NH	☐ Drinking Water	
☐ NY	☐ Wastewater	
☐ RI	☐ Waste Disposal	
☐ VT	☐ Dredge Material	
☐ ___	☐ _____	

Project Specific QC

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

Project Specific QC Required
- ☐ Sample Duplicate
- ☐ Matrix Spike
- ☐ Matrix Spike Duplicate

Selection of QC Sample
- ☐ Please use sample: _____

CHAIN-OF-CUSTODY RECORD

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

	Date	Time		
Relinquished by Sampler: Amanda Freeman	9/3/04	2:20	Received by: [signature]	Receipt Temperature: 2.6 (☐ Ice ☐ Refrigerated 2-6°C Recommended)
Relinquished by: [signature]	9/3/04	6:30	Received by:	Container Count: 65
Relinquished by:			Received by Laboratory: [signature]	Shipping/Airbill Number:

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

Custody Seal Number:

GROUNDWATER ANALYTICAL

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Buzzards Bay, MA 02532
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www.groundwateranalytical.com

CHAIN-OF-CUSTODY RECORD AND WORK ORDER

ct Name: RSS / ASHBURNHAM	Firm: E&M
ct Number: 004-274	Address: 184 West Main St
pler Name: anda Freeman za Mattison	City / State / Zip: Norton MA 02766
ect Manager: oug Heely	Telephone: 508 285 9700

TURNAROUND

- ☑ STANDARD (10 Business Days)
- ☐ PRIORITY (5 Business Days)
- ☐ RUSH (RAN- _____)
  (Rush requires Rush Authorization Number)
- ☐ Please Email to: _____
- ☐ Please FAX to: _____

BILLING

- ☐ Purchase Order No.: _____
- ☐ Third Party Billing: _____
- ☐ GWA Quote: _____

ANALYSIS REQUEST

OPTIONS: ☐ TIC Search

Volatiles: SDWA ☐ 524.2-MTBE; NPDES ☐ 624; ☐ 602+MTBE; ☐ 601; ☐ 601/602+MTBE; RCRA/21E ☐ 8260B TCL-MTBE; ☐ 8260B NH PETROLEUM; ☑ 8260B; ☐ 8021B Aromatics; ☐ 8021B Halocarbons; ☐ 8021B

Semivolatiles: ☐ Acid Only; ☐ B/N Only; ☐ TIC Search; ☐ 525.2; ☐ 625; ☐ 625 PAHs only; ☐ 8270C; ☐ 8270C PAHs only

Pest/Herb/PCBs Extractable: ☐ 505; ☐ 508; ☐ 608 Pesticides; ☐ 608 PCBs; ☐ 8081A Pesticides; ☐ 8082 PCBs; ☐ 8151A Herbicides; ☐ 8011 EDB/DBCP

Pest/Herb/PCBs Vol.: ☐ 531.1; ☐ 515.1; ☐ 504.1 EDB/DBCP; ☐ 615

Metals: Specify for Water Samples ☐ Total ☐ Dissolved; ☐ Lead and Copper; ☐ 13 Priority Pollutant; ☑ 8 RCRA; ☐ 5 RCRA; ☐ MA List Metals; ☐ 23 TAL; ☐ Specify:

Petroleum Hydrocarbon Ext. TPH: ☐ TPH-IR; ☐ Diesel Range Organics (DRO); ☐ ME DRO; ☐ CT ETPH; ☑ MA DEP EPH w/all targets; ☐ EPH Carbon Ranges only; ☐ EPH w/4 PAHs; ☐ Hydrocarbon Fingerprint (GC/FID by ASTM D3328-00-Mod.)

Petroleum Hydrocarbon Vol. TPH: ☐ TPH by GC/FID (80158 Mod) Quantitative Only; ☐ ME GRO; ☐ Gasoline Range Organics (GRO); ☑ MA DEP VPH w/all targets; ☐ VPH Carbon ranges only

Haz. Waste: ☑ TCLP; ☐ SPLP; ☐ 8 Metals; ☐ Pb only; ☐ VOA; ☐ Semi VOA; ☐ Pesticides; ☐ Herbicides; ☐ Ignitability (as Flashpoint); ☐ Paint Filter; ☐ Corrosivity (as pH); ☐ Reactivity; ☐ MA Basic Disposal Criteria: 8260B, TPH by GC, PCBs, 5 Metals, Corrosivity, Ignitability, Reactivity

General Chemistry: ☐ Nitrate; ☐ Nitrite; ☐ Chloride; ☐ Fluoride; ☐ Sulfate; ☐ Dissolved Phosphorus; ☐ Ammonia; ☐ TKN; ☐ Total Phosphorus; ☐ Total N (as NO2/NO3/TKN); ☐ Oil & Grease; ☐ COD; ☐ TOC; ☐ BOD; ☐ TDS; ☐ TSS; ☐ TS; ☐ Alkalinity; ☐ Cyanide, Total; ☐ Cyanide, Physiologically Available; ☐ pH; ☐ Dissolved Oxygen; ☐ Turbidity

Other: ☐ Total Coliform; ☐ Fecal Coliform; ☐ HPC

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

Sampling Date	Time	SAMPLE IDENTIFICATION	Matrix: GROUNDWATER	DRINKING WATER	WASTEWATER	SOIL	OTHER SOLID	OIL/ORGANIC LIQUID	Type: COMPOSITE	GRAB	Container(s): NUMBER	40mL VOA Vial	60mL/2 oz Glass	120mL/4 oz Amber Glass	250mL/8 oz Glass	500mL/16 oz Glass	1L/32 oz Amber Glass	250mL/8 oz Plastic	500mL/16 oz Plastic	1L/32 oz Plastic	120mL Sterile	Preservation: HCl	HNO3	H2SO4	NaOH	Methanol	Sodium Bisulfate	ICE	Filtered: YES	NO	LABORATORY NUMBER (Lab Use Only)
04	12:55	AB-10/11 (0-2")				✓			✓		7	✓	✓	✓	✓											✓	✓	✓	✓		5 17 32
04	12:00	AB-10/11 (4-6")				✓			✓		3		✓	✓	✓											✓	✓	✓	✓		18 33
04	2:00	S-06 (surface)				✓				✓	7	✓	✓	✓	✓											✓	✓	✓	✓		6 19 34
04	2:15	S-12 (surface)				✓				✓	7	✓	✓	✓	✓											✓	✓	✓	✓		7 20 35

REMARKS / SPECIAL INSTRUCTIONS

MA DEP MCP Data Enhancement Affirmation

YES ☐ NO MCP Data Certification is required.

YES ☑ NO MCP minimum Field QC requirements

YES ☑ NO MCP [illegible] water samples required.
(Equipment blanks of contingent replicate samples. Trip blanks are also required, if VOA samples collected)

Signature: Amanda Freeman

DATA QUALITY OBJECTIVES

Regulatory Program

State	Standard	Deliverables
☐ CT	☑ MCP GW-1/S-1	☐ PWS Form
☐ ME	☐ MCP GW-2/S-2	☐ MWRA
☑ MA	☐ NY STARS	☐ _____
☐ NH	☐ Drinking Water	
☐ NY	☐ Wastewater	
☐ RI	☐ Waste Disposal	
☐ VT	☐ Dredge Material	
☐ ___	☐ _____	

Project Specific QC

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

Project Specific QC Required
- ☐ Sample Duplicate
- ☐ Matrix Spike
- ☐ Matrix Spike Duplicate

Selection of QC Sample
- ☐ Please use sample: _____

CHAIN-OF-CUSTODY RECORD

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

Relinquished by Sampler: Amanda Freeman	Date 9/3/04	Time 2:20	Received by: [signature]	Receipt Temperature: ☐ Ice ☐ Refrigerated 2-6°C Recommended 2.6
Relinquished by: [signature]	Date 9/3/04	Time 6:30	Received by:	Container Count: 63
Relinquished by:	Date	Time	Received by Laboratory: [signature]	Shipping/Airbill Number:
				Custody Seal Number:

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

GROUNDWATER ANALYTICAL

Quality Assurance/Quality Control

A. Program Overview

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

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

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

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

B. Definitions

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

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

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

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

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

GROUNDWATER ANALYTICAL

Quality Control Report
Laboratory Control Samples

		LCS		LCSD	
Category:	EPA Method 8260B	Instrument ID:	MS-1 HP 5890	Instrument ID:	MS-1 HP 5890
QC Batch ID	VM1-1439-EL	Analyzed:	09-14-04 06:39	Analyzed:	09-14-04 07:15
Matrix:	Soil	Analyst:	LMG	Analyst:	LMG
Units:	ug/Kg				

CAS Number	Analyte	LCS			LCS Duplicate				QC Limits	
		Spiked	Measured	Recovery	Spiked	Measured	Recovery	RPD	Spike	RPD
75-71-8	Dichlorodifluoromethane	2,500	2,900	117 %	2,500	2,800	112 %	4 %	70 - 130 %	25%
74-87-3	Chloromethane	2,500	2,500	100 %	2,500	2,400	97 %	3 %	70 - 130 %	25%
75-01-4	Vinyl Chloride	2,500	2,800	113 %	2,500	2,700	110 %	3 %	70 - 130 %	25%
74-83-9	Bromomethane	2,500	2,900	115 %	2,500	2,800	112 %	3 %	70 - 130 %	25%
75-00-3	Chloroethane	2,500	3,200	130 %	2,500	3,100	123 %	6 %	70 - 130 %	25%
75-69-4	Trichlorofluoromethane	2,500	3,100	124 %	2,500	3,000	119 %	4 %	70 - 130 %	25%
60-29-7	Diethyl Ether	5,000	3,700	73 %	5,000	3,700	74 %	1 %	70 - 130 %	25%
75-35-4	1,1-Dichloroethene	2,500	2,700	107 %	2,500	2,600	103 %	5 %	70 - 130 %	25%
76-13-1	1,1,2-Trichlorotrifluoroethane	5,000	4,900	97 %	5,000	4,600	93 %	5 %	70 - 130 %	25%
67-64-1	Acetone	5,000	4,200	85 %	5,000	4,400	88 %	4 %	70 - 130 %	25%
75-15-0	Carbon Disulfide	5,000	3,600	73 %	5,000	3,500	70 %	4 %	70 - 130 %	25%
75-09-2	Methylene Chloride	2,500	2,500	102 %	2,500	2,500	100 %	2 %	70 - 130 %	25%
156-60-5	*trans*- 1,2-Dichloroethene	2,500	2,600	103 %	2,500	2,500	102 %	1 %	70 - 130 %	25%
1634-04-4	Methyl *tert*- butyl Ether (MTBE)	2,500	2,100	86 %	2,500	2,100	86 %	0 %	70 - 130 %	25%
75-34-3	1,1-Dichloroethane	2,500	2,600	105 %	2,500	2,600	106 %	1 %	70 - 130 %	25%
594-20-7	2,2-Dichloropropane	2,500	2,800	114 %	2,500	2,800	112 %	2 %	70 - 130 %	25%
156-59-2	*cis*- 1,2-Dichloroethene	2,500	2,600	104 %	2,500	2,600	104 %	0 %	70 - 130 %	25%
78-93-3	2-Butanone (MEK)	5,000	4,800	97 %	5,000	4,500	90 %	7 %	70 - 130 %	25%
74-97-5	Bromochloromethane	2,500	2,600	102 %	2,500	2,600	103 %	1 %	70 - 130 %	25%
109-99-9	Tetrahydrofuran (THF)	5,000	4,100	82 %	5,000	4,300	86 %	5 %	70 - 130 %	25%
67-66-3	Chloroform	2,500	2,600	105 %	2,500	2,600	103 %	2 %	70 - 130 %	25%
71-55-6	1,1,1-Trichloroethane	2,500	2,800	111 %	2,500	2,600	105 %	6 %	70 - 130 %	25%
56-23-5	Carbon Tetrachloride	2,500	2,800	111 %	2,500	2,700	109 %	2 %	70 - 130 %	25%
563-58-6	1,1-Dichloropropene	2,500	2,700	110 %	2,500	2,700	108 %	1 %	70 - 130 %	25%
71-43-2	Benzene	2,500	2,500	102 %	2,500	2,600	104 %	2 %	70 - 130 %	25%
107-06-2	1,2-Dichloroethane	2,500	2,600	104 %	2,500	2,700	106 %	2 %	70 - 130 %	25%
79-01-6	Trichloroethene	2,500	2,700	107 %	2,500	2,700	108 %	1 %	70 - 130 %	25%
78-87-5	1,2-Dichloropropane	2,500	2,600	103 %	2,500	2,600	106 %	3 %	70 - 130 %	25%
74-95-3	Dibromomethane	2,500	2,400	97 %	2,500	2,600	102 %	5 %	70 - 130 %	25%
75-27-4	Bromodichloromethane	2,500	2,600	104 %	2,500	2,600	104 %	1 %	70 - 130 %	25%
123-91-1	1,4-Dioxane	50,000	51,000	102 %	50,000	50,000	100 %	2 %	70 - 130 %	25%
10061-01-5	*cis*- 1,3-Dichloropropene	2,500	2,500	102 %	2,500	2,600	106 %	4 %	70 - 130 %	25%
108-10-1	4-Methyl-2-Pentanone (MIBK)	5,000	4,100	82 %	5,000	4,600	92 %	12 %	70 - 130 %	25%
108-88-3	Toluene	2,500	2,500	102 %	2,500	2,600	102 %	1 %	70 - 130 %	25%
10061-02-6	*trans*- 1,3-Dichloropropene	2,500	2,600	106 %	2,500	2,700	107 %	1 %	70 - 130 %	25%
79-00-5	1,1,2-Trichloroethane	2,500	2,700	107 %	2,500	2,700	109 %	2 %	70 - 130 %	25%
127-18-4	Tetrachloroethene	2,500	3,200	127 %	2,500	3,000	120 %	6 %	70 - 130 %	25%
142-28-9	1,3-Dichloropropane	2,500	2,900	117 %	2,500	2,900	115 %	2 %	70 - 130 %	25%
591-78-6	2-Hexanone	5,000	4,900	97 %	5,000	5,200	103 %	6 %	70 - 130 %	25%
124-48-1	Dibromochloromethane	2,500	2,800	111 %	2,500	2,700	109 %	2 %	70 - 130 %	25%
106-93-4	1,2-Dibromoethane (EDB)	2,500	2,800	111 %	2,500	2,800	112 %	1 %	70 - 130 %	25%
108-90-7	Chlorobenzene	2,500	2,800	110 %	2,500	2,800	112 %	1 %	70 - 130 %	25%
630-20-6	1,1,1,2-Tetrachloroethane	2,500	2,900	117 %	2,500	2,800	114 %	2 %	70 - 130 %	25%
100-41-4	Ethylbenzene	2,500	2,900	115 %	2,500	2,800	111 %	4 %	70 - 130 %	25%
108-38-3/106-42-3	*meta*- Xylene and *para*- Xylene	5,000	6,000	120 %	5,000	5,700	114 %	4 %	70 - 130 %	25%
95-47-6	*ortho*- Xylene	2,500	2,900	116 %	2,500	2,800	112 %	3 %	70 - 130 %	25%
100-42-5	Styrene	2,500	2,900	116 %	2,500	2,800	112 %	3 %	70 - 130 %	25%
75-25-2	Bromoform	2,500	2,700	108 %	2,500	2,700	107 %	1 %	70 - 130 %	25%
98-82-8	Isopropylbenzene	2,500	2,600	104 %	2,500	2,500	99 %	5 %	70 - 130 %	25%

GROUNDWATER ANALYTICAL

Quality Control Report
Laboratory Control Samples

		LCS		LCSD	
Category:	EPA Method 8260B	Instrument ID:	MS-1 HP 5890	Instrument ID:	MS-1 HP 5890
QC Batch ID	VM1-1439-EL	Analyzed:	09-14-04 06:39	Analyzed:	09-14-04 07:15
Matrix:	Soil	Analyst:	LMG	Analyst:	LMG
Units:	ug/Kg				

CAS Number	Analyte	LCS			LCS Duplicate				QC Limits	
		Spiked	Measured	Recovery	Spiked	Measured	Recovery	RPD	Spike	RPD
108-86-1	Bromobenzene	2,500	2,600	104 %	2,500	2,600	103 %	1 %	70 - 130 %	25%
79-34-5	1,1,2,2-Tetrachloroethane	2,500	2,500	99 %	2,500	2,500	100 %	1 %	70 - 130 %	25%
96-18-4	1,2,3-Trichloropropane	2,500	2,700	109 %	2,500	2,700	107 %	3 %	70 - 130 %	25%
103-65-1	*n*-Propylbenzene	2,500	2,600	105 %	2,500	2,500	99 %	5 %	70 - 130 %	25%
95-49-8	2-Chlorotoluene	2,500	2,700	108 %	2,500	2,600	105 %	3 %	70 - 130 %	25%
108-67-8	1,3,5-Trimethylbenzene	2,500	2,600	105 %	2,500	2,500	99 %	6 %	70 - 130 %	25%
106-43-4	4-Chlorotoluene	2,500	2,800	112 %	2,500	2,600	104 %	8 %	70 - 130 %	25%
98-06-6	*tert*-Butylbenzene	2,500	2,600	105 %	2,500	2,500	101 %	4 %	70 - 130 %	25%
95-63-6	1,2,4-Trimethylbenzene	2,500	2,500	102 %	2,500	2,400	97 %	5 %	70 - 130 %	25%
135-98-8	*sec*-Butylbenzene	2,500	2,500	100 %	2,500	2,400	96 %	4 %	70 - 130 %	25%
541-73-1	1,3-Dichlorobenzene	2,500	2,700	106 %	2,500	2,500	101 %	5 %	70 - 130 %	25%
99-87-6	4-Isopropyltoluene	2,500	2,600	106 %	2,500	2,600	103 %	2 %	70 - 130 %	25%
106-46-7	1,4-Dichlorobenzene	2,500	2,700	107 %	2,500	2,600	102 %	4 %	70 - 130 %	25%
95-50-1	1,2-Dichlorobenzene	2,500	2,600	102 %	2,500	2,500	98 %	4 %	70 - 130 %	25%
104-51-8	*n*-Butylbenzene	2,500	2,800	110 %	2,500	2,600	105 %	5 %	70 - 130 %	25%
96-12-8	1,2-Dibromo-3-chloropropane	2,500	2,500	99 %	2,500	2,400	97 %	1 %	70 - 130 %	25%
120-82-1	1,2,4-Trichlorobenzene	2,500	2,900	115 %	2,500	2,600	104 %	10 %	70 - 130 %	25%
87-68-3	Hexachlorobutadiene	2,500	3,000	120 %	2,500	2,700	109 %	10 %	70 - 130 %	25%
91-20-3	Naphthalene	2,500	2,500	99 %	2,500	2,500	100 %	1 %	70 - 130 %	25%
87-61-6	1,2,3-Trichlorobenzene	2,500	2,600	105 %	2,500	2,600	105 %	0 %	70 - 130 %	25%
75-65-0	*tert*-Butyl Alcohol (TBA)	50,000	44,000	88 %	50,000	47,000	94 %	7 %	70 - 130 %	25%
108-20-3	Di-isopropyl Ether (DIPE)	2,500	2,600	104 %	2,500	2,700	107 %	3 %	70 - 130 %	25%
637-92-3	Ethyl *tert*-butyl Ether (ETBE)	2,500	2,500	100 %	2,500	2,600	105 %	4 %	70 - 130 %	25%
994-05-8	*tert*-Amyl Methyl Ether (TAME)	2,500	2,400	94 %	2,500	2,500	99 %	5 %	70 - 130 %	25%

QC Surrogate Compound	Spiked	Measured	Recovery	Spiked	Measured	Recovery		QC Limits
Dibromofluoromethane	2,500	2,000	81 %	2,500	1,900	77 %		70 - 130 %
1,2-Dichloroethane-d_4	2,500	2,000	81 %	2,500	1,900	76 %		70 - 130 %
Toluene-d_8	2,500	2,200	88 %	2,500	2,100	82 %		70 - 130 %
4-Bromofluorobenzene	2,500	2,200	88 %	2,500	2,000	81 %		70 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Sample preparation performed by EPA Method 5030B.

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

GROUNDWATER ANALYTICAL

Quality Control Report
Method Blank

Category: **EPA Method 8260B**
QC Batch ID: **VM1-1439-EB**
Matrix: **Soil**

Instrument ID: **MS-1 HP 5890**
Analyzed: **09-14-04 07:51**
Analyst: **LMG**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
75-71-8	Dichlorodifluoromethane	BRL		ug/Kg	500
74-87-3	Chloromethane	BRL		ug/Kg	500
75-01-4	Vinyl Chloride	BRL		ug/Kg	500
74-83-9	Bromomethane	BRL		ug/Kg	500
75-00-3	Chloroethane	BRL		ug/Kg	500
75-69-4	Trichlorofluoromethane	BRL		ug/Kg	500
60-29-7	Diethyl Ether	BRL		ug/Kg	500
75-35-4	1,1-Dichloroethene	BRL		ug/Kg	250
76-13-1	1,1,2-Trichlorotrifluoroethane	BRL		ug/Kg	2,500
67-64-1	Acetone	BRL		ug/Kg	2,500
75-15-0	Carbon Disulfide	BRL		ug/Kg	2,500
75-09-2	Methylene Chloride	BRL		ug/Kg	1,000
156-60-5	*trans*- 1,2-Dichloroethene	BRL		ug/Kg	250
1634-04-4	Methyl *tert*- butyl Ether (MTBE)	BRL		ug/Kg	250
75-34-3	1,1-Dichloroethane	BRL		ug/Kg	250
594-20-7	2,2-Dichloropropane	BRL		ug/Kg	250
156-59-2	*cis*- 1,2-Dichloroethene	BRL		ug/Kg	250
78-93-3	2-Butanone (MEK)	BRL		ug/Kg	2,500
74-97-5	Bromochloromethane	BRL		ug/Kg	250
109-99-9	Tetrahydrofuran (THF)	BRL		ug/Kg	2,500
67-66-3	Chloroform	BRL		ug/Kg	250
71-55-6	1,1,1-Trichloroethane	BRL		ug/Kg	250
56-23-5	Carbon Tetrachloride	BRL		ug/Kg	250
563-58-6	1,1-Dichloropropene	BRL		ug/Kg	250
71-43-2	Benzene	BRL		ug/Kg	250
107-06-2	1,2-Dichloroethane	BRL		ug/Kg	250
79-01-6	Trichloroethene	BRL		ug/Kg	250
78-87-5	1,2-Dichloropropane	BRL		ug/Kg	250
74-95-3	Dibromomethane	BRL		ug/Kg	250
75-27-4	Bromodichloromethane	BRL		ug/Kg	250
123-91-1	1,4-Dioxane	BRL		ug/Kg	250,000
10061-01-5	*cis*- 1,3-Dichloropropene	BRL		ug/Kg	250
108-10-1	4-Methyl-2-Pentanone (MIBK)	BRL		ug/Kg	2,500
108-88-3	Toluene	BRL		ug/Kg	250
10061-02-6	*trans*- 1,3-Dichloropropene	BRL		ug/Kg	250
79-00-5	1,1,2-Trichloroethane	BRL		ug/Kg	250
127-18-4	Tetrachloroethene	BRL		ug/Kg	250
142-28-9	1,3-Dichloropropane	BRL		ug/Kg	250
591-78-6	2-Hexanone	BRL		ug/Kg	2,500
124-48-1	Dibromochloromethane	BRL		ug/Kg	250
106-93-4	1,2-Dibromoethane (EDB)	BRL		ug/Kg	250
108-90-7	Chlorobenzene	BRL		ug/Kg	250
630-20-6	1,1,1,2-Tetrachloroethane	BRL		ug/Kg	250
100-41-4	Ethylbenzene	BRL		ug/Kg	250
108-38-3/106-42-3	*meta*- Xylene and *para*- Xylene	BRL		ug/Kg	250
95-47-6	*ortho*- Xylene	BRL		ug/Kg	250
100-42-5	Styrene	BRL		ug/Kg	250
75-25-2	Bromoform	BRL		ug/Kg	250
98-82-8	Isopropylbenzene	BRL		ug/Kg	250

GROUNDWATER ANALYTICAL

Quality Control Report
Method Blank

Category: **EPA Method 8260B**
QC Batch ID: **VM1-1439-EB**
Matrix: **Soil**

Instrument ID: **MS-1 HP 5890**
Analyzed: **09-14-04 07:51**
Analyst: **LMG**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
108-86-1	Bromobenzene	BRL		ug/Kg	250
79-34-5	1,1,2,2-Tetrachloroethane	BRL		ug/Kg	250
96-18-4	1,2,3-Trichloropropane	BRL		ug/Kg	250
103-65-1	*n*-Propylbenzene	BRL		ug/Kg	250
95-49-8	2-Chlorotoluene	BRL		ug/Kg	250
108-67-8	1,3,5-Trimethylbenzene	BRL		ug/Kg	250
106-43-4	4-Chlorotoluene	BRL		ug/Kg	250
98-06-6	*tert*-Butylbenzene	BRL		ug/Kg	250
95-63-6	1,2,4-Trimethylbenzene	BRL		ug/Kg	250
135-98-8	*sec*-Butylbenzene	BRL		ug/Kg	250
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	250
99-87-6	4-Isopropyltoluene	BRL		ug/Kg	250
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	250
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	250
104-51-8	*n*-Butylbenzene	BRL		ug/Kg	250
96-12-8	1,2-Dibromo-3-chloropropane	BRL		ug/Kg	250
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	250
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	250
91-20-3	Naphthalene	BRL		ug/Kg	250
87-61-6	1,2,3-Trichlorobenzene	BRL		ug/Kg	250
75-65-0	*tert*-Butyl Alcohol (TBA)	BRL		ug/Kg	10,000
108-20-3	Di-isopropyl Ether (DIPE)	BRL		ug/Kg	250
637-92-3	Ethyl *tert*-butyl Ether (ETBE)	BRL		ug/Kg	250
994-05-8	*tert*-Amyl Methyl Ether (TAME)	BRL		ug/Kg	250

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
Dibromofluoromethane	2,500	2,100	**84 %**	70 - 130 %
1,2-Dichloroethane-d_4	2,500	1,900	**75 %**	70 - 130 %
Toluene-d_8	2,500	2,200	**88 %**	70 - 130 %
4-Bromofluorobenzene	2,500	2,200	**88 %**	70 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Sample preparation performed by EPA Method 5035A and EPA 5030B.

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

GROUNDWATER ANALYTICAL

Quality Control Report
Laboratory Control Samples

		LCS		LCSD	
Category:	EPA Method 8260B	Instrument ID:	MS-2 HP 5890	Instrument ID:	MS-2 HP 5890
QC Batch ID:	VM2-2703-SL	Analyzed:	09-16-04 06:17	Analyzed:	09-16-04 06:54
Matrix:	Soil	Analyst:	LMG	Analyst:	LMG
Units:	ug/Kg				

CAS Number	Analyte	LCS			LCS Duplicate				QC Limits	
		Spiked	Measured	Recovery	Spiked	Measured	Recovery	RPD	Spike	RPD
75-71-8	Dichlorodifluoromethane	50	43	86 %	50	38	77 %	11 %	70 - 130 %	25%
74-87-3	Chloromethane	50	46	93 %	50	39	78 %	17 %	70 - 130 %	25%
75-01-4	Vinyl Chloride	50	45	90 %	50	43	87 %	3 %	70 - 130 %	25%
74-83-9	Bromomethane	50	45	90 %	50	46	91 %	2 %	70 - 130 %	25%
75-00-3	Chloroethane	50	52	104 %	50	53	106 %	2 %	70 - 130 %	25%
75-69-4	Trichlorofluoromethane	50	44	88 %	50	42	83 %	5 %	70 - 130 %	25%
60-29-7	Diethyl Ether	100	95	95 %	100	100	101 %	6 %	70 - 130 %	25%
75-35-4	1,1-Dichloroethene	50	47	93 %	50	48	97 %	4 %	70 - 130 %	25%
76-13-1	1,1,2-Trichlorotrifluoroethane	100	100	102 %	100	100	102 %	1 %	70 - 130 %	25%
67-64-1	Acetone	100	100	103 %	100	120	123 %	17 %	70 - 130 %	25%
75-15-0	Carbon Disulfide	100	89	89 %	100	92	92 %	3 %	70 - 130 %	25%
75-09-2	Methylene Chloride	50	45	91 %	50	47	94 %	4 %	70 - 130 %	25%
156-60-5	*trans*- 1,2-Dichloroethene	50	45	89 %	50	48	96 %	7 %	70 - 130 %	25%
1634-04-4	Methyl *tert*- butyl Ether (MTBE)	50	44	88 %	50	48	96 %	9 %	70 - 130 %	25%
75-34-3	1,1-Dichloroethane	50	47	94 %	50	47	94 %	0 %	70 - 130 %	25%
594-20-7	2,2-Dichloropropane	50	49	98 %	50	52	103 %	5 %	70 - 130 %	25%
156-59-2	*cis*- 1,2-Dichloroethene	50	48	96 %	50	49	98 %	2 %	70 - 130 %	25%
78-93-3	2-Butanone (MEK)	100	110	113 %	100	120	119 %	5 %	70 - 130 %	25%
74-97-5	Bromochloromethane	50	45	91 %	50	49	98 %	8 %	70 - 130 %	25%
109-99-9	Tetrahydrofuran (THF)	100	120	117 %	100	110	114 %	2 %	70 - 130 %	25%
67-66-3	Chloroform	50	45	90 %	50	47	94 %	4 %	70 - 130 %	25%
71-55-6	1,1,1-Trichloroethane	50	46	92 %	50	46	92 %	0 %	70 - 130 %	25%
56-23-5	Carbon Tetrachloride	50	46	91 %	50	45	91 %	1 %	70 - 130 %	25%
563-58-6	1,1-Dichloropropene	50	51	102 %	50	52	104 %	2 %	70 - 130 %	25%
71-43-2	Benzene	50	51	101 %	50	52	104 %	3 %	70 - 130 %	25%
107-06-2	1,2-Dichloroethane	50	44	88 %	50	49	97 %	10 %	70 - 130 %	25%
79-01-6	Trichloroethene	50	46	93 %	50	47	94 %	2 %	70 - 130 %	25%
78-87-5	1,2-Dichloropropane	50	50	101 %	50	54	108 %	7 %	70 - 130 %	25%
74-95-3	Dibromomethane	50	47	93 %	50	48	96 %	3 %	70 - 130 %	25%
75-27-4	Bromodichloromethane	50	47	94 %	50	48	95 %	1 %	70 - 130 %	25%
123-91-1	1,4-Dioxane	1,000	1,100	108 %	1,000	1,400	140 % q	26 % q	70 - 130 %	25%
10061-01-5	*cis*- 1,3-Dichloropropene	50	50	100 %	50	53	106 %	6 %	70 - 130 %	25%
108-10-1	4-Methyl-2-Pentanone (MIBK)	100	92	92 %	100	110	107 %	15 %	70 - 130 %	25%
108-88-3	Toluene	50	49	98 %	50	52	103 %	5 %	70 - 130 %	25%
10061-02-6	*trans*- 1,3-Dichloropropene	50	48	97 %	50	50	100 %	3 %	70 - 130 %	25%
79-00-5	1,1,2-Trichloroethane	50	49	97 %	50	51	102 %	4 %	70 - 130 %	25%
127-18-4	Tetrachloroethene	50	52	104 %	50	51	102 %	2 %	70 - 130 %	25%
142-28-9	1,3-Dichloropropane	50	55	111 %	50	56	113 %	2 %	70 - 130 %	25%
591-78-6	2-Hexanone	100	110	107 %	100	120	119 %	11 %	70 - 130 %	25%
124-48-1	Dibromochloromethane	50	48	97 %	50	48	96 %	0 %	70 - 130 %	25%
106-93-4	1,2-Dibromoethane (EDB)	50	50	100 %	50	50	100 %	0 %	70 - 130 %	25%
108-90-7	Chlorobenzene	50	52	104 %	50	51	102 %	2 %	70 - 130 %	25%
630-20-6	1,1,1,2-Tetrachloroethane	50	48	95 %	50	49	97 %	2 %	70 - 130 %	25%
100-41-4	Ethylbenzene	50	52	104 %	50	52	103 %	1 %	70 - 130 %	25%
108-38-3/106-42-3	*meta*- Xylene and *para*- Xylene	100	110	109 %	100	100	100 %	9 %	70 - 130 %	25%
95-47-6	*ortho*- Xylene	50	54	109 %	50	52	105 %	4 %	70 - 130 %	25%
100-42-5	Styrene	50	55	109 %	50	53	105 %	3 %	70 - 130 %	25%
75-25-2	Bromoform	50	48	97 %	50	48	97 %	0 %	70 - 130 %	25%
98-82-8	Isopropylbenzene	50	51	103 %	50	50	100 %	3 %	70 - 130 %	25%

GROUNDWATER ANALYTICAL

Quality Control Report
Laboratory Control Samples

		LCS		LCSD	
Category:	EPA Method 8260B	Instrument ID:	MS-2 HP 5890	Instrument ID:	MS-2 HP 5890
QC Batch ID:	VM2-2703-SL	Analyzed:	09-16-04 06:17	Analyzed:	09-16-04 06:54
Matrix:	Soil	Analyst:	LMG	Analyst:	LMG
Units:	ug/Kg				

CAS Number	Analyte	LCS			LCS Duplicate				QC Limits	
		Spiked	Measured	Recovery	Spiked	Measured	Recovery	RPD	Spike	RPD
108-86-1	Bromobenzene	50	51	102 %	50	53	106 %	4 %	70 - 130 %	25%
79-34-5	1,1,2,2-Tetrachloroethane	50	55	109 %	50	56	112 %	3 %	70 - 130 %	25%
96-18-4	1,2,3-Trichloropropane	50	55	110 %	50	53	106 %	4 %	70 - 130 %	25%
103-65-1	*n*-Propylbenzene	50	53	105 %	50	52	103 %	2 %	70 - 130 %	25%
95-49-8	2-Chlorotoluene	50	51	103 %	50	51	102 %	1 %	70 - 130 %	25%
108-67-8	1,3,5-Trimethylbenzene	50	53	107 %	50	54	107 %	0 %	70 - 130 %	25%
106-43-4	4-Chlorotoluene	50	53	106 %	50	52	105 %	1 %	70 - 130 %	25%
98-06-6	*tert*-Butylbenzene	50	50	100 %	50	50	99 %	1 %	70 - 130 %	25%
95-63-6	1,2,4-Trimethylbenzene	50	53	106 %	50	53	105 %	1 %	70 - 130 %	25%
135-98-8	*sec*-Butylbenzene	50	52	103 %	50	51	102 %	1 %	70 - 130 %	25%
541-73-1	1,3-Dichlorobenzene	50	54	107 %	50	53	106 %	1 %	70 - 130 %	25%
99-87-6	4-Isopropyltoluene	50	53	105 %	50	51	103 %	3 %	70 - 130 %	25%
106-46-7	1,4-Dichlorobenzene	50	54	107 %	50	53	106 %	1 %	70 - 130 %	25%
95-50-1	1,2-Dichlorobenzene	50	53	106 %	50	52	104 %	2 %	70 - 130 %	25%
104-51-8	*n*-Butylbenzene	50	54	109 %	50	52	105 %	4 %	70 - 130 %	25%
96-12-8	1,2-Dibromo-3-chloropropane	50	47	94 %	50	50	101 %	7 %	70 - 130 %	25%
120-82-1	1,2,4-Trichlorobenzene	50	57	113 %	50	59	117 %	3 %	70 - 130 %	25%
87-68-3	Hexachlorobutadiene	50	51	101 %	50	52	103 %	2 %	70 - 130 %	25%
91-20-3	Naphthalene	50	51	103 %	50	55	110 %	7 %	70 - 130 %	25%
87-61-6	1,2,3-Trichlorobenzene	50	53	106 %	50	57	114 %	8 %	70 - 130 %	25%
75-65-0	*tert*-Butyl Alcohol (TBA)	1,000	960	96 %	1,000	1,100	108 %	12 %	70 - 130 %	25%
108-20-3	Di-isopropyl Ether (DIPE)	50	52	105 %	50	56	112 %	7 %	70 - 130 %	25%
637-92-3	Ethyl *tert*-butyl Ether (ETBE)	50	46	93 %	50	50	100 %	8 %	70 - 130 %	25%
994-05-8	*tert*-Amyl Methyl Ether (TAME)	50	49	99 %	50	52	103 %	4 %	70 - 130 %	25%

QC Surrogate Compound	Spiked	Measured	Recovery	Spiked	Measured	Recovery		QC Limits
Dibromofluoromethane	50	38	76 %	50	41	82 %		70 - 130 %
1,2-Dichloroethane-d_4	50	42	83 %	50	43	86 %		70 - 130 %
Toluene-d_8	50	42	84 %	50	47	94 %		70 - 130 %
4-Bromofluorobenzene	50	46	93 %	50	50	99 %		70 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Sample preparation performed by EPA Method 5030B.

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

q Recovery outside recommended limits.

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GROUNDWATER ANALYTICAL

Quality Control Report
Method Blank

Category: **EPA Method 8260B**
QC Batch ID: **VM2-2703-SB**
Matrix: **Soil**

Instrument ID: **MS-2 HP 5890**
Analyzed: **09-16-04 07:31**
Analyst: **LMG**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
75-71-8	Dichlorodifluoromethane	BRL		ug/Kg	10
74-87-3	Chloromethane	BRL		ug/Kg	10
75-01-4	Vinyl Chloride	BRL		ug/Kg	10
74-83-9	Bromomethane	BRL		ug/Kg	10
75-00-3	Chloroethane	BRL		ug/Kg	10
75-69-4	Trichlorofluoromethane	BRL		ug/Kg	10
60-29-7	Diethyl Ether	BRL		ug/Kg	10
75-35-4	1,1-Dichloroethene	BRL		ug/Kg	5
76-13-1	1,1,2-Trichlorotrifluoroethane	BRL		ug/Kg	50
67-64-1	Acetone	BRL		ug/Kg	200
75-15-0	Carbon Disulfide	BRL		ug/Kg	50
75-09-2	Methylene Chloride	BRL		ug/Kg	50
156-60-5	*trans*- 1,2-Dichloroethene	BRL		ug/Kg	5
1634-04-4	Methyl *tert*- butyl Ether (MTBE)	BRL		ug/Kg	5
75-34-3	1,1-Dichloroethane	BRL		ug/Kg	5
594-20-7	2,2-Dichloropropane	BRL		ug/Kg	5
156-59-2	*cis*- 1,2-Dichloroethene	BRL		ug/Kg	5
78-93-3	2-Butanone (MEK)	BRL		ug/Kg	50
74-97-5	Bromochloromethane	BRL		ug/Kg	5
109-99-9	Tetrahydrofuran (THF)	BRL		ug/Kg	50
67-66-3	Chloroform	BRL		ug/Kg	5
71-55-6	1,1,1-Trichloroethane	BRL		ug/Kg	5
56-23-5	Carbon Tetrachloride	BRL		ug/Kg	5
563-58-6	1,1-Dichloropropene	BRL		ug/Kg	5
71-43-2	Benzene	BRL		ug/Kg	5
107-06-2	1,2-Dichloroethane	BRL		ug/Kg	5
79-01-6	Trichloroethene	BRL		ug/Kg	5
78-87-5	1,2-Dichloropropane	BRL		ug/Kg	5
74-95-3	Dibromomethane	BRL		ug/Kg	5
75-27-4	Bromodichloromethane	BRL		ug/Kg	5
123-91-1	1,4-Dioxane	BRL		ug/Kg	5,000
10061-01-5	*cis*- 1,3-Dichloropropene	BRL		ug/Kg	5
108-10-1	4-Methyl-2-Pentanone (MIBK)	BRL		ug/Kg	50
108-88-3	Toluene	BRL		ug/Kg	5
10061-02-6	*trans*- 1,3-Dichloropropene	BRL		ug/Kg	5
79-00-5	1,1,2-Trichloroethane	BRL		ug/Kg	5
127-18-4	Tetrachloroethene	BRL		ug/Kg	5
142-28-9	1,3-Dichloropropane	BRL		ug/Kg	5
591-78-6	2-Hexanone	BRL		ug/Kg	50
124-48-1	Dibromochloromethane	BRL		ug/Kg	5
106-93-4	1,2-Dibromoethane (EDB)	BRL		ug/Kg	5
108-90-7	Chlorobenzene	BRL		ug/Kg	5
630-20-6	1,1,1,2-Tetrachloroethane	BRL		ug/Kg	5
100-41-4	Ethylbenzene	BRL		ug/Kg	5
108-38-3/106-42-3	*meta*- Xylene and *para*- Xylene	BRL		ug/Kg	5
95-47-6	*ortho*- Xylene	BRL		ug/Kg	5
100-42-5	Styrene	BRL		ug/Kg	5
75-25-2	Bromoform	BRL		ug/Kg	5
98-82-8	Isopropylbenzene	BRL		ug/Kg	5

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

GROUNDWATER ANALYTICAL

Quality Control Report
Method Blank

Category:	**EPA Method 8260B**	Instrument ID:	**MS-2 HP 5890**
QC Batch ID:	**VM2-2703-SB**	Analyzed:	**09-16-04 07:31**
Matrix:	**Soil**	Analyst:	**LMG**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
108-86-1	Bromobenzene	BRL		ug/Kg	5
79-34-5	1,1,2,2-Tetrachloroethane	BRL		ug/Kg	5
96-18-4	1,2,3-Trichloropropane	BRL		ug/Kg	5
103-65-1	*n*-Propylbenzene	BRL		ug/Kg	5
95-49-8	2-Chlorotoluene	BRL		ug/Kg	5
108-67-8	1,3,5-Trimethylbenzene	BRL		ug/Kg	5
106-43-4	4-Chlorotoluene	BRL		ug/Kg	5
98-06-6	*tert*-Butylbenzene	BRL		ug/Kg	5
95-63-6	1,2,4-Trimethylbenzene	BRL		ug/Kg	5
135-98-8	*sec*-Butylbenzene	BRL		ug/Kg	5
541-73-1	1,3-Dichlorobenzene	BRL		ug/Kg	5
99-87-6	4-Isopropyltoluene	BRL		ug/Kg	5
106-46-7	1,4-Dichlorobenzene	BRL		ug/Kg	5
95-50-1	1,2-Dichlorobenzene	BRL		ug/Kg	5
104-51-8	*n*-Butylbenzene	BRL		ug/Kg	5
96-12-8	1,2-Dibromo-3-chloropropane	BRL		ug/Kg	5
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/Kg	5
87-68-3	Hexachlorobutadiene	BRL		ug/Kg	5
91-20-3	Naphthalene	BRL		ug/Kg	5
87-61-6	1,2,3-Trichlorobenzene	BRL		ug/Kg	5
75-65-0	*tert*-Butyl Alcohol (TBA)	BRL		ug/Kg	200
108-20-3	Di-isopropyl Ether (DIPE)	BRL		ug/Kg	5
637-92-3	Ethyl *tert*-butyl Ether (ETBE)	BRL		ug/Kg	5
994-05-8	*tert*-Amyl Methyl Ether (TAME)	BRL		ug/Kg	5

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
Dibromofluoromethane	50	38	**76 %**	70 - 130 %
1,2-Dichloroethane-d_4	50	39	**78 %**	70 - 130 %
Toluene-d_8	50	40	**81 %**	70 - 130 %
4-Bromofluorobenzene	50	46	**91 %**	70 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Sample preparation performed by EPA Method 5035A.

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

GROUNDWATER ANALYTICAL

Quality Control Report
Laboratory Control Samples

		LCS		LCSD	
Category:	MA DEP VPH	Instrument ID:	GC-10 HP 5890	Instrument ID:	GC-10 HP 5890
QC Batch ID:	VG10-2179-E	Analyzed:	09-14-04 10:54	Analyzed:	09-14-04 21:36
Matrix:	Soil	Analyst:	PO	Analyst:	PO
Units:	ug/Kg				

CAS Number	Analyte	LCS			LCS Duplicate				QC Limits	
		Spiked	Measured	Recovery	Spiked	Measured	Recovery	RPD	Spike	RPD
109-66-0	*n*- Pentane	2.5	2.8	**110 %**	2.5	2.8	**111 %**	**0 %**	70 - 130 %	25%
107-83-5	2-Methylpentane	2.5	2.6	**105 %**	2.5	2.7	**106 %**	**0 %**	70 - 130 %	25%
540-84-1	2,2,4-Trimethylpentane	2.5	2.5	**101 %**	2.5	2.6	**103 %**	**1 %**	70 - 130 %	25%
n/a	Aliphatic Group 1	7.5	7.9	**105 %**	7.5	8.0	**107 %**	**0 %**	70 - 130 %	25%
111-84-2	*n*- Nonane	2.5	2.2	**86 %**	2.5	2.2	**88 %**	**0 %**	70 - 130 %	25%
124-18-5	*n*- Decane	2.5	2.4	**97 %**	2.5	2.2	**90 %**	**2 %**	70 - 130 %	25%
1678-93-9	*n*- Butylcyclohexane	2.5	2.3	**92 %**	2.5	2.3	**94 %**	**0 %**	70 - 130 %	25%
n/a	Aliphatic Group 2	7.5	6.9	**92 %**	7.5	6.8	**91 %**	**0 %**	70 - 130 %	25%
1634-04-4	Methyl *tert*-butyl Ether	2.5	2.3	**94 %**	2.5	2.5	**100 %**	**2 %**	70 - 130 %	25%
71-43-2	Benzene	2.5	2.4	**95 %**	2.5	2.4	**98 %**	**1 %**	70 - 130 %	25%
108-88-3	Toluene	2.5	2.4	**94 %**	2.5	2.4	**97 %**	**1 %**	70 - 130 %	25%
100-41-4	Ethylbenzene	2.5	2.3	**92 %**	2.5	2.4	**98 %**	**1 %**	70 - 130 %	25%
108-38-3 and 106-42-3	*meta*- Xylene and *para*-Xylene	5.0	4.6	**92 %**	5.0	4.8	**95 %**	**1 %**	70 - 130 %	25%
95-47-6	*ortho*- Xylene	2.5	2.3	**94 %**	2.5	2.5	**98 %**	**1 %**	70 - 130 %	25%
95-63-6	1,2,4-Trimethylbenzene	2.5	2.3	**94 %**	2.5	2.4	**98 %**	**1 %**	70 - 130 %	25%
91-20-3	Naphthalene	2.5	2.0	**78 %**	2.5	2.2	**89 %**	**3 %**	70 - 130 %	25%
n/a	Aromatic Group	23	21	**92 %**	23	22	**97 %**	**1 %**	70 - 130 %	25%

QC Surrogate Compound	Spiked	Measured	Recovery	Spiked	Measured	Recovery		QC Limits
2,5-Dibromotoluene (PID)	5.0	4.6	**92 %**	5.0	4.7	**95 %**		70 - 130 %
2,5-Dibromotoluene (FID)	5.0	4.7	**94 %**	5.0	4.8	**96 %**		70 - 130 %

Method Reference: Method for the Determination of Volatile Petroleum Hydrocarbons, MA DEP (Revision 1.1, 2004).

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

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GROUNDWATER ANALYTICAL

Quality Control Report
Method Blank

Category:	**MA DEP VPH**	Instrument ID:	**GC-10 Agilent 6890**
QC Batch ID:	**VG10-2179-E**	Analyzed:	**09-14-04 11:34**
Matrix:	**Soil**	Analyst:	**PO**

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

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

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
2,5-Dibromotoluene (PID)	5.0	4.6	**92 %**	70 - 130 %
2,5-Dibromotoluene (FID)	5.0	5.0	**99 %**	70 - 130 %

Method Reference: Method for the Determination of Volatile Petroleum Hydrocarbons, MA DEP (Revision 1.1, 2004).

Report Notations:

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

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

◊ n-C5 to n-C8 Aliphatic Hydrocarbons range data excludes the method target analyte concentrations.

⊗ n-C9 to n-C12 Aliphatic Hydrocarbons range data excludes the method target analyte concentrations and the concentration for the n-C9 to n-C10 Aromatic Hydrocarbons range.

¤ Analyte elutes in the n-C5 to n-C8 Aliphatic Hydrocarbons range.

‡ Analyte elutes in the n-C9 to n-C12 Aliphatic Hydrocarbons range.

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

GROUNDWATER ANALYTICAL

Quality Control Report
Laboratory Control Samples

		LCS		LCSD	
Category:	MA DEP VPH	Instrument ID:	GC-10 HP 5890	Instrument ID:	GC-10 HP 5890
QC Batch ID:	VG10-2180-E	Analyzed:	09-15-04 10:02	Analyzed:	09-15-04 20:07
Matrix:	Soil	Analyst:	PO	Analyst:	PO
Units:	ug/Kg				

CAS Number	Analyte	LCS			LCS Duplicate				QC Limits	
		Spiked	Measured	Recovery	Spiked	Measured	Recovery	RPD	Spike	RPD
109-66-0	*n*- Pentane	2.5	2.7	**108 %**	2.5	2.8	**111 %**	**1 %**	70 - 130 %	25%
107-83-5	2-Methylpentane	2.5	2.6	**104 %**	2.5	2.7	**108 %**	**1 %**	70 - 130 %	25%
540-84-1	2,2,4-Trimethylpentane	2.5	2.5	**100 %**	2.5	2.7	**107 %**	**2 %**	70 - 130 %	25%
n/a	Aliphatic Group 1	7.5	7.8	**104 %**	7.5	8.2	**109 %**	**1 %**	70 - 130 %	25%
111-84-2	*n*- Nonane	2.5	2.1	**86 %**	2.5	2.3	**92 %**	**2 %**	70 - 130 %	25%
124-18-5	*n*- Decane	2.5	2.4	**94 %**	2.5	2.2	**90 %**	**1 %**	70 - 130 %	25%
1678-93-9	*n*- Butylcyclohexane	2.5	2.3	**91 %**	2.5	2.4	**98 %**	**2 %**	70 - 130 %	25%
n/a	Aliphatic Group 2	7.5	6.8	**90 %**	7.5	7.0	**93 %**	**1 %**	70 - 130 %	25%
1634-04-4	Methyl *tert*-butyl Ether	2.5	2.5	**101 %**	2.5	2.7	**107 %**	**2 %**	70 - 130 %	25%
71-43-2	Benzene	2.5	2.4	**98 %**	2.5	2.5	**100 %**	**0 %**	70 - 130 %	25%
108-88-3	Toluene	2.5	2.4	**98 %**	2.5	2.5	**100 %**	**0 %**	70 - 130 %	25%
100-41-4	Ethylbenzene	2.5	2.5	**98 %**	2.5	2.5	**101 %**	**1 %**	70 - 130 %	25%
108-38-3 and 106-42-3	*meta*- Xylene and *para*-Xylene	5.0	4.8	**96 %**	5.0	4.9	**97 %**	**0 %**	70 - 130 %	25%
95-47-6	*ortho*- Xylene	2.5	2.5	**99 %**	2.5	2.5	**101 %**	**0 %**	70 - 130 %	25%
95-63-6	1,2,4-Trimethylbenzene	2.5	2.5	**98 %**	2.5	2.5	**101 %**	**1 %**	70 - 130 %	25%
91-20-3	Naphthalene	2.5	2.3	**90 %**	2.5	2.7	**107 %**	**4 %**	70 - 130 %	25%
n/a	Aromatic Group	23	22	**97 %**	23	23	**101 %**	**1 %**	70 - 130 %	25%

QC Surrogate Compound	Spiked	Measured	Recovery	Spiked	Measured	Recovery		QC Limits
2,5-Dibromotoluene (PID)	5.0	5.3	**106 %**	5.0	5.3	**106 %**		70 - 130 %
2,5-Dibromotoluene (FID)	5.0	5.0	**101 %**	5.0	5.5	**110 %**		70 - 130 %

Method Reference: Method for the Determination of Volatile Petroleum Hydrocarbons, MA DEP (Revision 1.1, 2004).

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

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

GROUNDWATER ANALYTICAL

Quality Control Report
Method Blank

Category:	**MA DEP VPH**	Instrument ID:	**GC-10 Agilent 6890**
QC Batch ID:	**VG10-2180-E**	Analyzed:	**09-15-04 10:42**
Matrix:	**Soil**	Analyst:	**PO**

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

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

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
2,5-Dibromotoluene (PID)	5.0	5.1	**102** %	70 - 130 %
2,5-Dibromotoluene (FID)	5.0	5.3	**107** %	70 - 130 %

Method Reference: Method for the Determination of Volatile Petroleum Hydrocarbons, MA DEP (Revision 1.1, 2004).

Report Notations:

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

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

◊ n-C5 to n-C8 Aliphatic Hydrocarbons range data excludes the method target analyte concentrations.

⊗ n-C9 to n-C12 Aliphatic Hydrocarbons range data excludes the method target analyte concentrations and the concentration for the n-C9 to n-C10 Aromatic Hydrocarbons range.

¤ Analyte elutes in the n-C5 to n-C8 Aliphatic Hydrocarbons range.

‡ Analyte elutes in the n-C9 to n-C12 Aliphatic Hydrocarbons range.

GROUNDWATER ANALYTICAL

Quality Control Report
Laboratory Control Samples

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

Sample Type	Method	QC Batch ID	Prep Method	Prepared	Analyzed	Instrument ID	Analyst
LCS	EPA 6010B	MB-0439-SL	EPA 3050B	09-07-04 09:30	09-07-04 17:59	ICP-1 PE 3000	CRL
LCS	EPA 7471A	MP-1656-SL	EPA 7471A	09-09-04 11:30	09-09-04 16:09	CVAA-1 PE FIMS	CRL
LCSD	EPA 6010B	MB-0439-SL	EPA 3050B	09-07-04 09:30	09-08-04 11:16	ICP-1 PE 3000	CRL
LCSD	EPA 7471A	MP-1656-SL	EPA 7471A	09-09-04 11:30	09-09-04 16:12	CVAA-1 PE FIMS	CRL

CAS Number	Analyte	LCS			LCS Duplicate				QC Limits		Method
		Spiked	Measured	Recovery	Spiked	Measured	Recovery	RPD	LCS	RPD	
7440-38-2	Arsenic	160	160	**96%**	160	140	**87%**	5 %	80-120 %	30 %	EPA 6010B
7440-39-3	Barium	250	230	**93%**	250	210	**82%**	6 %	82-118 %	30 %	EPA 6010B
7440-43-9	Cadmium	130	120	**95%**	130	110	**87%**	4 %	81-119 %	30 %	EPA 6010B
7440-47-3	Chromium	70	68	**98%**	70	62	**90%**	4 %	79-121 %	30 %	EPA 6010B
7439-92-1	Lead	140	130	**90%**	140	120	**84%**	3 %	80-120 %	30 %	EPA 6010B
7439-97-6	Mercury	17	19	**112%**	17	17	**101%**	5 %	68-132 %	30 %	EPA 7471A
7782-49-2	Selenium	64	64	**99%**	64	56	**87%**	6 %	76-124 %	30 %	EPA 6010B
7440-22-4	Silver	130	130	**104%**	130	120	**95%**	5 %	53-147 %	30 %	EPA 6010B

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

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

GROUNDWATER ANALYTICAL

Quality Control Report
Method Blank

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

Analysis Method	QC Batch ID	Prep Method	Prepared	Sample Volume	Instrument ID	Analyst
EPA 6010B	MB-0439-SB	EPA 3050B	09-07-04 09:30	0.5 g	ICP-1 PE 3000	CRL
EPA 7471A	MP-1656-SB	EPA 7471A	09-09-04 11:30	0.6 g	CVAA-1 PE FIMS	CRL

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit	DF	Analyzed	Method
7440-38-2	Arsenic	BRL		mg/Kg	1.0	1	09-08-04 11:12	EPA 6010B
7440-39-3	Barium	BRL		mg/Kg	20	1	09-08-04 11:12	EPA 6010B
7440-43-9	Cadmium	BRL		mg/Kg	0.50	1	09-08-04 11:12	EPA 6010B
7440-47-3	Chromium	BRL		mg/Kg	10	1	09-08-04 11:12	EPA 6010B
7439-92-1	Lead	BRL		mg/Kg	10	1	09-08-04 11:12	EPA 6010B
7439-97-6	Mercury	BRL		mg/Kg	0.033	1	09-09-04 16:09	EPA 7471A
7782-49-2	Selenium	BRL		mg/Kg	10	1	09-08-04 11:12	EPA 6010B
7440-22-4	Silver	BRL		mg/Kg	5.0	1	09-08-04 11:12	EPA 6010B

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

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

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

GROUNDWATER ANALYTICAL

Quality Control Report
Laboratory Control Samples

		LCS		LCSD	
Category:	MA DEP EPH Method	Instrument ID:	GC-9 Agilent 6890	Instrument ID:	GC-9 Agilent 6890
QC Batch ID:	EP-1948-M	Extracted:	09-13-04 17:00	Extracted:	09-13-04 17:00
Matrix:	Soil	Analyzed (AL):	09-17-04 17:40	Analyzed (AL):	09-17-04 19:09
Units:	mg/Kg	Analyzed (AR):	09-17-04 18:25	Analyzed (AR):	09-17-04 19:54
		Analyst:	MM	Analyst:	MM

CAS Number	Analyte	LCS			LCS Duplicate				QC Limits	
		Spiked	Measured	Recovery	Spiked	Measured	Recovery	RPD	Spike	RPD
111-84-2	*n*-Nonane (C_9)	3.3	1.7	53 %	3.3	1.6	49 %	8 %	30 - 140 %	25%
124-18-5	*n*-Decane (C_{10})	3.3	2.0	59 %	3.3	1.8	55 %	8 %	40 - 140 %	25%
112-40-3	*n*-Dodecane (C_{12})	3.3	2.1	64 %	3.3	2.0	60 %	8 %	40 - 140 %	25%
629-59-4	*n*-Tetradecane (C_{14})	3.3	2.4	72 %	3.3	2.2	66 %	9 %	40 - 140 %	25%
544-76-3	*n*-Hexadecane (C_{16})	3.3	2.6	80 %	3.3	2.4	71 %	11 %	40 - 140 %	25%
593-45-3	*n*-Octadecane (C_{18})	3.3	2.9	87 %	3.3	2.6	78 %	11 %	40 - 140 %	25%
n/a	*n*-C9 to *n*-C18 Group	20	14	69 %	20	12	63 %	10 %	40 - 140 %	25%
629-92-5	*n*-Nonadecane (C_{19})	3.3	2.7	83 %	3.3	2.5	75 %	11 %	40 - 140 %	25%
112-95-8	*n*-Eicosane (C_{20})	3.3	2.9	86 %	3.3	2.6	80 %	8 %	40 - 140 %	25%
629-97-0	*n*-Docosane (C_{22})	3.3	2.7	82 %	3.3	2.5	75 %	9 %	40 - 140 %	25%
646-31-1	*n*-Tetracosane (C_{24})	3.3	2.7	83 %	3.3	2.5	75 %	10 %	40 - 140 %	25%
630-01-3	*n*-Hexacosane (C_{26})	3.3	2.8	84 %	3.3	2.6	77 %	8 %	40 - 140 %	25%
630-02-4	*n*-Octacosane (C_{28})	3.3	2.7	82 %	3.3	2.5	76 %	7 %	40 - 140 %	25%
638-68-6	*n*-Triacontane (C_{30})	3.3	2.7	82 %	3.3	2.5	77 %	7 %	40 - 140 %	25%
630-06-8	*n*-Hexatriacontane (C_{36})	3.3	2.4	74 %	3.3	2.3	70 %	6 %	40 - 140 %	25%
n/a	*n*-C19 to *n*-C36 Group	26	22	82 %	26	20	76 %	8 %	40 - 140 %	25%
91-20-3	Naphthalene	3.3	2.2	68 %	3.3	2.0	61 %	10 %	40 - 140 %	25%
91-57-6	2-Methylnaphthalene	3.3	2.4	72 %	3.3	2.1	65 %	11 %	40 - 140 %	25%
208-96-8	Acenaphthylene	3.3	2.6	78 %	3.3	2.3	70 %	12 %	40 - 140 %	25%
83-32-9	Acenaphthene	3.3	2.7	81 %	3.3	2.4	71 %	13 %	40 - 140 %	25%
86-73-7	Fluorene	3.3	2.8	85 %	3.3	2.5	75 %	13 %	40 - 140 %	25%
85-01-8	Phenanthrene	3.3	2.9	89 %	3.3	2.5	76 %	16 %	40 - 140 %	25%
120-12-7	Anthracene	3.3	3.4	103 %	3.3	3.1	95 %	8 %	40 - 140 %	25%
206-44-0	Fluoranthene	3.3	3.0	92 %	3.3	2.7	83 %	11 %	40 - 140 %	25%
129-00-0	Pyrene	3.3	3.0	92 %	3.3	2.7	81 %	12 %	40 - 140 %	25%
56-55-3	Benzo[a]anthracene	3.3	3.1	94 %	3.3	2.9	89 %	6 %	40 - 140 %	25%
218-01-9	Chrysene	3.3	3.0	91 %	3.3	2.7	83 %	9 %	40 - 140 %	25%
205-99-2	Benzo[b]fluoranthene	3.3	2.8	85 %	3.3	2.4	74 %	14 %	40 - 140 %	25%
207-08-9	Benzo[k]fluoranthene	3.3	3.6	108 %	3.3	3.3	99 %	9 %	40 - 140 %	25%
50-32-8	Benzo[a]pyrene	3.3	3.1	93 %	3.3	2.8	84 %	11 %	40 - 140 %	25%
193-39-5	Indeno[1,2,3-c,d]pyrene	3.3	2.8	84 %	3.3	2.5	77 %	9 %	40 - 140 %	25%
53-70-3	Dibenzo[a,h]anthracene	3.3	3.5	107 %	3.3	3.2	98 %	9 %	40 - 140 %	25%
191-24-2	Benzo[g,h,i]perylene	3.3	3.0	90 %	3.3	2.8	85 %	6 %	40 - 140 %	25%
n/a	PAH Group	56	50	89 %	56	45	80 %	10 %	40 - 140 %	25%

QC Surrogate Compound		Spiked	Measured	Recovery	Spiked	Measured	Recovery		QC Limits
Fractionation:	2-Fluorobiphenyl	2.7	2.3	85 %	2.7	2.0	74 %		40 - 140 %
	2-Bromonaphthalene	2.7	2.2	81 %	2.7	1.8	67 %		40 - 140 %
Extraction:	Chloro-octadecane	2.7	2.2	81 %	2.7	2.0	74 %		40 - 140 %
	ortho-Terphenyl	2.7	2.5	93 %	2.7	2.2	81 %		40 - 140 %

Fractionation Breakthrough Evaluation						QC Limits
91-20-3	Naphthalene	LCS	0 %	LCSD	0 %	5%
91-57-6	2-Methylnaphthalene	LCS	0 %	LCSD	0 %	5%

Method Reference: Method for the Determination of Extractable Petroleum Hydrocarbons, MA DEP (Revision 1.1, 2004). Method modified by use of microwave accelerated solvent extraction technique.

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

The LCS and LCSD are prepared from separate source standards than those used for calibration.

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GROUNDWATER ANALYTICAL

Quality Control Report
Method Blank

Category:	MA DEP EPH	Instrument ID:	GC-9 Agilent 6890
QC Batch ID:	EP-1948-M	Extracted:	09-13-04 17:00
Matrix:	Soil	Analyzed (AL):	09-17-04 16:15
		Analyzed (AR):	09-17-04 16:56
		Analyst:	MM

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

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
91-20-3	Naphthalene	BRL		mg/Kg	0.50
91-57-6	2-Methylnaphthalene	BRL		mg/Kg	0.50
85-01-8	Phenanthrene	BRL		mg/Kg	0.50
83-32-9	Acenaphthene	BRL		mg/Kg	0.50
208-96-8	Acenaphthylene	BRL		mg/Kg	0.50
86-73-7	Fluorene	BRL		mg/Kg	0.50
120-12-7	Anthracene	BRL		mg/Kg	0.50
206-44-0	Fluoranthene	BRL		mg/Kg	0.50
129-00-0	Pyrene	BRL		mg/Kg	0.50
56-55-3	Benzo[a]anthracene	BRL		mg/Kg	0.50
218-01-9	Chrysene	BRL		mg/Kg	0.50
205-99-2	Benzo[b]fluoranthene	BRL		mg/Kg	0.50
207-08-9	Benzo[k]fluoranthene	BRL		mg/Kg	0.50
50-32-8	Benzo[a]pyrene	BRL		mg/Kg	0.50
193-39-5	Indeno[1,2,3-c,d]pyrene	BRL		mg/Kg	0.50
53-70-3	Dibenzo[a,h]anthracene	BRL		mg/Kg	0.50
191-24-2	Benzo[g,h,i]perylene	BRL		mg/Kg	0.50

QC Surrogate Compound		Spiked	Measured	Recovery	QC Limits
Fractionation:	2-Fluorobiphenyl	2.7	2.4	**89** %	40 - 140 %
	2-Bromonaphthalene	2.7	2.2	**84** %	40 - 140 %
Extraction:	Chloro-octadecane	2.7	2.4	**89** %	40 - 140 %
	ortho-Terphenyl	2.7	2.8	**103** %	40 - 140 %

Method Reference: Method for the Determination of Extractable Petroleum Hydrocarbons, MA DEP (Revision 1.1, 2004). Sample extraction performed by microwave accelerated solvent extraction technique.

Report Notations:

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

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

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

GROUNDWATER ANALYTICAL

Certifications and Approvals

Groundwater Analytical maintains environmental laboratory certification in a variety of states. Copies of our current certificates may be obtained from our website:

http://www.groundwateranalytical.com/qualifications.htm

CONNECTICUT, Department of Health Services, PH-0586

Categories: Potable Water, Wastewater, Solid Waste and Soil
http://www.dph.state.ct.us/BRS/Environmental_Lab/OutStateLabList.htm

FLORIDA, Department of Health, Bureau of Laboratories, E87643

Categories: SDWA, CWA, RCRA/CERCLA
http://www.floridadep.org/labs/qa/dohforms.htm

MAINE, Department of Human Services, MA103

Categories: Drinking Water and Wastewater
http://www.state.me.us/dhs/eng/water/Compliance.htm

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

Categories: Potable Water and Non-Potable Water
http://www.state.ma.us/dep/bspt/wes/files/certlabs.pdf

NEW HAMPSHIRE, Department of Environmental Services, 202703

Categories: Drinking Water and Wastewater
http://www.des.state.nh.us/asp/NHELAP/labsview.asp

NEW YORK, Department of Health, 11754

Categories: Potable Water, Non-Potable Water and Solid Waste
http://www.wadsworth.org/labcert/elap/comm.html

PENNSYLVANIA, Department of Environmental Protection, 68-665

Environmental Laboratory Registration (Non-drinking water and Non-wastewater)
http://www.dep.state.pa.us/Labs/Registered/

RHODE ISLAND, Department of Health, 54

Categories: Surface Water, Air, Wastewater, Potable Water, Sewage
http://www.healthri.org/labs/labsCT_MA.htm

U.S. Department of Agriculture, Soil Permit, S-53921

Foreign soil import permit

VERMONT, Department of Environmental Conservation, Water Supply Division

Category: Drinking Water
http://www.vermontdrinkingwater.org/wsops/labtable.PDF

Nº 099659

GROUNDWATER ANALYTICAL

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CHAIN-OF-CUSTODY RECORD AND WORK ORDER

Project Name: SARSS / ASHBURNHAM	Firm: ES+M
Project Number: 2004-274	Address: 184 West Main St
Sampler Name: Amanda Freeman, Liza Mattison	City / State / Zip: Norton,
Project Manager: Doug Heely	Telephone: 508 285 9700

TURNAROUND

- ☑ STANDARD (10 Business Days)
- ☐ PRIORITY (5 Business Days)
- ☐ RUSH (RAN-________) (Rush requires Rush Authorization Number)
- ☐ Please Email to: ________
- ☐ Please FAX to: ________

BILLING

- ☐ Purchase Order No.: ________
- ☐ Third Party Billing: ________
- ☐ GWA Quote: ________

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

Date	Time	Sample Identification	Matrix: Soil	Type: Grab	Number	40mL VOA Vial	60mL/2 oz Glass	120mL/4 oz Amber Glass	250mL/8 oz Glass	Methanol	Sodium Bisulfate	Ice	Filtered: No	Laboratory Number (Lab Use Only)	8260B	8 RCRA	MA DEP EPH	MA DEP VPH
9/1/04	10:00	ESM-01 (7-9')	✓	✓	3		✓	✓	✓	✓	✓	✓	✓	8 21		✓	✓	✓
9/1/04	11:30	ESM-02 (7-8')	✓	✓	2		✓	✓		✓		✓	✓	9 22			✓	✓
9/1/04	12:15	ESM-03 (6-8')	✓	✓	7	✓	✓	✓	✓	✓	✓	✓	✓	1, 10 23	✓	✓	✓	✓
9/1/04	1:30	ESM-04 (7-9')	✓	✓	6	✓	✓	✓		✓	✓	✓	✓	2, 11 24	✓		✓	✓
9/1/04	12:30	field dup	✓	✓	4	✓				✓	✓	✓	✓	3 ~~25~~	✓		✓	✓
9/1/04	10:30	B-01 (7-8')	✓	✓	2		✓	✓		✓		✓	✓	12 25			✓	✓
9/1/04	11:00	B-02 (6-7')	✓	✓	2		✓	✓		✓		✓	✓	13 26			✓	✓
9/1/04	2:00	AB-03 (0-6")	✓	✓	1				✓			✓	✓	27		✓		
9/1/04	2:15	AB-04 (0-6")	✓	✓	1				✓			✓	✓	28		✓		
9/2/04	10:45	AB-07 (20-24")	✓	✓	3		✓	✓	✓	✓		✓	✓	14 29		✓	✓	✓
9/2/04	10:15	AB-08 (18-24")	✓	✓	3		✓	✓	✓	✓		✓	✓	15 30		✓	✓	✓
9/2/04	11:15	AB-09 (18-24")	✓	✓	7	✓	✓	✓	✓	✓	✓	✓	✓	4, 16 31	✓	✓	✓	✓

REMARKS / SPECIAL INSTRUCTIONS

MA DEP MCP Data Enhancement Affirmation

☑ YES ☐ NO MCP Data Certification is required.

☐ YES ☑ NO MCP ... requirements

☐ YES ☑ NO MCP ... samples required. (... of contingent duplicate samples. Trip blanks are also required, if VOA samples collected)

Signature: Amanda Freeman

DATA QUALITY OBJECTIVES

Regulatory Program

State	Standard	Deliverables
☐ CT	☑ MCP GW-1/S-1	☐ PWS Form
☐ ME	☐ MCP GW-2/S-2	☐ MWRA
☑ MA	☐ NY STARS	☐ ________
☐ NH	☐ Drinking Water	
☐ NY	☐ Wastewater	
☐ RI	☐ Waste Disposal	
☐ VT	☐ Dredge Material	
☐ ___	☐ ________	

Project Specific QC

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

Project Specific QC Required
- ☐ Sample Duplicate
- ☐ Matrix Spike
- ☐ Matrix Spike Duplicate

Selection of QC Sample
- ☐ Please use sample: ________

CHAIN-OF-CUSTODY RECORD

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

Relinquished by	Date	Time	Received by
Relinquished by Sampler: Amanda Freeman	9/3/04	2:20	Received by: [signature]
Relinquished by: [signature]	9/3/04	6:30	Received by:
Relinquished by:			Received by Laboratory: [signature]

Receipt Temperature: 2.6 (☐ Refrigerated 2-6°C Recommended)

Container Count: 65

Shipping/Airbill Number:

Custody Seal Number:

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

№ 099660

GROUNDWATER ANALYTICAL

228 Main Street, P.O. Box 1200
Buzzards Bay, MA 02532
Telephone (508) 759-4441 • FAX (508) 759-4475
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CHAIN-OF-CUSTODY RECORD AND WORK ORDER

Project Name: SARSS / ASHBURNHAM
Project Number: 2004-274
Sampler Name: Amanda Freeman, Liza Mattison
Project Manager: Doug Heely

Firm: E&M
Address: 184 West Main St
City / State / Zip: Norton MA 02766
Telephone: 508 285 9700

TURNAROUND

- ☑ STANDARD (10 Business Days)
- ☐ PRIORITY (5 Business Days)
- ☐ RUSH (RAN- _____) (Rush requires Rush Authorization Number)
- ☐ Please Email to: _____
- ☐ Please FAX to: _____

BILLING

- ☐ Purchase Order No.: _____
- ☐ Third Party Billing: _____
- ☐ GWA Quote: _____

ANALYSIS REQUEST

OPTIONS: ☐ TIC Search
Volatiles: ☐ Acid Only ☐ BN Only ☐ TIC Search
Semivolatiles: ☐ 524.2-MTBE ☐ 525.2 ☐ 525 ☐ 508 ☐ 537.1 ☐ 8015.1 ☐ 504.1 EDB/DBCP ☐ Lead and Copper
Pesticides/PCBs: ☐ 608 Pesticides ☐ 608 PCBs ☐ 613 ☐ 13 Priority Pollutant
Metals: Specify for Water Samples ☐ Total ☐ Dissolved
Petroleum Hydrocarbons: Ext. TPH / Vol. TPH
Haz. Waste
General Chemistry
Other

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

Sampling DATE	Sampling TIME	SAMPLE IDENTIFICATION	Matrix	Type	Container(s)	Preservation	Filtered	LABORATORY NUMBER (Lab Use Only)
9/3/04	12:55	AB-10/11 (0-2")	SOIL	COMPOSITE	4	Methanol	YES	5 17 32
9/3/04	12:00	AB-10/11 (4-6")	SOIL	COMPOSITE	3	Methanol	YES	6 19 34
[illegible]	2:00	S-06 (surface)	SOIL	GRAB	7	Methanol	YES	7 20 35
[illegible]	2:15	S-12 (surface)	SOIL	GRAB	7	Methanol	YES	

REMARKS / SPECIAL INSTRUCTIONS

MA DEP MCP Data Enhancement Affirmation

☑ YES ☐ NO MCP Data Certification is required.

☐ YES ☑ NO MCP minimum Field QC requirements [illegible] for this project. [illegible] cyanide analyses [illegible] per 20 samples)

☐ YES ☑ NO MCP [illegible] water samples required. (Required selection of contingent duplicate samples. (trip blanks are also required, if VOA samples collected)

Signature: Amanda Freeman

DATA QUALITY OBJECTIVES

Regulatory Program

State	Standard	Deliverables
☐ CT	☑ MCP GW-1/S-1	☐ PWS Form
☐ ME	☐ MCP GW-2/S-2	☐ MWRA
☑ MA	☐ NY STARS	☐ _____
☐ NH	☐ Drinking Water	
☐ NY	☐ Wastewater	
☐ RI	☐ Waste Disposal	
☐ VT	☐ Dredge Material	
☐ ___	☐ _____	

Project Specific QC

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

Project Specific QC Required
- ☐ Sample Duplicate
- ☐ Matrix Spike
- ☐ Matrix Spike Duplicate

Selection of QC Sample
- ☐ Please use sample: _____

CHAIN-OF-CUSTODY RECORD

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

Relinquished by	Date	Time	Received by	Receipt Temperature
Amanda Freeman	9/3/04	2:20	[signature]	☑ Ice ☐ Refrigerated 2-6°C Recommended — 2.6
[signature]	9/3/04	6:30		Container Count: 63
			Received by Laboratory: [signature]	Shipping/Airbill Number:

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

Custody Seal Number:

GROUNDWATER ANALYTICAL

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

Telephone (508) 759-4441
FAX (508) 759-4475
www.groundwateranalytical.com

September 27, 2004

Mr. Doug Heely
Environmental Strategies & Management, Inc.
184 West Main Street
Norton, MA 02766

LABORATORY REPORT

Project: **SARSS Ashburnham/2004-274**
Lab ID: **76526**
Received: **09-13-04**

Dear Doug:

Enclosed are the analytical results for the above referenced project. The project was processed for Standard turnaround.

This letter authorizes the release of the analytical results, and should be considered a part of this report. This report contains a sample receipt report detailing the samples received, a project narrative indicating project changes and non-conformances, a quality control report, and a statement of our state certifications.

The analytical results contained in this report meet all applicable NELAC standards, except as may be specifically noted, or described in the project narrative. This report may only be used or reproduced in its entirety.

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

Should you have any questions concerning this report, please do not hesitate to contact me.

Sincerely,

Eric H. Jensen
Operations Manager

EHJ/smd
Enclosures

GROUNDWATER ANALYTICAL

Sample Receipt Report

Project: **SARSS Ashburnham/2004-274**
Client: **Environmental Strategies & Management, Inc.**
Lab ID: **76526**

Delivery: **GWA Courier**
Airbill: **n/a**
Lab Receipt: **09-13-04**

Temperature: **3.4'C**
Chain of Custody: **Present**
Custody Seal(s): **n/a**

Lab ID	Field ID		Matrix	Sampled	Method				Notes
76526-1	ESM-01		Aqueous	9/10/04 12:15	MA DEP VPH with Targets				
Con ID	Container	Vendor	QC Lot	Preserv	QC Lot	Prep	Ship		
C513581	40 mL VOA Vial	Proline	BX14119	HCl	R-3485F	08-20-04	n/a		
C513569	40 mL VOA Vial	Proline	BX14119	HCl	R-3485F	08-20-04	n/a		
C513557	40 mL VOA Vial	Proline	BX14119	HCl	R-3485F	08-20-04	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
76526-2	ESM-02		Aqueous	9/10/04 13:10	MA DEP VPH with Targets				
Con ID	Container	Vendor	QC Lot	Preserv	QC Lot	Prep	Ship		
C513611	40 mL VOA Vial	Proline	BX14119	HCl	R-3485F	08-20-04	n/a		
C513599	40 mL VOA Vial	Proline	BX14119	HCl	R-3485F	08-20-04	n/a		
C513592	40 mL VOA Vial	Proline	BX14119	HCl	R-3485F	08-20-04	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
76526-3	ESM-03		Aqueous	9/10/04 14:30	MA DEP VPH with Targets				
Con ID	Container	Vendor	QC Lot	Preserv	QC Lot	Prep	Ship		
C513580	40 mL VOA Vial	Proline	BX14119	HCl	R-3485F	08-20-04	n/a		
C513568	40 mL VOA Vial	Proline	BX14119	HCl	R-3485F	08-20-04	n/a		
C513556	40 mL VOA Vial	Proline	BX14119	HCl	R-3485F	08-20-04	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
76526-4	ESM-04		Aqueous	9/10/04 15:25	MA DEP VPH with Targets				
Con ID	Container	Vendor	QC Lot	Preserv	QC Lot	Prep	Ship		
C513612	40 mL VOA Vial	Proline	BX14119	HCl	R-3485F	08-20-04	n/a		
C513591	40 mL VOA Vial	Proline	BX14119	HCl	R-3485F	08-20-04	n/a		
C513555	40 mL VOA Vial	Proline	BX14119	HCl	R-3485F	08-20-04	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
76526-5	ESM-03		Aqueous	9/10/04 14:30	EPA 8260B Volatile Organics with Oxygenates				
Con ID	Container	Vendor	QC Lot	Preserv	QC Lot	Prep	Ship		
C513600	40 mL VOA Vial	Proline	BX14119	HCl	R-3485F	08-20-04	n/a		
C513579	40 mL VOA Vial	Proline	BX14119	HCl	R-3485F	08-20-04	n/a		
C513567	40 mL VOA Vial	Proline	BX14119	HCl	R-3485F	08-20-04	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
76526-6	ESM-04		Aqueous	9/10/04 15:30	EPA 8260B Volatile Organics with Oxygenates				
Con ID	Container	Vendor	QC Lot	Preserv	QC Lot	Prep	Ship		
C513610	40 mL VOA Vial	Proline	BX14119	HCl	R-3485F	08-20-04	n/a		
C513598	40 mL VOA Vial	Proline	BX14119	HCl	R-3485F	08-20-04	n/a		
C513593	40 mL VOA Vial	Proline	BX14119	HCl	R-3485F	08-20-04	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
76526-7	ESM-01		Aqueous	9/10/04 12:15	MA DEP EPH with PAHs by 8270C-Mod SIM				
Con ID	Container	Vendor	QC Lot	Preserv	QC Lot	Prep	Ship		
C509430	1 L Amber Glass	Proline	BX14067	H2SO4	R-4153A	08-27-04	n/a		
C509450	1 L Amber Glass	Proline	BX14074	H2SO4	R-4153A	08-27-04	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
76526-8	ESM-02		Aqueous	9/10/04 13:20	MA DEP EPH with PAHs by 8270C-Mod SIM				
Con ID	Container	Vendor	QC Lot	Preserv	QC Lot	Prep	Ship		
C509453	1 L Amber Glass	Proline	BX14074	H2SO4	R-4153A	08-27-04	n/a		
C509447	1 L Amber Glass	Proline	BX14074	H2SO4	R-4153A	08-27-04	n/a		

GROUNDWATER ANALYTICAL

Sample Receipt Report (Continued)

Project: **SARSS Ashburnham/2004-274**
Client: **Environmental Strategies & Management, Inc.**
Lab ID: **76526**

Delivery: **GWA Courier**
Airbill: **n/a**
Lab Receipt: **09-13-04**

Temperature: **3.4'C**
Chain of Custody: **Present**
Custody Seal(s): **n/a**

Lab ID	Field ID		Matrix	Sampled	Method				Notes
76526-9	ESM-03		Aqueous	9/10/04 14:35	MA DEP EPH with PAHs by 8270C-Mod SIM				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C509429	1 L Amber Glass	Proline	BX14067	H2SO4	R-4153A	08-27-04	n/a		
C509426	1 L Amber Glass	Proline	BX14067	H2SO4	R-4153A	08-27-04	n/a		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
76526-10	ESM-04		Aqueous	9/10/04 15:40	MA DEP EPH with PAHs by 8270C-Mod SIM				
Con ID	**Container**	**Vendor**	**QC Lot**	**Preserv**	**QC Lot**	**Prep**	**Ship**		
C509431	1 L Amber Glass	Proline	BX14067	H2SO4	R-4153A	08-27-04	n/a		
C509444	1 L Amber Glass	Proline	BX14074	H2SO4	R-4153A	08-27-04	n/a		

GROUNDWATER ANALYTICAL

Data Certification

Project:	SARSS Ashburnham/2004-274	Lab ID:	76526
Client:	Environmental Strategies & Management, Inc.	Received:	09-13-04 17:50

MA DEP Compendium of Analytical Methods

Project Location: **n/a** MA DEP RTN: **n/a**

This Form provides certifications for the following data set:

EPA 8260B:	76526-05,-06
MA DEP VPH:	76526-01,-02,-03,-04
MA DEP EPH:	76526-07,-08,-09,-10

Sample Matrices:	Groundwater (X)	Soil/Sediment ( )	Drinking Water ( )	Other ( )	
MCP SW-846 Methods Used	8260B (X)	8151A ( )	8330 ( )	6010B ( )	7470A/1A ( )
	8270C ( )	8081A ( )	VPH (X)	6020 ( )	9012A[2] ( )
As specified in MA DEP Compendium of Analytical Methods. (check all that apply)	8082 ( )	8021B ( )	EPH (X)	7000 S[3] ( )	Other ( )

1. List Release Tracking Number (RTN), if known.
2. SW-846 Method 9012A (Equivalent to 9014) or MA DEP 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
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
C.	Does the analytical data included in this report meet all the requirements for "Presumptive Certainty," as described in Section 2.0 of the MA DEP document CAM VII A, *Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data* ?	Yes
D.	VPH and EPH methods only: Was the VPH or EPH method run without significant modifications, as specified in Section 11.3?	Yes

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

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

All No answers are addressed in the attached Project Narrative.

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.

Signature:	EHJ	Position:	Operations Manager
Printed Name:	Eric H. Jensen	Date:	09-27-04

GROUNDWATER ANALYTICAL

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

Field ID:	**ESM-01**	Matrix:	**Aqueous**
Project:	**SARSS Ashburnham/2004-274**	Container:	**40 mL VOA Vial**
Client:	**Environmental Strategies & Management**	Preservation:	**HCl / Cool**
Laboratory ID:	**76526-01**	QC Batch ID:	**VG1-2045-W**
Sampled:	**09-10-04 12:15**	Instrument ID:	**GC-1 HP 5890**
Received:	**09-13-04 17:50**	Sample Volume:	**5 mL**
Analyzed:	**09-22-04 13:33**	Dilution Factor:	**1**
Analyst:	**MB**		

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

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

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
2,5-Dibromotoluene (PID)	100	97	**97 %**	70 - 130 %
2,5-Dibromotoluene (FID)	100	95	**95 %**	70 - 130 %

QA/QC Certification

1. Were all QA/QC procedures required by the method followed? Yes
2. Were all performance/acceptance standards for the required QA/QC procedures achieved? Yes
3. Were any significant modifications made to the method, as specified in Section 11.3.2.1? No

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

Method Reference: Method for the Determination of Volatile Petroleum Hydrocarbons, MA DEP (Revision 1.1, 2004).

Report Notations:

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

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

◊ n-C5 to n-C8 Aliphatic Hydrocarbons range data excludes the method target analyte concentrations.

⊗ n-C9 to n-C12 Aliphatic Hydrocarbons range data excludes the method target analyte concentrations and the concentration for the n-C9 to n-C10 Aromatic Hydrocarbons range.

¤ Analyte elutes in the n-C5 to n-C8 Aliphatic Hydrocarbons range.

‡ Analyte elutes in the n-C9 to n-C12 Aliphatic Hydrocarbons range.

GROUNDWATER ANALYTICAL

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

Field ID:	ESM-02	Matrix:	Aqueous
Project:	SARSS Ashburnham/2004-274	Container:	40 mL VOA Vial
Client:	Environmental Strategies & Management	Preservation:	HCl / Cool
Laboratory ID:	76526-02	QC Batch ID:	VG1-2045-W
Sampled:	09-10-04 13:10	Instrument ID:	GC-1 HP 5890
Received:	09-13-04 17:50	Sample Volume:	5 mL
Analyzed:	09-22-04 14:14	Dilution Factor:	1
Analyst:	MB		

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

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

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
2,5-Dibromotoluene (PID)	100	91	**91** %	70 - 130 %
2,5-Dibromotoluene (FID)	100	88	**88** %	70 - 130 %

QA/QC Certification

1. Were all QA/QC procedures required by the method followed? Yes
2. Were all performance/acceptance standards for the required QA/QC procedures achieved? Yes
3. Were any significant modifications made to the method, as specified in Section 11.3.2.1? No

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

Method Reference: Method for the Determination of Volatile Petroleum Hydrocarbons, MA DEP (Revision 1.1, 2004).

Report Notations:

- BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.
- † Hydrocarbon range data excludes concentrations of any surrogate(s) and/or internal standards eluting in that range.
- ◊ n-C5 to n-C8 Aliphatic Hydrocarbons range data excludes the method target analyte concentrations.
- ⊗ n-C9 to n-C12 Aliphatic Hydrocarbons range data excludes the method target analyte concentrations and the concentration for the n-C9 to n-C10 Aromatic Hydrocarbons range.
- ¤ Analyte elutes in the n-C5 to n-C8 Aliphatic Hydrocarbons range.
- ‡ Analyte elutes in the n-C9 to n-C12 Aliphatic Hydrocarbons range.

GROUNDWATER ANALYTICAL

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

Field ID:	ESM-03	Matrix:	Aqueous
Project:	SARSS Ashburnham/2004-274	Container:	40 mL VOA Vial
Client:	Environmental Strategies & Management	Preservation:	HCl / Cool
Laboratory ID:	76526-03	QC Batch ID:	VG1-2045-W
Sampled:	09-10-04 14:30	Instrument ID:	GC-1 HP 5890
Received:	09-13-04 17:50	Sample Volume:	5 mL
Analyzed:	09-22-04 14:55	Dilution Factor:	5
Analyst:	MB		

VPH Ranges	Concentration	Notes	Units	Reporting Limit
n-C5 to n-C8 Aliphatic Hydrocarbons † ◊	**590**		ug/L	100
n-C9 to n-C12 Aliphatic Hydrocarbons † ⊗	**540**		ug/L	100
n-C9 to n-C10 Aromatic Hydrocarbons †	**400**		ug/L	100
Unadjusted n-C5 to n-C8 Aliphatic Hydrocarbons †	600		ug/L	100
Unadjusted n-C9 to n-C12 Aliphatic Hydrocarbons †	950		ug/L	100

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
1634-04-4	Methyl *tert*-butyl Ether ¤	BRL		ug/L	25
71-43-2	Benzene ¤	BRL		ug/L	5
108-88-3	Toluene ¤	BRL		ug/L	25
100-41-4	Ethylbenzene ‡	BRL		ug/L	25
108-38-3 and 106-42-3	*meta*- Xylene and *para*-Xylene ‡	BRL		ug/L	25
95-47-6	*ortho*- Xylene ‡	BRL		ug/L	25
91-20-3	Naphthalene	BRL		ug/L	25

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
2,5-Dibromotoluene (PID)	100	93	**93 %**	70 - 130 %
2,5-Dibromotoluene (FID)	100	91	**91 %**	70 - 130 %

QA/QC Certification

1. Were all QA/QC procedures required by the method followed? Yes
2. Were all performance/acceptance standards for the required QA/QC procedures achieved? Yes
3. Were any significant modifications made to the method, as specified in Section 11.3.2.1? No

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

Method Reference: Method for the Determination of Volatile Petroleum Hydrocarbons, MA DEP (Revision 1.1, 2004).

Report Notations:

- BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.
- † Hydrocarbon range data excludes concentrations of any surrogate(s) and/or internal standards eluting in that range.
- ◊ n-C5 to n-C8 Aliphatic Hydrocarbons range data excludes the method target analyte concentrations.
- ⊗ n-C9 to n-C12 Aliphatic Hydrocarbons range data excludes the method target analyte concentrations and the concentration for the n-C9 to n-C10 Aromatic Hydrocarbons range.
- ¤ Analyte elutes in the n-C5 to n-C8 Aliphatic Hydrocarbons range.
- ‡ Analyte elutes in the n-C9 to n-C12 Aliphatic Hydrocarbons range.

GROUNDWATER ANALYTICAL

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

Field ID:	ESM-04	Matrix:	Aqueous
Project:	SARSS Ashburnham/2004-274	Container:	40 mL VOA Vial
Client:	Environmental Strategies & Management	Preservation:	HCl / Cool
Laboratory ID:	76526-04	QC Batch ID:	VG1-2045-W
Sampled:	09-10-04 15:25	Instrument ID:	GC-1 HP 5890
Received:	09-13-04 17:50	Sample Volume:	5 mL
Analyzed:	09-22-04 15:36	Dilution Factor:	1
Analyst:	MB		

VPH Ranges	Concentration	Notes	Units	Reporting Limit
n-C5 to n-C8 Aliphatic Hydrocarbons † ◊	BRL		ug/L	20
n-C9 to n-C12 Aliphatic Hydrocarbons † ⊗	**30**		ug/L	20
n-C9 to n-C10 Aromatic Hydrocarbons †	**120**		ug/L	20

Unadjusted n-C5 to n-C8 Aliphatic Hydrocarbons †	BRL	ug/L	20
Unadjusted n-C9 to n-C12 Aliphatic Hydrocarbons †	150	ug/L	20

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

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
2,5-Dibromotoluene (PID)	100	97	**97 %**	70 - 130 %
2,5-Dibromotoluene (FID)	100	97	**97 %**	70 - 130 %

QA/QC Certification

1. Were all QA/QC procedures required by the method followed? Yes
2. Were all performance/acceptance standards for the required QA/QC procedures achieved? Yes
3. Were any significant modifications made to the method, as specified in Section 11.3.2.1? No

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

Method Reference: Method for the Determination of Volatile Petroleum Hydrocarbons, MA DEP (Revision 1.1, 2004).

Report Notations:

- BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.
- † Hydrocarbon range data excludes concentrations of any surrogate(s) and/or internal standards eluting in that range.
- ◊ n-C5 to n-C8 Aliphatic Hydrocarbons range data excludes the method target analyte concentrations.
- ⊗ n-C9 to n-C12 Aliphatic Hydrocarbons range data excludes the method target analyte concentrations and the concentration for the n-C9 to n-C10 Aromatic Hydrocarbons range.
- ¤ Analyte elutes in the n-C5 to n-C8 Aliphatic Hydrocarbons range.
- ‡ Analyte elutes in the n-C9 to n-C12 Aliphatic Hydrocarbons range.

GROUNDWATER ANALYTICAL

EPA Method 8260B
Volatile Organics by GC/MS

Field ID:	**ESM-03**	Matrix:	**Aqueous**
Project:	**SARSS Ashburnham/2004-274**	Container:	**40 mL VOA Vial**
Client:	**Environmental Strategies & Management**	Preservation:	**HCl/Cool**
Laboratory ID:	**76526-05**	QC Batch ID:	**VM4-2999-W**
Sampled:	**09-10-04 14:30**	Instrument ID:	**MS-4 HP 6890**
Received:	**09-13-04 17:50**	Sample Volume:	**25 mL**
Analyzed:	**09-23-04 19:30**	Dilution Factor:	**1**
Analyst:	**TRA**		

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
75-71-8	Dichlorodifluoromethane	BRL		ug/L	0.5
74-87-3	Chloromethane	BRL		ug/L	0.5
75-01-4	Vinyl Chloride	BRL		ug/L	0.5
74-83-9	Bromomethane	BRL		ug/L	0.5
75-00-3	Chloroethane	BRL		ug/L	0.5
75-69-4	Trichlorofluoromethane	BRL		ug/L	0.5
60-29-7	Diethyl Ether	BRL		ug/L	2
75-35-4	1,1-Dichloroethene	BRL		ug/L	0.5
76-13-1	1,1,2-Trichlorotrifluoroethane	BRL		ug/L	5
67-64-1	Acetone	BRL		ug/L	10
75-15-0	Carbon Disulfide	BRL		ug/L	5
75-09-2	Methylene Chloride	BRL		ug/L	2.5
156-60-5	*trans*- 1,2-Dichloroethene	BRL		ug/L	0.5
1634-04-4	Methyl *tert*- butyl Ether (MTBE)	**2**		ug/L	0.5
75-34-3	1,1-Dichloroethane	BRL		ug/L	0.5
594-20-7	2,2-Dichloropropane	BRL		ug/L	0.5
156-59-2	*cis*- 1,2-Dichloroethene	**0.7**		ug/L	0.5
78-93-3	2-Butanone (MEK)	BRL		ug/L	5
74-97-5	Bromochloromethane	BRL		ug/L	0.5
109-99-9	Tetrahydrofuran (THF)	BRL		ug/L	5
67-66-3	Chloroform	BRL		ug/L	0.5
71-55-6	1,1,1-Trichloroethane	BRL		ug/L	0.5
56-23-5	Carbon Tetrachloride	BRL		ug/L	0.5
563-58-6	1,1-Dichloropropene	BRL		ug/L	0.5
71-43-2	Benzene	**0.9**		ug/L	0.5
107-06-2	1,2-Dichloroethane	BRL		ug/L	0.5
79-01-6	Trichloroethene	**2**		ug/L	0.5
78-87-5	1,2-Dichloropropane	BRL		ug/L	0.5
74-95-3	Dibromomethane	BRL		ug/L	0.5
75-27-4	Bromodichloromethane	BRL		ug/L	0.5
123-91-1	1,4-Dioxane	BRL		ug/L	500
10061-01-5	*cis*- 1,3-Dichloropropene	BRL		ug/L	0.5
108-10-1	4-Methyl-2-Pentanone (MIBK)	BRL		ug/L	5
108-88-3	Toluene	**1**		ug/L	0.5
10061-02-6	*trans*- 1,3-Dichloropropene	BRL		ug/L	0.5
79-00-5	1,1,2-Trichloroethane	BRL		ug/L	0.5
127-18-4	Tetrachloroethene	**2**		ug/L	0.5
142-28-9	1,3-Dichloropropane	BRL		ug/L	0.5
591-78-6	2-Hexanone	BRL		ug/L	5
124-48-1	Dibromochloromethane	BRL		ug/L	0.5
106-93-4	1,2-Dibromoethane (EDB)	BRL		ug/L	0.5
108-90-7	Chlorobenzene	BRL		ug/L	0.5
630-20-6	1,1,1,2-Tetrachloroethane	BRL		ug/L	0.5
100-41-4	Ethylbenzene	**0.5**		ug/L	0.5
108-38-3/106-42-3	*meta*- Xylene and *para*- Xylene	**1**		ug/L	0.5
95-47-6	*ortho*- Xylene	BRL		ug/L	0.5

GROUNDWATER ANALYTICAL

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

Field ID:	ESM-03	Matrix:	Aqueous
Project:	SARSS Ashburnham/2004-274	Container:	40 mL VOA Vial
Client:	Environmental Strategies & Management	Preservation:	HCl/Cool
Laboratory ID:	76526-05	QC Batch ID:	VM4-2999-W
Sampled:	09-10-04 14:30	Instrument ID:	MS-4 HP 6890
Received:	09-13-04 17:50	Sample Volume:	25 mL
Analyzed:	09-23-04 19:30	Dilution Factor:	1
Analyst:	TRA		

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
100-42-5	Styrene	BRL		ug/L	0.5
75-25-2	Bromoform	BRL		ug/L	0.5
98-82-8	Isopropylbenzene	BRL		ug/L	0.5
108-86-1	Bromobenzene	BRL		ug/L	0.5
79-34-5	1,1,2,2-Tetrachloroethane	BRL		ug/L	0.5
96-18-4	1,2,3-Trichloropropane	BRL		ug/L	0.5
103-65-1	*n*-Propylbenzene	**1**		ug/L	0.5
95-49-8	2-Chlorotoluene	BRL		ug/L	0.5
108-67-8	1,3,5-Trimethylbenzene	**0.9**		ug/L	0.5
106-43-4	4-Chlorotoluene	BRL		ug/L	0.5
98-06-6	*tert*-Butylbenzene	BRL		ug/L	0.5
95-63-6	1,2,4-Trimethylbenzene	**2**		ug/L	0.5
135-98-8	*sec*-Butylbenzene	**1**		ug/L	0.5
541-73-1	1,3-Dichlorobenzene	BRL		ug/L	0.5
99-87-6	4-Isopropyltoluene	**0.8**		ug/L	0.5
106-46-7	1,4-Dichlorobenzene	BRL		ug/L	0.5
95-50-1	1,2-Dichlorobenzene	BRL		ug/L	0.5
104-51-8	*n*-Butylbenzene	**3**		ug/L	0.5
96-12-8	1,2-Dibromo-3-chloropropane	BRL		ug/L	0.5
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/L	0.5
87-68-3	Hexachlorobutadiene	BRL		ug/L	0.5
91-20-3	Naphthalene	**0.8**		ug/L	0.5
87-61-6	1,2,3-Trichlorobenzene	BRL		ug/L	0.5
75-65-0	*tert*-Butyl Alcohol (TBA)	BRL		ug/L	20
108-20-3	Di-isopropyl Ether (DIPE)	BRL		ug/L	0.5
637-92-3	Ethyl *tert*-butyl Ether (ETBE)	BRL		ug/L	0.5
994-05-8	*tert*-Amyl Methyl Ether (TAME)	BRL		ug/L	0.5

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
Dibromofluoromethane	10	8.5	**85** %	70 - 130 %
1,2-Dichloroethane-d_4	10	8.6	**86** %	70 - 130 %
Toluene-d_8	10	9.0	**90** %	70 - 130 %
4-Bromofluorobenzene	10	9.2	**92** %	70 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Sample preparation performed by EPA Method 5030B.

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

GROUNDWATER ANALYTICAL

EPA Method 8260B
Volatile Organics by GC/MS

Field ID:	ESM-04	Matrix:	Aqueous
Project:	SARSS Ashburnham/2004-274	Container:	40 mL VOA Vial
Client:	Environmental Strategies & Management	Preservation:	HCl/Cool
Laboratory ID:	76526-06	QC Batch ID:	VM4-2999-W
Sampled:	09-10-04 15:30	Instrument ID:	MS-4 HP 6890
Received:	09-13-04 17:50	Sample Volume:	25 mL
Analyzed:	09-23-04 20:10	Dilution Factor:	1
Analyst:	TRA		

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
75-71-8	Dichlorodifluoromethane	BRL		ug/L	0.5
74-87-3	Chloromethane	BRL		ug/L	0.5
75-01-4	Vinyl Chloride	BRL		ug/L	0.5
74-83-9	Bromomethane	BRL		ug/L	0.5
75-00-3	Chloroethane	BRL		ug/L	0.5
75-69-4	Trichlorofluoromethane	BRL		ug/L	0.5
60-29-7	Diethyl Ether	BRL		ug/L	2
75-35-4	1,1-Dichloroethene	BRL		ug/L	0.5
76-13-1	1,1,2-Trichlorotrifluoroethane	BRL		ug/L	5
67-64-1	Acetone	BRL		ug/L	10
75-15-0	Carbon Disulfide	BRL		ug/L	5
75-09-2	Methylene Chloride	BRL		ug/L	2.5
156-60-5	*trans*- 1,2-Dichloroethene	BRL		ug/L	0.5
1634-04-4	Methyl *tert*- butyl Ether (MTBE)	2		ug/L	0.5
75-34-3	1,1-Dichloroethane	BRL		ug/L	0.5
594-20-7	2,2-Dichloropropane	BRL		ug/L	0.5
156-59-2	*cis*- 1,2-Dichloroethene	1		ug/L	0.5
78-93-3	2-Butanone (MEK)	BRL		ug/L	5
74-97-5	Bromochloromethane	BRL		ug/L	0.5
109-99-9	Tetrahydrofuran (THF)	BRL		ug/L	5
67-66-3	Chloroform	BRL		ug/L	0.5
71-55-6	1,1,1-Trichloroethane	BRL		ug/L	0.5
56-23-5	Carbon Tetrachloride	BRL		ug/L	0.5
563-58-6	1,1-Dichloropropene	BRL		ug/L	0.5
71-43-2	Benzene	BRL		ug/L	0.5
107-06-2	1,2-Dichloroethane	BRL		ug/L	0.5
79-01-6	Trichloroethene	2		ug/L	0.5
78-87-5	1,2-Dichloropropane	BRL		ug/L	0.5
74-95-3	Dibromomethane	BRL		ug/L	0.5
75-27-4	Bromodichloromethane	BRL		ug/L	0.5
123-91-1	1,4-Dioxane	BRL		ug/L	500
10061-01-5	*cis*- 1,3-Dichloropropene	BRL		ug/L	0.5
108-10-1	4-Methyl-2-Pentanone (MIBK)	BRL		ug/L	5
108-88-3	Toluene	BRL		ug/L	0.5
10061-02-6	*trans*- 1,3-Dichloropropene	BRL		ug/L	0.5
79-00-5	1,1,2-Trichloroethane	BRL		ug/L	0.5
127-18-4	Tetrachloroethene	4		ug/L	0.5
142-28-9	1,3-Dichloropropane	BRL		ug/L	0.5
591-78-6	2-Hexanone	BRL		ug/L	5
124-48-1	Dibromochloromethane	BRL		ug/L	0.5
106-93-4	1,2-Dibromoethane (EDB)	BRL		ug/L	0.5
108-90-7	Chlorobenzene	BRL		ug/L	0.5
630-20-6	1,1,1,2-Tetrachloroethane	BRL		ug/L	0.5
100-41-4	Ethylbenzene	BRL		ug/L	0.5
108-38-3/106-42-3	*meta*- Xylene and *para*- Xylene	BRL		ug/L	0.5
95-47-6	*ortho*- Xylene	BRL		ug/L	0.5

GROUNDWATER ANALYTICAL

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

Field ID:	ESM-04	Matrix:	Aqueous
Project:	SARSS Ashburnham/2004-274	Container:	40 mL VOA Vial
Client:	Environmental Strategies & Management	Preservation:	HCl/Cool
Laboratory ID:	76526-06	QC Batch ID:	VM4-2999-W
Sampled:	09-10-04 15:30	Instrument ID:	MS-4 HP 6890
Received:	09-13-04 17:50	Sample Volume:	25 mL
Analyzed:	09-23-04 20:10	Dilution Factor:	1
Analyst:	TRA		

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
100-42-5	Styrene	BRL		ug/L	0.5
75-25-2	Bromoform	BRL		ug/L	0.5
98-82-8	Isopropylbenzene	3		ug/L	0.5
108-86-1	Bromobenzene	BRL		ug/L	0.5
79-34-5	1,1,2,2-Tetrachloroethane	BRL		ug/L	0.5
96-18-4	1,2,3-Trichloropropane	BRL		ug/L	0.5
103-65-1	*n*-Propylbenzene	BRL		ug/L	0.5
95-49-8	2-Chlorotoluene	BRL		ug/L	0.5
108-67-8	1,3,5-Trimethylbenzene	BRL		ug/L	0.5
106-43-4	4-Chlorotoluene	BRL		ug/L	0.5
98-06-6	*tert*-Butylbenzene	BRL		ug/L	0.5
95-63-6	1,2,4-Trimethylbenzene	BRL		ug/L	0.5
135-98-8	*sec*-Butylbenzene	2		ug/L	0.5
541-73-1	1,3-Dichlorobenzene	BRL		ug/L	0.5
99-87-6	4-Isopropyltoluene	BRL		ug/L	0.5
106-46-7	1,4-Dichlorobenzene	BRL		ug/L	0.5
95-50-1	1,2-Dichlorobenzene	BRL		ug/L	0.5
104-51-8	*n*-Butylbenzene	BRL		ug/L	0.5
96-12-8	1,2-Dibromo-3-chloropropane	BRL		ug/L	0.5
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/L	0.5
87-68-3	Hexachlorobutadiene	BRL		ug/L	0.5
91-20-3	Naphthalene	0.5		ug/L	0.5
87-61-6	1,2,3-Trichlorobenzene	BRL		ug/L	0.5
75-65-0	*tert*-Butyl Alcohol (TBA)	BRL		ug/L	20
108-20-3	Di-isopropyl Ether (DIPE)	BRL		ug/L	0.5
637-92-3	Ethyl *tert*-butyl Ether (ETBE)	BRL		ug/L	0.5
994-05-8	*tert*-Amyl Methyl Ether (TAME)	BRL		ug/L	0.5

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
Dibromofluoromethane	10	8.5	85 %	70 - 130 %
1,2-Dichloroethane-d_4	10	8.8	88 %	70 - 130 %
Toluene-d_8	10	8.5	85 %	70 - 130 %
4-Bromofluorobenzene	10	8.6	86 %	70 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Sample preparation performed by EPA Method 5030B.

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

GROUNDWATER ANALYTICAL

Massachusetts DEP EPH Method
Extractable Petroleum Hydrocarbons by GC/FID

Field ID:	**ESM-01**	Matrix:	**Aqueous**
Project:	**SARSS Ashburnham/2004-274**	Container:	**1 L Amber Glass**
Client:	**Environmental Strategies & Management, Inc.**	Preservation:	**H2SO4 / Cool**
Laboratory ID:	**76526-07**	QC Batch ID:	**EP-1418-F**
Sampled:	**09-10-04 12:15**	Instrument ID:	**GC-7 HP 5890**
Received:	**09-13-04 17:50**	Sample Volume:	**850 mL**
Extracted:	**09-20-04 15:30**	Final Volume:	**1 mL**
Analyzed (AL):	**09-24-04 18:41**	Aliphatic Dilution Factor:	**1**
Analyzed (AR):	**09-24-04 19:24**	Aromatic Dilution Factor:	**1**
Analyst:	MM		

EPH Ranges	Concentration	Notes	Units	Reporting Limit
n-C9 to n-C18 Aliphatic Hydrocarbons †	BRL		ug/L	590
n-C19 to n-C36 Aliphatic Hydrocarbons †	BRL		ug/L	590
n-C11 to n-C22 Aromatic Hydrocarbons †◊	BRL		ug/L	180
Unadjusted n-C11 to n-C22 Aromatic Hydrocarbons †	BRL		ug/L	180

QC Surrogate Compound		Spiked	Measured	Recovery	QC Limits
Fractionation:	2-Fluorobiphenyl	47	43	**92 %**	40 - 140 %
	2-Bromonaphthalene	47	43	**91 %**	40 - 140 %
Extraction:	Chloro-octadecane	47	33	**71 %**	40 - 140 %
	ortho-Terphenyl	47	38	**81 %**	40 - 140 %

QA/QC Certification

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

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

Method Reference: Method for the Determination of Extractable Petroleum Hydrocarbons, MA DEP (Revision 1.1, 2004). Sample extraction performed by separatory funnel technique.

Report Notations:

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

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

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

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

GROUNDWATER ANALYTICAL

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

Field ID:	ESM-01	Matrix:	Aqueous
Project:	SARSS Ashburnham/2004-274	Container:	1 L Amber Glass
Client:	Environmental Strategies & Management	Preservation:	H2SO4/Cool
Laboratory ID:	76526-07	QC Batch ID:	EP-1418-F
Sampled:	09-10-04 12:15	Instrument ID:	MS-6 HP 6890
Received:	09-13-04 17:50	Sample Volume:	850 mL
Extracted:	09-20-04 15:30	Final Volume:	1 mL
Analyzed:	09-24-04 14:36	Dilution Factor:	1
Analyst:	JJT		

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

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
ortho-Terphenyl	47	40	84 %	40 - 140 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Method modified by use of selected ion monitoring (SIM) in accordance with Section 7.5.5 of the method.
Method protocol modified to include acidification and the surrogate compound in accordance with the MA DEP Method for the Determination of Extractable Petroleum Hydrocarbons.
Sample extraction performed by EPA Method 3510C.

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

GROUNDWATER ANALYTICAL

Massachusetts DEP EPH Method
Extractable Petroleum Hydrocarbons by GC/FID

Field ID:	ESM-02	Matrix:	Aqueous
Project:	SARSS Ashburnham/2004-274	Container:	1 L Amber Glass
Client:	Environmental Strategies & Management, Inc.	Preservation:	H2SO4 / Cool
Laboratory ID:	76526-08	QC Batch ID:	EP-1418-F
Sampled:	09-10-04 13:20	Instrument ID:	GC-7 HP 5890
Received:	09-13-04 17:50	Sample Volume:	900 mL
Extracted:	09-20-04 15:30	Final Volume:	1 mL
Analyzed (AL):	09-24-04 20:50	Aliphatic Dilution Factor:	1
Analyzed (AR):	09-24-04 21:34	Aromatic Dilution Factor:	1
Analyst:	MM		

EPH Ranges	Concentration	Notes	Units	Reporting Limit
n-C9 to n-C18 Aliphatic Hydrocarbons †	BRL		ug/L	560
n-C19 to n-C36 Aliphatic Hydrocarbons †	BRL		ug/L	560
n-C11 to n-C22 Aromatic Hydrocarbons †◊	BRL		ug/L	170
Unadjusted n-C11 to n-C22 Aromatic Hydrocarbons †	BRL		ug/L	170

QC Surrogate Compound		Spiked	Measured	Recovery	QC Limits
Fractionation:	2-Fluorobiphenyl	44	35	79 %	40 - 140 %
	2-Bromonaphthalene	44	34	76 %	40 - 140 %
Extraction:	Chloro-octadecane	44	30	67 %	40 - 140 %
	ortho-Terphenyl	44	32	72 %	40 - 140 %

QA/QC Certification

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

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

Method Reference: Method for the Determination of Extractable Petroleum Hydrocarbons, MA DEP (Revision 1.1, 2004). Sample extraction performed by separatory funnel technique.

Report Notations:

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

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

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

GROUNDWATER ANALYTICAL

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

Field ID:	ESM-02	Matrix:	Aqueous
Project:	SARSS Ashburnham/2004-274	Container:	1 L Amber Glass
Client:	Environmental Strategies & Management	Preservation:	H2SO4/Cool
Laboratory ID:	76526-08	QC Batch ID:	EP-1418-F
Sampled:	09-10-04 13:20	Instrument ID:	MS-6 HP 6890
Received:	09-13-04 17:50	Sample Volume:	900 mL
Extracted:	09-20-04 15:30	Final Volume:	1 mL
Analyzed:	09-24-04 15:16	Dilution Factor:	1
Analyst:	JJT		

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

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
ortho- Terphenyl	44	31	69 %	40 - 140 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Method modified by use of selected ion monitoring (SIM) in accordance with Section 7.5.5 of the method.
Method protocol modified to include acidification and the surrogate compound in accordance with the MA DEP Method for the Determination of Extractable Petroleum Hydrocarbons.
Sample extraction performed by EPA Method 3510C.

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

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

GROUNDWATER ANALYTICAL

Massachusetts DEP EPH Method
Extractable Petroleum Hydrocarbons by GC/FID

Field ID:	**ESM-03**	Matrix:	**Aqueous**
Project:	**SARSS Ashburnham/2004-274**	Container:	**1 L Amber Glass**
Client:	**Environmental Strategies & Management, Inc.**	Preservation:	**H2SO4 / Cool**
Laboratory ID:	**76526-09**	QC Batch ID:	**EP-1418-F**
Sampled:	**09-10-04 14:35**	Instrument ID:	**GC-7 HP 5890**
Received:	**09-13-04 17:50**	Sample Volume:	**900 mL**
Extracted:	**09-20-04 15:30**	Final Volume:	**1 mL**
Analyzed (AL):	**09-24-04 22:17**	Aliphatic Dilution Factor:	**1**
Analyzed (AR):	**09-24-04 23:00**	Aromatic Dilution Factor:	**1**
Analyst:	**MM**		

EPH Ranges	Concentration	Notes	Units	Reporting Limit
n-C9 to n-C18 Aliphatic Hydrocarbons †	BRL		ug/L	560
n-C19 to n-C36 Aliphatic Hydrocarbons †	BRL		ug/L	560
n-C11 to n-C22 Aromatic Hydrocarbons †◊	**220**		ug/L	170
Unadjusted n-C11 to n-C22 Aromatic Hydrocarbons †	230		ug/L	170

QC Surrogate Compound		Spiked	Measured	Recovery	QC Limits
Fractionation:	2-Fluorobiphenyl	44	44	**100 %**	40 - 140 %
	2-Bromonaphthalene	44	42	**96 %**	40 - 140 %
Extraction:	Chloro-octadecane	44	37	**83 %**	40 - 140 %
	ortho-Terphenyl	44	41	**93 %**	40 - 140 %

QA/QC Certification

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

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

Method Reference: Method for the Determination of Extractable Petroleum Hydrocarbons, MA DEP (Revision 1.1, 2004). Sample extraction performed by separatory funnel technique.

Report Notations:

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

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

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

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

GROUNDWATER ANALYTICAL

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

Field ID:	ESM-03	Matrix:	Aqueous
Project:	SARSS Ashburnham/2004-274	Container:	1 L Amber Glass
Client:	Environmental Strategies & Management	Preservation:	H2SO4/Cool
Laboratory ID:	76526-09	QC Batch ID:	EP-1418-F
Sampled:	09-10-04 14:35	Instrument ID:	MS-6 HP 6890
Received:	09-13-04 17:50	Sample Volume:	900 mL
Extracted:	09-20-04 15:30	Final Volume:	1 mL
Analyzed:	09-24-04 15:56	Dilution Factor:	1
Analyst:	JJT		

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
91-20-3	Naphthalene	**2.2**		ug/L	0.6
91-57-6	2-Methylnaphthalene	**0.8**		ug/L	0.6
208-96-8	Acenaphthylene	BRL		ug/L	0.6
83-32-9	Acenaphthene	BRL		ug/L	0.6
86-73-7	Fluorene	BRL		ug/L	0.6
85-01-8	Phenanthrene	BRL		ug/L	0.6
120-12-7	Anthracene	BRL		ug/L	0.6
206-44-0	Fluoranthene	BRL		ug/L	0.6
129-00-0	Pyrene	BRL		ug/L	0.6
56-55-3	Benzo[a]anthracene	BRL		ug/L	0.1
218-01-9	Chrysene	BRL		ug/L	0.1
205-99-2	Benzo[b]fluoranthene	BRL		ug/L	0.1
207-08-9	Benzo[k]fluoranthene	BRL		ug/L	0.1
50-32-8	Benzo[a]pyrene	BRL		ug/L	0.1
193-39-5	Indeno[1,2,3-c,d]pyrene	BRL		ug/L	0.1
53-70-3	Dibenzo[a,h]anthracene	BRL		ug/L	0.1
191-24-2	Benzo[g,h,i]perylene	BRL		ug/L	0.1

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
ortho-Terphenyl	44	39	**88 %**	40 - 140 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Method modified by use of selected ion monitoring (SIM) in accordance with Section 7.5.5 of the method.
Method protocol modified to include acidification and the surrogate compound in accordance with the MA DEP Method for the Determination of Extractable Petroleum Hydrocarbons.
Sample extraction performed by EPA Method 3510C.

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

GROUNDWATER ANALYTICAL

Massachusetts DEP EPH Method
Extractable Petroleum Hydrocarbons by GC/FID

Field ID:	ESM-04	Matrix:	Aqueous
Project:	SARSS Ashburnham/2004-274	Container:	1 L Amber Glass
Client:	Environmental Strategies & Management, Inc.	Preservation:	H2SO4 / Cool
Laboratory ID:	76526-10	QC Batch ID:	EP-1418-F
Sampled:	09-10-04 15:40	Instrument ID:	GC-7 HP 5890
Received:	09-13-04 17:50	Sample Volume:	900 mL
Extracted:	09-20-04 15:30	Final Volume:	1 mL
Analyzed (AL):	09-24-04 23:43	Aliphatic Dilution Factor:	1
Analyzed (AR):	09-25-04 00:26	Aromatic Dilution Factor:	1
Analyst:	MM		

EPH Ranges	Concentration	Notes	Units	Reporting Limit
n-C9 to n-C18 Aliphatic Hydrocarbons †	BRL		ug/L	560
n-C19 to n-C36 Aliphatic Hydrocarbons †	BRL		ug/L	560
n-C11 to n-C22 Aromatic Hydrocarbons †◊	**400**		ug/L	170
Unadjusted n-C11 to n-C22 Aromatic Hydrocarbons †	410		ug/L	170

QC Surrogate Compound		Spiked	Measured	Recovery	QC Limits
Fractionation:	2-Fluorobiphenyl	44	44	**100** %	40 - 140 %
	2-Bromonaphthalene	44	45	**101** %	40 - 140 %
Extraction:	Chloro-octadecane	44	21	**47** %	40 - 140 %
	ortho-Terphenyl	44	27	**60** %	40 - 140 %

QA/QC Certification

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

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

Method Reference: Method for the Determination of Extractable Petroleum Hydrocarbons, MA DEP (Revision 1.1, 2004). Sample extraction performed by separatory funnel technique.

Report Notations:

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

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

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

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

GROUNDWATER ANALYTICAL

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

Field ID:	ESM-04	Matrix:	Aqueous
Project:	SARSS Ashburnham/2004-274	Container:	1 L Amber Glass
Client:	Environmental Strategies & Management	Preservation:	H2SO4/Cool
Laboratory ID:	76526-10	QC Batch ID:	EP-1418-F
Sampled:	09-10-04 15:40	Instrument ID:	MS-6 HP 6890
Received:	09-13-04 17:50	Sample Volume:	900 mL
Extracted:	09-20-04 15:30	Final Volume:	1 mL
Analyzed:	09-24-04 16:37	Dilution Factor:	1
Analyst:	JJT		

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
91-20-3	Naphthalene	BRL		ug/L	0.6
91-57-6	2-Methylnaphthalene	BRL		ug/L	0.6
208-96-8	Acenaphthylene	BRL		ug/L	0.6
83-32-9	Acenaphthene	**1.4**		ug/L	0.6
86-73-7	Fluorene	**1.7**		ug/L	0.6
85-01-8	Phenanthrene	BRL		ug/L	0.6
120-12-7	Anthracene	BRL		ug/L	0.6
206-44-0	Fluoranthene	BRL		ug/L	0.6
129-00-0	Pyrene	BRL		ug/L	0.6
56-55-3	Benzo[a]anthracene	BRL		ug/L	0.1
218-01-9	Chrysene	BRL		ug/L	0.1
205-99-2	Benzo[b]fluoranthene	BRL		ug/L	0.1
207-08-9	Benzo[k]fluoranthene	BRL		ug/L	0.1
50-32-8	Benzo[a]pyrene	BRL		ug/L	0.1
193-39-5	Indeno[1,2,3-c,d]pyrene	BRL		ug/L	0.1
53-70-3	Dibenzo[a,h]anthracene	BRL		ug/L	0.1
191-24-2	Benzo[g,h,i]perylene	BRL		ug/L	0.1

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
ortho- Terphenyl	44	24	**54 %**	40 - 140 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Method modified by use of selected ion monitoring (SIM) in accordance with Section 7.5.5 of the method.
Method protocol modified to include acidification and the surrogate compound in accordance with the MA DEP Method for the Determination of Extractable Petroleum Hydrocarbons.
Sample extraction performed by EPA Method 3510C.

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

GROUNDWATER ANALYTICAL

Project Narrative

Project:	**SARSS Ashburnham/2004-274**	Lab ID:	**76526**
Client:	**Environmental Strategies & Management, Inc.**	Received:	**09-13-04 17:50**

A. Documentation and Client Communication

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

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

B. Method Modifications, Non-Conformances and Observations

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

1. MA DEP EPH Note: Samples 76526-07,-08,-09,-10. Polynuclear aromatic hydrocarbon (PAH) target analytes were identified and quantified by GC/MS-SIM, in accordance with the method provision for alternate determinative methodologies. GC/MS-SIM was used to achieve low quantification limits necessary for regulatory compliance. Target analytes were determined utilizing the same sample extract used for carbon range determination by GC/FID.
2. MA DEP VPH Note: Sample 76526-03. Sample was diluted prior to analysis. Dilution was required due to presence of non-target analyte interference.
3. EPA 8260B Non-conformance: The Laboratory Control (LCS) sample had analyte 1,4-Dioxane and tert-butyl Alcohol above recommended recovery limits for QC batch VM4-2999-W.

GROUNDWATER ANALYTICAL
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Buzzards Bay, MA 02532
Telephone (508) 759-4441 • FAX (508) 759-4475
www.groundwateranalytical.com

CHAIN-OF-CUSTODY RECORD AND WORK ORDER

№ 080510

Project Name: ...ss Ashburnham	Firm: Esm
Project Number: 2004-274	Address: 184 W Main St
Sampler Name: LM / JA	City / State / Zip: Norton MA 02766
Project Manager: Doug Hedley	Telephone: (508) 285-9700

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

TURNAROUND

- ☒ STANDARD (10 Business Days)
- ☐ PRIORITY (5 Business Days)
- ☐ RUSH (RAN- _____)
  (Rush requires Rush Authorization Number)
- ☐ Please Email to: _____
- ☐ Please FAX to: _____

BILLING

- ☐ Purchase Order No.: _____
- ☐ Third Party Billing: _____
- ☐ GWA Quote: _____

ANALYSIS REQUEST

Sampling Date	Time	SAMPLE IDENTIFICATION	Matrix: GROUNDWATER	DRINKING WATER	WASTEWATER	SOIL	OTHER SOLID	OIL/ORGANIC LIQUID	Type: COMPOSITE	GRAB	Container(s): NUMBER	40mL VOA Vial	60mL/2 oz Glass	120mL/4 oz Amber Glass	250mL/8 oz Glass	500mL/16 oz Glass	1L/32 oz Amber Glass	250mL/8 oz Plastic	500mL/16 oz Plastic	1L/32 oz Plastic	120mL Sterile	Preservation: HCl	HNO_3	H_2SO_4	NaOH	Methanol	Sodium Bisulfate	ICE	Filtered: YES	NO	LABORATORY NUMBER (Lab Use Only)
	12:15	Esm-01	X							X	3	X										X					X		X		
	12:15	Esm-01									1						X							X			X				
	12:15	Esm-01									1						X							X							
	1:10	Esm-02									3	X										X									
	1:20	Esm-02									1						X							X							
	1:25	Esm-02									1						X							X							
	2:30	Esm-03									6	X										X									
	2:35	Esm-03									2						X							X							
	3:25	Esm-04									3	X										X									
	3:30	Esm-04									3	X										X									
	3:40	Esm-04									2						X							X							

Sample	Volatiles: OPTIONS: ☐ TIC Search	SDWA: ☐ 524.2-MTBE	NPDES: ☐ 624	RCRA/21E: ☐ 8260B TCL-MTBE ☐ 8260B NH PETROLEUM ☒ 8260B	☐ 8021B Aromatics	☐ 8021B Halocarbons	☐ 8021B	Semivolatiles: ☐ 8270C	☐ 8270C PAHs only	Pest/Herb/PCBs Extractable: ☐ 8081A Pesticides	☐ 8082 PCBs	☐ 8151A Herbicides	Vol.: ☐ 8011 EDB/DBCP	Metals: Specify For Water Samples ☐ Total ☐ Dissolved	☐ Lead and Copper	☐ 13 Priority Pollutant	☐ 8 RCRA ☐ 5 RCRA ☐ MA List Metals ☐ 23 TAL	☐ Specify:	Petroleum Hydrocarbon Ext. TPH: ☐ TPH-IR	☐ Diesel Range Organics (DRO) ☐ ME DRO	☐ CT ETPH	☒ MA DEP EPH w/all targets	Vol. TPH: ☐ Hydrocarbon Fingerprint (GC/FID by ASTM D3328-00-Mod.)	☐ TPH by GC/FID (8015B Mod) Quantitative Only	☐ Gasoline Range Organics (GRO)	☐ ME GRO	☒ MA DEP VPH w/all targets	☐ VPH Carbon ranges only	Haz. Waste: ☐ TCLP ☐ SPLP ☐ 8 Metals ☐ Pb only	☐ Corrosivity (as pH) ☐ Reactivity ☐ Ignitability (as Flashpoint)	☐ MA Basic Disposal Criteria: 8260B, TPH by GC, PCBs, 5 Metals, Corrosivity, Ignitability, Reactivity	General Chemistry: ☐ Nitrate ☐ Nitrite	☐ Chloride	☐ Fluoride	☐ Sulfate	☐ Dissolved Phosphorus	☐ Ammonia	☐ TKN	☐ Total Phosphorus	☐ Total N (as NO2/NO3/TKN)	☐ Oil & Grease	☐ COD	☐ TOC	☐ BOD	☐ TDS	☐ TSS	☐ Alkalinity	☐ Cyanide, Total	☐ Cyanide, Physiologically Available	☐ pH	☐ Dissolved Oxygen	☐ Turbidity	Other: ☐ Total Coliform	☐ Fecal Coliform	☐ HPC
1																																																						
2																																																						
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9																																																						
10																																																						

REMARKS / SPECIAL INSTRUCTIONS

...P MCP Data Enhancement Affirmation

☐ NO MCP Data Certification is required.

☐ NO MCP minimum Field QC requirements have been met for this project.
(Metals, hexavalent chromium and cyanide analyses require one matrix spike per 20 samples)

☒ NO MCP Drinking Water samples required.
(Require collection of contingent duplicate samples. Trip blanks are also required if VOA samples collected)

...re: _____

DATA QUALITY OBJECTIVES

Regulatory Program

State	Standard	Deliverables
☐ CT	☒ MCP GW-1/S-1	☐ PWS Form
☐ ME	☐ MCP GW-2/S-2	☐ MWRA
☒ MA	☐ NY STARS	☐ _____
☐ NH	☐ Drinking Water	
☐ NY	☐ Wastewater	
☐ RI	☐ Waste Disposal	
☐ VT	☐ Dredge Material	
☐ ___	☐ _____	

Project Specific QC

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

Project Specific QC Required
- ☐ Sample Duplicate
- ☐ Matrix Spike
- ☐ Matrix Spike Duplicate

Selection of QC Sample
- ☐ Please use sample: _____

CHAIN-OF-CUSTODY RECORD

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

Relinquished by Sampler:	Date	Time	Received by:	Receipt Temperature:
[signature]	9/15/04	12:10	[signature]	☒ Ice ☐ Refrigerated 2-6°C Recommended 3.4
Relinquished by:	**Date**	**Time**	**Received by:**	**Container Count:**
[signature]	9/15/04	5:32		26
Relinquished by:	**Date**	**Time**	**Received by Laboratory:**	**Shipping/Airbill Number:**
			[signature]	

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

Custody Seal Number:

GROUNDWATER ANALYTICAL

Quality Assurance/Quality Control

A. Program Overview

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

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

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

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

B. Definitions

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

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

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

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

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

GROUNDWATER ANALYTICAL

Quality Control Report
Laboratory Control Samples

		LCS		LCSD	
Category:	EPA 8270C Modified	Instrument ID:	MS-6 HP 6890	Instrument ID:	MS-6 HP 6890
QC Batch ID:	EP-1418-F	Extracted:	09-20-04 15:30	Extracted:	09-20-04 15:30
Matrix:	Aqueous	Analyzed:	09-22-04 15:29	Analyzed:	09-22-04 16:09
Units:	ug/L	Analyst:	JJT	Analyst:	JJT

CAS Number	Analyte	LCS			LCS Duplicate				QC Limits	
		Spiked	Measured	Recovery	Spiked	Measured	Recovery	RPD	Spike	RPD
91-20-3	Naphthalene	5.0	3.1	62 %	5.0	3.1	63 %	1 %	40 - 140 %	20%
91-57-6	2-Methylnaphthalene	5.0	2.9	58 %	5.0	2.9	57 %	1 %	40 - 140 %	20%
85-01-8	Phenanthrene	5.0	3.5	70 %	5.0	3.5	69 %	2 %	40 - 140 %	20%
83-32-9	Acenaphthene	5.0	4.1	82 %	5.0	4.2	83 %	1 %	40 - 140 %	20%
208-96-8	Acenaphthylene	5.0	3.1	62 %	5.0	3.1	61 %	1 %	40 - 140 %	20%
86-73-7	Fluorene	5.0	2.9	57 %	5.0	2.8	56 %	3 %	40 - 140 %	20%
120-12-7	Anthracene	5.0	3.1	61 %	5.0	3.1	63 %	2 %	40 - 140 %	20%
206-44-0	Fluoranthene	5.0	3.7	73 %	5.0	3.7	74 %	1 %	40 - 140 %	20%
129-00-0	Pyrene	5.0	3.5	69 %	5.0	3.6	72 %	3 %	40 - 140 %	20%
56-55-3	Benzo[a]anthracene	5.0	3.7	74 %	5.0	3.9	78 %	6 %	40 - 140 %	20%
218-01-9	Chrysene	5.0	3.1	61 %	5.0	3.2	65 %	5 %	40 - 140 %	20%
205-99-2	Benzo[b]fluoranthene	5.0	3.0	60 %	5.0	3.2	64 %	6 %	40 - 140 %	20%
207-08-9	Benzo[k]fluoranthene	5.0	3.5	69 %	5.0	3.7	74 %	7 %	40 - 140 %	20%
50-32-8	Benzo[a]pyrene	5.0	3.4	69 %	5.0	3.7	73 %	6 %	40 - 140 %	20%
193-39-5	Indeno[1,2,3-c,d]pyrene	5.0	3.7	74 %	5.0	4.0	79 %	7 %	40 - 140 %	20%
53-70-3	Dibenzo[a,h]anthracene	5.0	3.2	65 %	5.0	3.4	69 %	6 %	40 - 140 %	20%
191-24-2	Benzo[g,h,i]perylene	5.0	3.7	74 %	5.0	3.9	79 %	6 %	40 - 140 %	20%

QC Surrogate Compound	Spiked	Measured	Recovery	Spiked	Measured	Recovery		QC Limits
ortho-Terphenyl	40	35	88 %	40	35	88 %		40 - 140 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Method modified by use of selected ion monitoring (SIM) in accordance with Section 7.5.5 of the method. Method protocol modified to include acidification and the surrogate compound in accordance with the MA DEP Method for the Determination of Extractable Petroleum Hydrocarbons. Sample extraction performed by EPA Method 3510C.

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

The LCS and LCSD are prepared from separate source standards than those used for calibration.

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

GROUNDWATER ANALYTICAL

Quality Control Report
Method Blank

Category:	EPA Method 8270C (Mod.) - EPH PAHs by GC/MS-SIM	Instrument ID:	MS-6 HP 6890
QC Batch ID:	EP-1418-F	Extracted:	09-20-04 15:30
Matrix:	Aqueous	Analyzed:	09-22-04 14:49
		Analyst:	JJT

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

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
ortho- Terphenyl	40	37	92 %	40 - 140 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Method modified by use of selected ion monitoring (SIM) in accordance with Section 7.5.5 of the method.
Method protocol modified to include acidification and the surrogate compound in accordance with the MA DEP Method for the Determination of Extractable Petroleum Hydrocarbons.
Sample extraction performed by EPA Method 3510C.

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

GROUNDWATER ANALYTICAL

Quality Control Report
Laboratory Control Samples

		LCS		LCSD	
Category:	MA DEP VPH	Instrument ID:	GC-1 HP 5890	Instrument ID:	GC-1 HP 5890
QC Batch ID:	VG1-2045-W	Analyzed:	09-22-04 09:40	Analyzed:	09-22-04 18:20
Matrix:	Aqueous	Analyst:	MB	Analyst:	MB
Units:	ug/L				

CAS Number	Analyte	LCS			LCS Duplicate				QC Limits	
		Spiked	Measured	Recovery	Spiked	Measured	Recovery	RPD	Spike	RPD
109-66-0	*n*- Pentane	50	51	**102 %**	50	50	**100 %**	**0 %**	70 - 130 %	25%
107-83-5	2-Methylpentane	50	49	**99 %**	50	49	**97 %**	**0 %**	70 - 130 %	25%
540-84-1	2,2,4-Trimethylpentane	50	49	**99 %**	50	49	**98 %**	**0 %**	70 - 130 %	25%
n/a	Aliphatic Group 1	150	150	**100 %**	150	150	**100 %**	**0 %**	70 - 130 %	25%
111-84-2	*n*- Nonane	50	49	**99 %**	50	49	**98 %**	**0 %**	70 - 130 %	25%
124-18-5	*n*- Decane	50	54	**109 %**	50	52	**105 %**	**1 %**	70 - 130 %	25%
1678-93-9	*n*- Butylcyclohexane	50	51	**101 %**	50	50	**100 %**	**0 %**	70 - 130 %	25%
n/a	Aliphatic Group 2	150	150	**100 %**	150	150	**100 %**	**0 %**	70 - 130 %	25%
1634-04-4	Methyl *tert*-butyl Ether	50	51	**101 %**	50	49	**98 %**	**1 %**	70 - 130 %	25%
71-43-2	Benzene	50	47	**93 %**	50	46	**92 %**	**0 %**	70 - 130 %	25%
108-88-3	Toluene	50	46	**93 %**	50	47	**93 %**	**0 %**	70 - 130 %	25%
100-41-4	Ethylbenzene	50	46	**92 %**	50	46	**92 %**	**0 %**	70 - 130 %	25%
108-38-3 and 106-42-3	*meta*- Xylene and *para*-Xylene	100	93	**93 %**	100	93	**93 %**	**0 %**	70 - 130 %	25%
95-47-6	*ortho*- Xylene	50	47	**94 %**	50	47	**94 %**	**0 %**	70 - 130 %	25%
95-63-6	1,2,4-Trimethylbenzene	50	45	**91 %**	50	45	**90 %**	**0 %**	70 - 130 %	25%
91-20-3	Naphthalene	50	44	**88 %**	50	46	**91 %**	**1 %**	70 - 130 %	25%
n/a	Aromatic Group	450	420	**93 %**	450	420	**93 %**	**0 %**	70 - 130 %	25%

QC Surrogate Compound	Spiked	Measured	Recovery	Spiked	Measured	Recovery		QC Limits
2,5-Dibromotoluene (PID)	100	87	**87 %**	100	91	**91 %**		70 - 130 %
2,5-Dibromotoluene (FID)	100	83	**83 %**	100	88	**88 %**		70 - 130 %

Method Reference: Method for the Determination of Volatile Petroleum Hydrocarbons, MA DEP (Revision 1.1, 2004).

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

GROUNDWATER ANALYTICAL

Quality Control Report
Method Blank

Category:	**MA DEP VPH**	Instrument ID:	**GC-1 HP 5890**
QC Batch ID:	**VG1-2045-W**	Analyzed:	**09-22-04 10:21**
Matrix:	**Aqueous**	Analyst:	**MB**

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

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

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
2,5-Dibromotoluene (PID)	100	91	**91** %	70 - 130 %
2,5-Dibromotoluene (FID)	100	87	**87** %	70 - 130 %

Method Reference: Method for the Determination of Volatile Petroleum Hydrocarbons, MA DEP (Revision 1.1, 2004).

Report Notations:

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

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

◊ n-C5 to n-C8 Aliphatic Hydrocarbons range data excludes the method target analyte concentrations.

⊗ n-C9 to n-C12 Aliphatic Hydrocarbons range data excludes the method target analyte concentrations and the concentration for the n-C9 to n-C10 Aromatic Hydrocarbons range.

¤ Analyte elutes in the n-C5 to n-C8 Aliphatic Hydrocarbons range.

‡ Analyte elutes in the n-C9 to n-C12 Aliphatic Hydrocarbons range.

GROUNDWATER ANALYTICAL

Quality Control Report
Laboratory Control Samples

		LCS		LCSD	
Category:	EPA Method 8260B	Instrument ID:	MS-4 HP 6890	Instrument ID:	MS-4 HP 6890
QC Batch ID:	VM4-2999-WL	Analyzed:	09-23-04 12:52	Analyzed:	09-23-04 13:44
Matrix:	Aqueous	Analyst:	TRA	Analyst:	TRA
Units:	ug/L				

CAS Number	Analyte	LCS			LCS Duplicate				QC Limits	
		Spiked	Measured	Recovery	Spiked	Measured	Recovery	RPD	Spike	RPD
75-71-8	Dichlorodifluoromethane	10	10	100 %	10	10	100 %	0 %	70 - 130 %	25%
74-87-3	Chloromethane	10	9.4	94 %	10	9	90 %	4 %	70 - 130 %	25%
75-01-4	Vinyl Chloride	10	9.9	99 %	10	10	103 %	5 %	70 - 130 %	25%
74-83-9	Bromomethane	10	9.8	98 %	10	9.8	98 %	0 %	70 - 130 %	25%
75-00-3	Chloroethane	10	11	105 %	10	11	109 %	4 %	70 - 130 %	25%
75-69-4	Trichlorofluoromethane	10	9.5	95 %	10	9.9	99 %	4 %	70 - 130 %	25%
60-29-7	Diethyl Ether	20	21	103 %	20	21	103 %	0 %	70 - 130 %	25%
75-35-4	1,1-Dichloroethene	10	11	107 %	10	11	111 %	4 %	70 - 130 %	25%
76-13-1	1,1,2-Trichlorotrifluoroethane	20	23	114 %	20	24	119 %	4 %	70 - 130 %	25%
67-64-1	Acetone	20	21	103 %	20	20	100 %	3 %	70 - 130 %	25%
75-15-0	Carbon Disulfide	20	20	100 %	20	21	104 %	4 %	70 - 130 %	25%
75-09-2	Methylene Chloride	10	11	107 %	10	11	108 %	1 %	70 - 130 %	25%
156-60-5	*trans*- 1,2-Dichloroethene	10	8.8	88 %	10	9.1	91 %	4 %	70 - 130 %	25%
1634-04-4	Methyl *tert*- butyl Ether (MTBE)	10	11	107 %	10	9	90 %	18 %	70 - 130 %	25%
75-34-3	1,1-Dichloroethane	10	11	112 %	10	9	90 %	22 %	70 - 130 %	25%
594-20-7	2,2-Dichloropropane	10	11	107 %	10	11	111 %	4 %	70 - 130 %	25%
156-59-2	*cis*- 1,2-Dichloroethene	10	11	110 %	10	11	112 %	2 %	70 - 130 %	25%
78-93-3	2-Butanone (MEK)	20	25	123 %	20	24	119 %	3 %	70 - 130 %	25%
74-97-5	Bromochloromethane	10	11	106 %	10	11	106 %	0 %	70 - 130 %	25%
109-99-9	Tetrahydrofuran (THF)	20	21	104 %	20	21	104 %	0 %	70 - 130 %	25%
67-66-3	Chloroform	10	10	102 %	10	10	104 %	2 %	70 - 130 %	25%
71-55-6	1,1,1-Trichloroethane	10	10	101 %	10	11	106 %	5 %	70 - 130 %	25%
56-23-5	Carbon Tetrachloride	10	11	106 %	10	11	111 %	4 %	70 - 130 %	25%
563-58-6	1,1-Dichloropropene	10	11	113 %	10	12	117 %	4 %	70 - 130 %	25%
71-43-2	Benzene	10	11	105 %	10	11	107 %	2 %	70 - 130 %	25%
107-06-2	1,2-Dichloroethane	10	10	102 %	10	10	103 %	1 %	70 - 130 %	25%
79-01-6	Trichloroethene	10	10	103 %	10	11	106 %	3 %	70 - 130 %	25%
78-87-5	1,2-Dichloropropane	10	11	109 %	10	11	110 %	1 %	70 - 130 %	25%
74-95-3	Dibromomethane	10	10	104 %	10	11	107 %	3 %	70 - 130 %	25%
75-27-4	Bromodichloromethane	10	11	105 %	10	11	106 %	0 %	70 - 130 %	25%
123-91-1	1,4-Dioxane	200	360	182 % q	200	350	173 % q	5 %	70 - 130 %	25%
10061-01-5	*cis*- 1,3-Dichloropropene	10	11	114 %	10	12	116 %	2 %	70 - 130 %	25%
108-10-1	4-Methyl-2-Pentanone (MIBK)	20	22	112 %	20	22	110 %	2 %	70 - 130 %	25%
108-88-3	Toluene	10	10	104 %	10	11	107 %	4 %	70 - 130 %	25%
10061-02-6	*trans*- 1,3-Dichloropropene	10	9.6	96 %	10	9.4	94 %	3 %	70 - 130 %	25%
79-00-5	1,1,2-Trichloroethane	10	10	103 %	10	10	104 %	1 %	70 - 130 %	25%
127-18-4	Tetrachloroethene	10	11	106 %	10	11	109 %	3 %	70 - 130 %	25%
142-28-9	1,3-Dichloropropane	10	11	105 %	10	10	104 %	1 %	70 - 130 %	25%
591-78-6	2-Hexanone	20	19	95 %	20	19	93 %	2 %	70 - 130 %	25%
124-48-1	Dibromochloromethane	10	10	104 %	10	11	105 %	1 %	70 - 130 %	25%
106-93-4	1,2-Dibromoethane (EDB)	10	11	106 %	10	11	106 %	0 %	70 - 130 %	25%
108-90-7	Chlorobenzene	10	10	101 %	10	10	103 %	1 %	70 - 130 %	25%
630-20-6	1,1,1,2-Tetrachloroethane	10	11	107 %	10	11	109 %	1 %	70 - 130 %	25%
100-41-4	Ethylbenzene	10	11	109 %	10	11	112 %	2 %	70 - 130 %	25%
108-38-3/106-42-3	*meta*- Xylene and *para*- Xylene	20	21	107 %	20	22	109 %	2 %	70 - 130 %	25%
95-47-6	*ortho*- Xylene	10	10	105 %	10	11	106 %	2 %	70 - 130 %	25%
100-42-5	Styrene	10	11	112 %	10	11	114 %	2 %	70 - 130 %	25%
75-25-2	Bromoform	10	11	109 %	10	11	111 %	1 %	70 - 130 %	25%
98-82-8	Isopropylbenzene	10	11	107 %	10	11	109 %	1 %	70 - 130 %	25%

GROUNDWATER ANALYTICAL

Quality Control Report
Laboratory Control Samples

		LCS		LCSD	
Category:	EPA Method 8260B	Instrument ID:	MS-4 HP 6890	Instrument ID:	MS-4 HP 6890
QC Batch ID:	VM4-2999-WL	Analyzed:	09-23-04 12:52	Analyzed:	09-23-04 13:44
Matrix:	Aqueous	Analyst:	TRA	Analyst:	TRA
Units:	ug/L				

CAS Number	Analyte	LCS			LCS Duplicate				QC Limits	
		Spiked	Measured	Recovery	Spiked	Measured	Recovery	RPD	Spike	RPD
108-86-1	Bromobenzene	10	11	105 %	10	11	107 %	2 %	70 - 130 %	25%
79-34-5	1,1,2,2-Tetrachloroethane	10	11	109 %	10	11	106 %	2 %	70 - 130 %	25%
96-18-4	1,2,3-Trichloropropane	10	11	107 %	10	10	105 %	3 %	70 - 130 %	25%
103-65-1	*n*-Propylbenzene	10	11	112 %	10	11	115 %	2 %	70 - 130 %	25%
95-49-8	2-Chlorotoluene	10	10	105 %	10	11	107 %	2 %	70 - 130 %	25%
108-67-8	1,3,5-Trimethylbenzene	10	11	110 %	10	11	112 %	2 %	70 - 130 %	25%
106-43-4	4-Chlorotoluene	10	11	106 %	10	11	108 %	2 %	70 - 130 %	25%
98-06-6	*tert*-Butylbenzene	10	11	108 %	10	11	111 %	3 %	70 - 130 %	25%
95-63-6	1,2,4-Trimethylbenzene	10	11	110 %	10	11	112 %	2 %	70 - 130 %	25%
135-98-8	*sec*-Butylbenzene	10	11	108 %	10	11	111 %	3 %	70 - 130 %	25%
541-73-1	1,3-Dichlorobenzene	10	10	102 %	10	10	104 %	2 %	70 - 130 %	25%
99-87-6	4-Isopropyltoluene	10	11	108 %	10	11	110 %	2 %	70 - 130 %	25%
106-46-7	1,4-Dichlorobenzene	10	10	103 %	10	10	104 %	1 %	70 - 130 %	25%
95-50-1	1,2-Dichlorobenzene	10	10	102 %	10	10	103 %	1 %	70 - 130 %	25%
104-51-8	*n*-Butylbenzene	10	11	111 %	10	11	114 %	2 %	70 - 130 %	25%
96-12-8	1,2-Dibromo-3-chloropropane	10	11	105 %	10	10	101 %	5 %	70 - 130 %	25%
120-82-1	1,2,4-Trichlorobenzene	10	12	118 %	10	12	120 %	1 %	70 - 130 %	25%
87-68-3	Hexachlorobutadiene	10	11	108 %	10	11	112 %	3 %	70 - 130 %	25%
91-20-3	Naphthalene	10	11	109 %	10	11	108 %	1 %	70 - 130 %	25%
87-61-6	1,2,3-Trichlorobenzene	10	12	117 %	10	12	117 %	0 %	70 - 130 %	25%
75-65-0	*tert*-Butyl Alcohol (TBA)	200	270	134 % q	200	260	128 %	4 %	70 - 130 %	25%
108-20-3	Di-isopropyl Ether (DIPE)	10	10	103 %	10	10	105 %	2 %	70 - 130 %	25%
637-92-3	Ethyl *tert*-butyl Ether (ETBE)	10	10	100 %	10	10	101 %	1 %	70 - 130 %	25%
994-05-8	*tert*-Amyl Methyl Ether (TAME)	10	9.4	94 %	10	9.3	93 %	1 %	70 - 130 %	25%

QC Surrogate Compound	Spiked	Measured	Recovery	Spiked	Measured	Recovery		QC Limits
Dibromofluoromethane	10	7.7	77 %	10	7.8	78 %		70 - 130 %
1,2-Dichloroethane-d_4	10	8.4	84 %	10	8.4	84 %		70 - 130 %
Toluene-d_8	10	8.3	83 %	10	8.5	85 %		70 - 130 %
4-Bromofluorobenzene	10	7.9	79 %	10	7.9	79 %		70 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Sample preparation performed by EPA Method 5030B.

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

q Recovery outside recommended limits.

GROUNDWATER ANALYTICAL

Quality Control Report
Method Blank

Category:	**EPA Method 8260B**	Instrument ID:	**MS-4 HP 6890**
QC Batch ID:	**VM4-2999-WB**	Analyzed:	**09-23-04 14:24**
Matrix:	**Aqueous**	Analyst:	**TRA**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
75-71-8	Dichlorodifluoromethane	BRL		ug/L	0.5
74-87-3	Chloromethane	BRL		ug/L	0.5
75-01-4	Vinyl Chloride	BRL		ug/L	0.5
74-83-9	Bromomethane	BRL		ug/L	0.5
75-00-3	Chloroethane	BRL		ug/L	0.5
75-69-4	Trichlorofluoromethane	BRL		ug/L	0.5
60-29-7	Diethyl Ether	BRL		ug/L	2
75-35-4	1,1-Dichloroethene	BRL		ug/L	0.5
76-13-1	1,1,2-Trichlorotrifluoroethane	BRL		ug/L	5
67-64-1	Acetone	BRL		ug/L	10
75-15-0	Carbon Disulfide	BRL		ug/L	5
75-09-2	Methylene Chloride	BRL		ug/L	2.5
156-60-5	*trans*- 1,2-Dichloroethene	BRL		ug/L	0.5
1634-04-4	Methyl *tert*- butyl Ether (MTBE)	BRL		ug/L	0.5
75-34-3	1,1-Dichloroethane	BRL		ug/L	0.5
594-20-7	2,2-Dichloropropane	BRL		ug/L	0.5
156-59-2	*cis*- 1,2-Dichloroethene	BRL		ug/L	0.5
78-93-3	2-Butanone (MEK)	BRL		ug/L	5
74-97-5	Bromochloromethane	BRL		ug/L	0.5
109-99-9	Tetrahydrofuran (THF)	BRL		ug/L	5
67-66-3	Chloroform	BRL		ug/L	0.5
71-55-6	1,1,1-Trichloroethane	BRL		ug/L	0.5
56-23-5	Carbon Tetrachloride	BRL		ug/L	0.5
563-58-6	1,1-Dichloropropene	BRL		ug/L	0.5
71-43-2	Benzene	BRL		ug/L	0.5
107-06-2	1,2-Dichloroethane	BRL		ug/L	0.5
79-01-6	Trichloroethene	BRL		ug/L	0.5
78-87-5	1,2-Dichloropropane	BRL		ug/L	0.5
74-95-3	Dibromomethane	BRL		ug/L	0.5
75-27-4	Bromodichloromethane	BRL		ug/L	0.5
123-91-1	1,4-Dioxane	BRL		ug/L	500
10061-01-5	*cis*- 1,3-Dichloropropene	BRL		ug/L	0.5
108-10-1	4-Methyl-2-Pentanone (MIBK)	BRL		ug/L	5
108-88-3	Toluene	BRL		ug/L	0.5
10061-02-6	*trans*- 1,3-Dichloropropene	BRL		ug/L	0.5
79-00-5	1,1,2-Trichloroethane	BRL		ug/L	0.5
127-18-4	Tetrachloroethene	BRL		ug/L	0.5
142-28-9	1,3-Dichloropropane	BRL		ug/L	0.5
591-78-6	2-Hexanone	BRL		ug/L	5
124-48-1	Dibromochloromethane	BRL		ug/L	0.5
106-93-4	1,2-Dibromoethane (EDB)	BRL		ug/L	0.5
108-90-7	Chlorobenzene	BRL		ug/L	0.5
630-20-6	1,1,1,2-Tetrachloroethane	BRL		ug/L	0.5
100-41-4	Ethylbenzene	BRL		ug/L	0.5
108-38-3/106-42-3	*meta*- Xylene and *para*- Xylene	BRL		ug/L	0.5
95-47-6	*ortho*- Xylene	BRL		ug/L	0.5
100-42-5	Styrene	BRL		ug/L	0.5
75-25-2	Bromoform	BRL		ug/L	0.5
98-82-8	Isopropylbenzene	BRL		ug/L	0.5

GROUNDWATER ANALYTICAL

Quality Control Report
Method Blank

Category:	**EPA Method 8260B**	Instrument ID:	**MS-4 HP 6890**
QC Batch ID:	**VM4-2999-WB**	Analyzed:	**09-23-04 14:24**
Matrix:	**Aqueous**	Analyst:	**TRA**

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
108-86-1	Bromobenzene	BRL		ug/L	0.5
79-34-5	1,1,2,2-Tetrachloroethane	BRL		ug/L	0.5
96-18-4	1,2,3-Trichloropropane	BRL		ug/L	0.5
103-65-1	*n*-Propylbenzene	BRL		ug/L	0.5
95-49-8	2-Chlorotoluene	BRL		ug/L	0.5
108-67-8	1,3,5-Trimethylbenzene	BRL		ug/L	0.5
106-43-4	4-Chlorotoluene	BRL		ug/L	0.5
98-06-6	*tert*-Butylbenzene	BRL		ug/L	0.5
95-63-6	1,2,4-Trimethylbenzene	BRL		ug/L	0.5
135-98-8	*sec*-Butylbenzene	BRL		ug/L	0.5
541-73-1	1,3-Dichlorobenzene	BRL		ug/L	0.5
99-87-6	4-Isopropyltoluene	BRL		ug/L	0.5
106-46-7	1,4-Dichlorobenzene	BRL		ug/L	0.5
95-50-1	1,2-Dichlorobenzene	BRL		ug/L	0.5
104-51-8	*n*-Butylbenzene	BRL		ug/L	0.5
96-12-8	1,2-Dibromo-3-chloropropane	BRL		ug/L	0.5
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/L	0.5
87-68-3	Hexachlorobutadiene	BRL		ug/L	0.5
91-20-3	Naphthalene	BRL		ug/L	0.5
87-61-6	1,2,3-Trichlorobenzene	BRL		ug/L	0.5
75-65-0	*tert*-Butyl Alcohol (TBA)	BRL		ug/L	20
108-20-3	Di-isopropyl Ether (DIPE)	BRL		ug/L	0.5
637-92-3	Ethyl *tert*-butyl Ether (ETBE)	BRL		ug/L	0.5
994-05-8	*tert*-Amyl Methyl Ether (TAME)	BRL		ug/L	0.5

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
Dibromofluoromethane	10	8.3	**83 %**	70 - 130 %
1,2-Dichloroethane-d_4	10	8.5	**85 %**	70 - 130 %
Toluene-d_8	10	8.7	**87 %**	70 - 130 %
4-Bromofluorobenzene	10	8.1	**81 %**	70 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Sample preparation performed by EPA Method 5030B.

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

GROUNDWATER ANALYTICAL

Quality Control Report
Laboratory Control Samples

		LCS		LCSD	
Category:	MA DEP EPH Method	Instrument ID:	GC-7 HP 5890	Instrument ID:	GC-7 HP 5890
QC Batch ID:	EP-1418-F	Extracted:	09-20-04 15:30	Extracted:	09-20-04 15:30
Matrix:	Aqueous	Analyzed (AL):	09-21-04 16:23	Analyzed (AL):	09-21-04 17:49
Units:	ug/L	Analyzed (AR):	09-21-04 17:06	Analyzed (AR):	09-21-04 18:32
		Analyst:	MM	Analyst:	MM

CAS Number	Analyte	LCS			LCS Duplicate				QC Limits	
		Spiked	Measured	Recovery	Spiked	Measured	Recovery	RPD	Spike	RPD
111-84-2	*n*-Nonane (C_9)	50	29	**59 %**	50	32	**63 %**	**8 %**	30 - 140 %	25%
124-18-5	*n*-Decane (C_{10})	50	33	**65 %**	50	35	**70 %**	**7 %**	40 - 140 %	25%
112-40-3	*n*-Dodecane (C_{12})	50	34	**67 %**	50	36	**73 %**	**8 %**	40 - 140 %	25%
629-59-4	*n*-Tetradecane (C_{14})	50	36	**73 %**	50	40	**80 %**	**9 %**	40 - 140 %	25%
544-76-3	*n*-Hexadecane (C_{16})	50	38	**77 %**	50	42	**84 %**	**9 %**	40 - 140 %	25%
593-45-3	*n*-Octadecane (C_{18})	50	41	**81 %**	50	44	**88 %**	**8 %**	40 - 140 %	25%
n/a	*n*-C9 to *n*-C18 Group	300	210	**70 %**	300	230	**76 %**	**8 %**	40 - 140 %	25%
629-92-5	*n*-Nonadecane (C_{19})	50	41	**81 %**	50	44	**87 %**	**7 %**	40 - 140 %	25%
112-95-8	*n*-Eicosane (C_{20})	50	42	**84 %**	50	44	**87 %**	**4 %**	40 - 140 %	25%
629-97-0	*n*-Docosane (C_{22})	50	39	**77 %**	50	44	**88 %**	**13 %**	40 - 140 %	25%
646-31-1	*n*-Tetracosane (C_{24})	50	37	**74 %**	50	40	**79 %**	**7 %**	40 - 140 %	25%
630-01-3	*n*-Hexacosane (C_{26})	50	38	**75 %**	50	40	**81 %**	**7 %**	40 - 140 %	25%
630-02-4	*n*-Octacosane (C_{28})	50	36	**72 %**	50	39	**78 %**	**9 %**	40 - 140 %	25%
638-68-6	*n*-Triacontane (C_{30})	50	36	**72 %**	50	38	**77 %**	**7 %**	40 - 140 %	25%
630-06-8	*n*-Hexatriacontane (C_{36})	50	39	**79 %**	50	41	**83 %**	**5 %**	40 - 140 %	25%
n/a	*n*-C19 to *n*-C36 Group	400	310	**77 %**	400	330	**82 %**	**7 %**	40 - 140 %	25%
91-20-3	Naphthalene	50	37	**75 %**	50	40	**79 %**	**6 %**	40 - 140 %	25%
91-57-6	2-Methylnaphthalene	50	40	**80 %**	50	43	**86 %**	**8 %**	40 - 140 %	25%
208-96-8	Acenaphthylene	50	41	**82 %**	50	44	**89 %**	**8 %**	40 - 140 %	25%
83-32-9	Acenaphthene	50	42	**84 %**	50	46	**91 %**	**8 %**	40 - 140 %	25%
86-73-7	Fluorene	50	43	**86 %**	50	47	**93 %**	**9 %**	40 - 140 %	25%
85-01-8	Phenanthrene	50	45	**90 %**	50	48	**97 %**	**7 %**	40 - 140 %	25%
120-12-7	Anthracene	50	46	**93 %**	50	49	**98 %**	**6 %**	40 - 140 %	25%
206-44-0	Fluoranthene	50	47	**93 %**	50	50	**99 %**	**7 %**	40 - 140 %	25%
129-00-0	Pyrene	50	47	**93 %**	50	50	**100 %**	**7 %**	40 - 140 %	25%
56-55-3	Benzo[a]anthracene	50	49	**98 %**	50	53	**105 %**	**7 %**	40 - 140 %	25%
218-01-9	Chrysene	50	42	**84 %**	50	45	**89 %**	**6 %**	40 - 140 %	25%
205-99-2	Benzo[b]fluoranthene	50	47	**95 %**	50	51	**102 %**	**7 %**	40 - 140 %	25%
207-08-9	Benzo[k]fluoranthene	50	47	**93 %**	50	50	**99 %**	**6 %**	40 - 140 %	25%
50-32-8	Benzo[a]pyrene	50	45	**90 %**	50	49	**98 %**	**9 %**	40 - 140 %	25%
193-39-5	Indeno[1,2,3-c,d]pyrene	50	49	**97 %**	50	52	**103 %**	**6 %**	40 - 140 %	25%
53-70-3	Dibenzo[a,h]anthracene	50	47	**95 %**	50	50	**101 %**	**6 %**	40 - 140 %	25%
191-24-2	Benzo[g,h,i]perylene	50	46	**91 %**	50	50	**101 %**	**8 %**	40 - 140 %	25%
n/a	PAH Group	850	760	**89 %**	850	820	**96 %**	**7 %**	40 - 140 %	25%

QC Surrogate Compound		Spiked	Measured	Recovery	Spiked	Measured	Recovery		QC Limits
Fractionation:	2-Fluorobiphenyl	40	36	**89 %**	40	38	**94 %**		40 - 140 %
	2-Bromonaphthalene	40	35	**88 %**	40	37	**92 %**		40 - 140 %
Extraction:	Chloro-octadecane	40	35	**88 %**	40	38	**95 %**		40 - 140 %
	ortho-Terphenyl	40	32	**80 %**	40	35	**88 %**		40 - 140 %

Fractionation Breakthrough Evaluation						QC Limits
91-20-3	Naphthalene	LCS	**0 %**	LCSD	**0 %**	5%
91-57-6	2-Methylnaphthalene	LCS	**0 %**	LCSD	**0 %**	5%

Method Reference: Method for the Determination of Extractable Petroleum Hydrocarbons, MA DEP (Revision 1.1, 2004). Sample extraction performed by separatory funnel technique.

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

The LCS and LCSD are prepared from separate source standards than those used for calibration.

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GROUNDWATER ANALYTICAL

Quality Control Report
Method Blank

Category:	**MA DEP EPH**	Instrument ID:	**GC-7 HP 5890**
QC Batch ID:	**EP-1418-F**	Extracted:	**09-20-04 15:30**
Matrix:	**Aqueous**	Analyzed (AL):	**09-21-04 14:56**
		Analyzed (AR):	**09-21-04 15:39**
		Analyst:	MM

EPH Ranges	Concentration	Notes	Units	Reporting Limit
n-C9 to n-C18 Aliphatic Hydrocarbons †	BRL		ug/L	500
n-C19 to n-C36 Aliphatic Hydrocarbons †	BRL		ug/L	500
n-C11 to n-C22 Aromatic Hydrocarbons †◊	BRL		ug/L	150
Unadjusted n-C11 to n-C22 Aromatic Hydrocarbons †	BRL		ug/L	150

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

QC Surrogate Compound		Spiked	Measured	Recovery	QC Limits
Fractionation:	2-Fluorobiphenyl	40	40	**99 %**	40 - 140 %
	2-Bromonaphthalene	40	39	**97 %**	40 - 140 %
Extraction:	Chloro-octadecane	40	32	**79 %**	40 - 140 %
	ortho-Terphenyl	40	40	**99 %**	40 - 140 %

Method Reference: Method for the Determination of Extractable Petroleum Hydrocarbons, MA DEP (Revision 1.1, 2004). Sample extraction performed by separatory funnel technique.

Report Notations:

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

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

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

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GROUNDWATER ANALYTICAL

Certifications and Approvals

Groundwater Analytical maintains environmental laboratory certification in a variety of states. Copies of our current certificates may be obtained from our website:

http://www.groundwateranalytical.com/qualifications.htm

CONNECTICUT, Department of Health Services, PH-0586

Categories: Potable Water, Wastewater, Solid Waste and Soil
http://www.dph.state.ct.us/BRS/Environmental_Lab/OutStateLabList.htm

FLORIDA, Department of Health, Bureau of Laboratories, E87643

Categories: SDWA, CWA, RCRA/CERCLA
http://www.floridadep.org/labs/qa/dohforms.htm

MAINE, Department of Human Services, MA103

Categories: Drinking Water and Wastewater
http://www.state.me.us/dhs/eng/water/Compliance.htm

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

Categories: Potable Water and Non-Potable Water
http://www.state.ma.us/dep/bspt/wes/files/certlabs.pdf

NEW HAMPSHIRE, Department of Environmental Services, 202703

Categories: Drinking Water and Wastewater
http://www.des.state.nh.us/asp/NHELAP/labsview.asp

NEW YORK, Department of Health, 11754

Categories: Potable Water, Non-Potable Water and Solid Waste
http://www.wadsworth.org/labcert/elap/comm.html

PENNSYLVANIA, Department of Environmental Protection, 68-665

Environmental Laboratory Registration (Non-drinking water and Non-wastewater)
http://www.dep.state.pa.us/Labs/Registered/

RHODE ISLAND, Department of Health, 54

Categories: Surface Water, Air, Wastewater, Potable Water, Sewage
http://www.healthri.org/labs/labsCT_MA.htm

U.S. Department of Agriculture, Soil Permit, S-53921

Foreign soil import permit

VERMONT, Department of Environmental Conservation, Water Supply Division

Category: Drinking Water
http://www.vermontdrinkingwater.org/wsops/labtable.PDF

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