



CDW CONSULTANTS, INC.
CIVIL & ENVIRONMENTAL ENGINEERS

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**PHASE II - LIMITED SUBSURFACE
INVESTIGATION
Relative to Oil & Hazardous Materials**

**Concord Carlisle High School
500 Walden Street
Concord, MA**

Prepared for

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CDW Project # 1234.10

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1.0 INTRODUCTION

CDW Consultants, Inc. (CDW), on behalf of our client, OMR Architects, Inc., has conducted a Phase II - Limited Subsurface Investigation of the Site which is located at 500 Walden Street, Concord, Massachusetts (Figure 1). The investigation consisted of limited soil testing of the property which included the advancement of soil borings and soil sampling and analysis. A limited visual inspection of the buildings in the bus transportation facility was also completed. The investigation was conducted in September and October 2011.

The investigation was conducted in order to determine the presence or likely presence of hazardous substances or petroleum products on the property in areas of concern identified in CDW's Phase I Preliminary Site Assessment report dated May 2011.

1.1 Purpose

The purpose of the investigation was to evaluate subsurface conditions at the Site in specific areas that will be undergoing Site and/or building demolition and new construction, and to confirm if identified potential sources of contamination have impacted the Site. This investigation was performed in accordance with Massachusetts General Law (MGL) Chapter 21E and the Massachusetts Contingency Plan (MCP), 310 CMR 40.000.

1.2 Site Description

The Concord-Carlisle High School Campus is comprised of one parcel of land that totals approximately 94 acres, according to the Town of Concord Assessor's Map 11H, Block 298. The school is comprised of a single structure, and the bus transportation facility is comprised of three structures and an above ground storage tank containment structure. The remainder of the Site consists of paved areas and grassy landscaped areas. Only portions of the school property that are part of planned demolition and construction activities were subject to this investigation. The adjacent Beede Swim and Fitness Center and athletic fields were not part of this investigation.

The Site is located on the United States Geological Survey (USGS) Concord, MA (1987) Quadrangle Map (Figure 1 in Appendix A) at approximate UTM coordinates 307327.4 mN, 4702042.0 mE and latitude 42° 26'55.3" N, longitude 71° 20' 34.4" W.

The surrounding area is occupied mainly by residential homes, the Beede Center and athletic fields. A Site Plan is attached as Figure 2 in Appendix A.

2.0 PREVIOUS SITE STUDIES

CDW completed a Phase I Preliminary Site Assessment in May 2011. The Phase I report included a Site reconnaissance, document research of the Site and surrounding area, an environmental database review, and review of documents obtained from the Town of Concord. The bus transportation facility was not originally within the scope of the project and therefore was not included in the Phase I Investigation. The building was previously connected to two on-site septic systems located south of the access road and west of the physical education building. Research during the Phase I indicated that the former town dump and a gravel pit were located on a portion of the high school property. Research conducted during the Phase I indicated that the gravel pit operated until the 1920s and the dump operated until the 1950's in the area of the eastern school parking lot and possibly beneath part of the existing school building.

The report identified three (3) former #4 fuel oil USTs and a former waste oil UST at the school building. The fuel oil USTs were removed in 1990 and the waste oil UST was removed in 1998. Some residual petroleum compounds were detected in soil during all three of the fuel oil UST removals. No closure report was found for the removal of the waste oil UST.

Because of these findings, CDW recommended that a Phase II subsurface investigation be completed to conclusively determine whether the Site has been impacted by potential sources of contamination.

A report to evaluate environmental conditions by Haley & Aldrich, Inc. (H&A) was prepared for Concord Public Schools in April 2011. The study was completed in response to inquiries from the Concord Carlisle Teachers Association. The report included a site reconnaissance, research at municipal offices, an environmental database report, review of available documents, and a soil gas survey to evaluate the quality of indoor air at the school building. H&A conducted research to determine the presence and location of a former waste dump at the Site. Research based on interviews, plans, aerial photos, boring logs and historical records suggested that a former dump may have been located to the east and southeast of the existing school building sections I, S, and L, and possibly beneath a portion of the footprints of those sections of the building. H&A collected soil gas samples at six locations below the building slab in sections I, S, and L. The samples were analyzed for volatile compounds by EPA Method TO-15 and Air Phase Petroleum Hydrocarbons (APH). The results indicated the soil gas concentrations were detected below the "Threshold Values for Residences, Schools, and Daycares" as published in MassDEP's December 2010 draft Vapor

Intrusion Guidance. It was the opinion of H&A that any contamination that may be present below the floor slabs as a result of the suspected former landfill (or any other activities) is unlikely to migrate into indoor air at concentrations that would adversely impact human health.

3.0 BUS TRANSPORTATION FACILITY

The proposed footprint of the new school building will include the existing bus transportation facility. On September 28, 2011, a limited inspection of these buildings was performed. The inspection was performed in the presence of Mr. David Anderson, the school facilities manager, and Mr. Wayne Busa, of the bus transportation department. The bus facility consists of three buildings including a repair shop where repairs and servicing of the buses are performed, a one story office building, and a single bay garage. Based on historic aerial photographs, the area of the bus transportation facility appears to have been developed in approximately 1980. Prior to that time, the area is shown as wooded land.

According to Mr. Anderson, the repair garage and single bay storage garage are approximately 10 years old. Two floor drains are located in the repair garage which lead to a tight tank located on the northwestern side of the building. A septic tank and leach field are located to the rear (southwestern side) of the building. Mr. Anderson indicated that only the bathroom is connected to the septic system. Various drums and containers of oils and automotive fluids are stored and used within the building. These were not quantified during CDW's investigation. No staining was observed on the floor during the inspection. According to Mr. Anderson, waste oils and other automotive fluids are periodically transported off-site by a waste hauler.

An interior inspection of the office and single bay garage building was not completed. Mr. Anderson indicated that a septic tank and leach field are located between the two buildings. The office building was constructed approximately 3 years ago. Aerial photos indicate that a separate office building was located northeast of the 5,000 gallon above ground storage tank (AST) prior to construction of the existing building.

A 5,000 gallon diesel AST and associated pump are located in the northeastern portion of the bus facility. A permit for a 5,000 gallon AST dated October 1998 was found at the Concord Fire Department. No staining or evidence of surface spills were found near the tank which has secondary containment consisting of a concrete bunker. The tank is also covered with a pavilion. The age of the pump appeared to be older (approximately 30 years).

4.0 PHASE II SUBSURFACE INVESTIGATION

CDW conducted a limited subsurface investigation of the Site, which included the advancement of eight (8) soil borings and soil sampling and analysis. An inspection of the former hydraulic lift pits in Building I was also completed.

Figure 2 in Appendix A shows the locations of the soil borings installed by CDW. Soil boring logs are included in Appendix C.

4.1 Topography and Hydrogeologic Features

The topography of most of the Site where the school building and parking lots exist was observed to be relatively flat. The bus depot on the southern portion of the Site is located at a higher elevation than the school building. Groundwater flow has not been calculated at the Site, however based on the local topography and EDR Report, may be in a north-westerly direction with surface topography. Based on the depth to groundwater and relatively sandy overburden, storm water likely infiltrates into the ground in most area or flows into catch basins located in paved areas. According to FEMA Flood Plain Panel 25017C0378E, the Site is located within a Zone C, which is an area determined to have minimal flooding.

4.2 Soil Borings

In October 2011, CDW conducted a limited subsurface investigation of the Site. The investigation consisted of the advancement of soil borings and soil sampling and analysis. The soil borings were advanced by a hollow stem auger drill rig. Soil samples were obtained at five foot intervals, and classified on-site. CDW's subcontractor, Geosearch, Inc. of Fitchburg, MA completed the advancement of the soil borings. CDW's subcontractor, Spectrum Analytical, Inc. of Agawam, MA, completed the laboratory sample analyses.

On October 5, 2011 CDW advanced eight (8) soil borings at the Site. The selection of the locations of the borings was based upon the location of the proposed school building and potential sources of contamination that may be encountered during demolition of the existing building. Because of this objective, and the apparent depth of groundwater below that which might affect construction, additional soil borings were advanced in lieu of installing

groundwater monitoring wells. The investigation also included a search for the former landfill at the Site. The landfill is discussed further in Section 5.0. The borings were placed to analyze soil in suspect and representative areas of the Site. Boring B-1 (22 ft) was advanced in the location of a former 15,000 gallon #4 fuel oil UST and current diesel generator adjacent to the former auto shop (current audiovisual department and school radio station). Boring B-2 (17 ft) was advanced in the location of a former 275 gallon waste oil UST located adjacent to the former auto shop. Boring B-3 (17 ft) was advanced adjacent to the current bus repair garage and boring B-4 (17 ft) was advanced adjacent to the current diesel AST and pump. Boring B-5 (12 ft) was advanced in the area of a former 15,000 gallon #4 fuel oil UST near the gymnasium. Boring B-6 (22 ft) was advanced in the location of a former 10,000 gallon #4 fuel oil UST located adjacent to the Arts Building. Borings B-7 (32 ft) and B-8 (27 ft) were advanced to investigate the presence of a former landfill. B-7 was advanced near the northeast corner of the school building and B-8 was advanced in the easternmost student parking lot. Figure 2 in Appendix A shows the locations of CDW's borings as well as borings completed by others.

Soils encountered during drilling were generally native materials consisting of fine to medium sand and gravel. Some fill materials were observed in shallow soils (boring B1) near the school building. No boulders or bedrock were encountered during drilling. Groundwater during drilling was observed at a depth of approximately 30 feet below grade in B-7, and 20 feet in B-8.

4.3 Soil Screening and Laboratory Samples

Soil samples were collected from each boring and field-screened with a photoionization detector (PID) using the headspace method. The soil headspace screening results are available in Table 1 in Appendix B. The PID is an instrument used to quantify volatile organic compounds (VOCs) with a detection limit of 1 part per million (ppm). The following methodology was employed for the headspace screening:

- Collect the sample up to one-half capacity in a clean glass jar.
- Cover the top of the jar with aluminum foil. Tightly place the jar cover on top of the aluminum foil sheet.

- Vigorously shake the jar contents for at least 15 seconds to allow for volatilization of the organic compounds into the air space.
- Allow the jar to sit for 1 minute at room temperature. Carefully remove the jar cover without removing the aluminum cover. Quickly insert the PID probe into the jar by forcing it through the aluminum cover.
- Read the maximum total PID level. Express the level in ppm as benzene equivalent.

The sampling plan was developed to investigate the types of compounds that may have been released from current or previous activities or operations at the Site, the current AST and pump, former USTs, or on-site spills. One soil sample from each of 8 borings was selected and submitted for laboratory analysis for extractable petroleum hydrocarbons (EPH), polynuclear aromatic hydrocarbons (PAHs), volatile petroleum hydrocarbons (VPH), volatile organic compounds (VOCs) by EPA Method 8260, and total priority pollutant metals (PP13) by EPA Method 6010C. The samples submitted for laboratory analysis were collected from depths between 0 and 12 feet below the ground surface. A trip blank was also prepared and submitted to the laboratory for VPH and VOC analysis for QA/QC purposes. A duplicate sample was submitted from one of the borings for EPH, VPH, PAHs, VOCs and PP13. The samples were preserved by refrigeration and methanol, as appropriate, prior to laboratory analysis, and delivered to the laboratory accompanied by an appropriate chain of custody record.

4.4 Lower Explosive Limit (LEL) Monitoring

As a safety precaution, LEL monitoring was conducted in borings B-1, B-6, B-7 and B-8 during drilling. An Industrial Scientific iTX LEL meter was used to monitor for the presence of methane gas which is commonly found in landfills. This gas can cause an explosion/fire hazard if released to the atmosphere. Readings were collected in those wells during drilling at 5 foot intervals. Observed LEL levels ranged from 21.1 to 21.3, which are normal atmospheric levels.

5.0 NATURE AND EXTENT OF CONTAMINATION

CDW evaluated the results of the field observations, soil and groundwater sampling, and laboratory analysis conducted for this subsurface investigation. In addition, the laboratory analysis results were compared with applicable MCP standards.

5.1 Soil and Groundwater Classifications

The selection of a soil classification of RCS-1, as defined in the MCP, 310 CMR 40.0361(1)(a), for the comparison of Reportable Concentrations (RCs), is applicable to the Site because all of the soil sample locations are located at a school.

The selection of a groundwater classification of RCGW-1, as defined in the MCP, 310 CMR 40.0362, for the purpose of identifying RCs, was based upon the following criteria:

- Groundwater at the Site is located in a current drinking water source area (Zone II medium yield aquifer) and is designated as RCGW-1.

The results of the laboratory analytical testing of soil samples were evaluated and compared with current RCs. Copies of the laboratory reports are included in Appendix D.

5.2 Soil Sample Analysis Results

Soil samples were collected during drilling at five foot intervals and screened with a PID using the headspace method. The readings were all non-detect for VOCs. The results of the headspace screening for CDW's investigation are summarized in Table 1 in Appendix B.

Laboratory analysis results of soil samples collected during CDW's subsurface investigation showed detectable concentrations of EPH and several PAH compounds in one soil sample and VPH and two VOCs in one sample. The concentrations of two PAHs in sample B5/S2 exceeded applicable Massachusetts Contingency Plan (MCP) Reportable Concentrations (RCs). That sample was collected in the location of a former fuel oil UST near the school gymnasium. Several PP13 metals were detected in all soil samples. The concentrations of total copper in sample B8/S2 exceeded the applicable MCP RC. That sample was collected

on the eastern portion of the Site in the student parking lot. In order to confirm the elevated concentrations observed, sample B8/S2 was re-analyzed for copper and zinc by EPA Method 6020A. The results were consistent with the original results. The metals detected in all other samples were within a range of concentrations considered typical of naturally occurring metals in soil. None of these other sample results exceeded applicable RCs. The results of VPH, VOC, EPH, and PAH analysis in soil is included in Table 2 in Appendix B. The results of PP13 analysis in soil is included in Table 3 in Appendix B.

6.0 FORMER LANDFILL INVESTIGATION

CDW compiled information from various sources to determine the possible location of a reported landfill on the school property. As part of CDW's Phase I assessment in May 2011, research was conducted at the Concord Planning and Historical Commission and Concord Free Public Library for information on the former landfill. Research indicated that a portion of the school property operated as a gravel pit in the 1920s, and then as the town dump. According to a family member (Mr. Jim Macone) of the former owner of the property, the gravel pit and dump were located beneath the current student parking lot. Aerial photographs dated 1938 and 1952 show what appears to be either a gravel pit or landfill in the area of the school parking lot and buildings I, S, and L. Information obtained from a 2011 study by Haley and Aldrich also indicates that the former dump may have been located adjacent to and southeast of buildings L, S, and I (current student parking lot), and possibly beneath a portion of these buildings. The H&A report refers to a boring log from 1964 which indicates up to 20 feet of fill containing wood, glass and metal at the southeastern edge of buildings S and I.

CDW interviewed Mr. David Eddy, the schools custodian for 45 years, and lifetime resident of Concord. Mr. Eddy indicated that the landfill may have been located in the area of the current football field which is located on the northwestern side of the school building. This was the only report of the landfill potentially located in that area.

Some conclusions as to the possible location of the landfill can be made based on test borings completed by CDW (2011), Nobis (2011), The Geotechnical Group (TGG) (2005), Engineering Services (1958), and others (1964). Except for a piece of metal in boring B-1, CDW found no evidence of a former waste dump during our subsurface investigation. Borings in the suspected area of the dump were advanced to between 22 and 32 feet. A total of 5 borings completed by Nobis, TGG, and Engineering Services in the area of the proposed new school located southwest of the existing school to depths between 27 and 77 feet indicated no evidence of the former landfill. One boring was completed to a depth of 11.5 feet at the edge of the football field by Engineering Services in the 1950's. This boring showed no evidence of the former landfill. Two borings completed to depths of 11.5 to 15 feet in the footprint of buildings I and S in the 1950s showed no evidence of the former landfill. Three borings completed to depths between 15 and 27 feet by TGG on the western portion of the school property in the athletic fields also showed no evidence of a former landfill. Boring logs from previous investigations showed primarily native material.

Although CDW's investigation showed little or no evidence of the landfill, the most likely location of the former landfill is under the eastern student parking lot. This is based in part on historical aerial photos, accounts from town officials and the former owner, and a reported boring log containing waste material in the area southeast of buildings I and S. It should be noted that boring coverage in the area of the student parking lot by CDW was limited by time constraints during drilling.

7.0 HYDRAULIC LIFTS IN FORMER AUTO SHOP

CDW investigated the presence of two former hydraulic lifts located beneath the concrete slab in the former Auto Shop. These pits are elongated concrete walled trenches approximately 8 feet deep and were observed to be filled with approximately 4 inches of water with an inch of oil floating. The oil and water was gauged with a submersible bailer. The concrete walls of the trenches were observed to be in good condition. Because the natural groundwater level was observed at depths significantly greater than 8 feet by CDW, the water in the pits is most likely to be standing water and not groundwater.

8.0 CONCLUSIONS & RECOMENDATIONS

Based upon our research, subsurface testing, and site observations, CDW is presenting our conclusions and a summary of the key observations upon which these conclusions are based. From this study, CDW has made the following observations:

- The Site consists of a portion of the Concord Carlisle High School in Concord, MA. The Site areas consist of the current school buildings, bus depot and associated buildings, land area of the proposed school building, and current student parking lot. This investigation focused on subsurface testing in areas of the school property that are proposed for demolition and new construction, and areas where a former landfill may have been located.
- Boring advancement was completed on October 5, 2011. A total of eight (8) soil borings were advanced. The borings were advanced to depths of between 12 and 32 feet below grade. Soils on the Site were primarily sand and gravel fill over native sand and gravel. Groundwater was encountered at depths between 20 and 30 feet. No groundwater monitoring wells were installed.
- Soil sample headspace screening indicated non-detect concentrations of VOCs in all of the samples. EPH and PAH compounds were detected in one soil sample and VPH and two VOCs were detected in a separate sample. The concentrations of two PAHs in one sample from the area of a former fuel oil UST exceeded applicable MCP Reportable Concentrations (RCs). The concentrations of total copper in one soil sample exceeded the applicable MCP RC. The concentrations of other PP13 metals in all other soil samples analyzed were at concentrations indicative of natural soils.
- CDW found little or no evidence of the former landfill during the test boring program. Deep borings completed in the student parking lot and at the northeast corner of the building indicated no evidence of a landfill. A boring completed to the southeast of building I revealed a metal piece at a depth between 7 and 10 feet with some dark soil. Borings completed between the 1950's and 2011 around the school property do not indicate any evidence of the landfill in the proposed location of the new school building, in shallow soils in the foot print of the existing school, or in the athletic fields to the west of the school. The majority of historical research compiled including geotechnical and environmental

subsurface investigations suggests that, although unconfirmed, the most likely location of the landfill is beneath the student parking lot in one or more relatively small areas.

- Standing water and oil were observed in former subsurface hydraulic lifts located within the former auto shop (current radio station). These structures appeared to be in good condition.

Based on the results of the subsurface investigation, CDW has the following recommendations:

- In accordance with 310 CMR 40.0315 concentrations of Benzo(a)pyrene and Dibenzo(a,h)anthracene in one soil sample and copper in a separate sample exceeds applicable Reportable Concentrations. These conditions represent a reportable condition, and an obligation for the Site owner to report to the DEP within 120 days of obtaining knowledge of the conditions. Additional obligations may exist for assessment and/or response actions under the Massachusetts Contingency Plan.
- Additional soil data will be required in order to delineate the identified release conditions. In addition, regulatory deadlines dictate the timeframes within which work must be completed.
- Contingency plans must be in place to manage any potentially contaminated soil that may be encountered during building demolition or new construction. If evidence of the former landfill or contamination associated with former USTs or other petroleum usage is encountered, measures must be conducted to properly manage those conditions.
- Prior to demolition of the school building, the subsurface hydraulic lifts in the former auto shop must be properly decommissioned. The oil and water should be pumped and properly disposed of along with any contaminated concrete that may have come into contact with the oil.

9.0 LIMITATIONS

The findings are limited to the information available at the time of the investigation and the scope of services as defined. The results of the subsurface investigation performed on this Site form the basis for the findings and are representative of conditions at the time of the investigation. Where access to certain portions of the Site or the ability to perform subsurface testing was impeded, no conclusions or opinions can be made. No other conclusions, interpretations or recommendations are contained or implied in this report other than those expressed. Also, CDW makes no warranty, expressed or implied, on the accuracy of the work and information completed by others and upon which CDW has relied to prepare this report. No other use of this report is warranted without the written consent of CDW Consultants, Inc.

APPENDIX A

FIGURES



CDW CONSULTANTS, INC.

SITE LOCATION MAP
 Concord Carlisle High School, Concord, MA



SOURCE: MA Geographic Information System

PROJECT NO.: 1234.1
 APROX. SCALE: 1:25,000

FIGURE 1



IMAGE SOURCE: MAGIS 2008 ORTHOPHOTO



FIGURE 2

**SITE PLAN WITH BORING LOCATIONS
CONCORD CARLISLE HIGH SCHOOL
CONCORD, MA**

OCTOBER 18, 2011

DATA PROJECTION: NAD 1983 MASSACHUSETTS STATE PLANE MAINLAND (METERS)



APPENDIX B

TABLES

TABLE 1
Soil Headspace Screening Results
Concord Carlisle High School
October 5, 2011

Sample ID	Depth	PPMV
B-1/S-1	0-2'	0.0
B-1/S-2	5-7'	0.0
B-1/S-3*	10-12'	0.0
B-1/S-4	15-17'	0.0
B-1/S-5	20-22'	0.0
B-2/S-1	0-2'	0.0
B-2/S-2*	5-7'	0.0
B-2/S-3	10-12'	0.0
B-2/S-4	15-17'	0.0
B-2/S-5	20-22'	0.0
B-3/S-1	0-2'	0.0
B-3/S-2*	5-7'	0.0
B-3/S-3	10-12'	0.0
B-3/S-4	15-17'	0.0
B-3/S-5	20-22'	0.0
B-4/S-1	0-2'	0.0
B-4/S-2	5-7'	0.0
B-4/S-3*	10-12'	0.0
B-4/S-4	15-17'	0.0
B-4/S-5	20-22'	0.0
B-5/S-1	0-2'	0.0
B-5/S-2*	5-7'	0.0
B-5/S-3	10-12'	0.0
B-6/S-1	0-2'	0.0
B-6/S-2*	5-7'	0.0
B-6/S-3	10-12'	0.0
B-6/S-4	15-17'	0.0
B-6/S-5	20-22'	0.0
B-7/S-1	0-2'	0.0
B-7/S-2	5-7'	0.0
B-7/S-3*	10-12'	0.0
B-7/S-4	15-17'	0.0
B-7/S-5	20-22'	0.0
B-7/S-6	25-27'	0.0
B-7/S-7	30-32'	0.0
B-8/S-1	0-2'	0.0
B-8/S-2*	5-7'	0.0
B-8/S-3	10-12'	0.0
B-8/S-4	15-17'	0.0
B-8/S-5	20-22'	0.0
B-8/S-6	25-27'	0.0

* = Sample submitted to lab for analysis.

PPMV = Parts Per Million By Volume

TABLE 2
Soil Analytical Results - EPH, VPH, VOCs & PAHs (PPM)
Concord Carlisle High School
October 5, 2011

Sample ID	B-1/S-3	B-2/S-2	B-3/S-2	B-4/S-3	B-5/S-2	B-6/S-2	B-7/S-3*	B-8/S-2	Reportable Concentrations RCS-1
(depth)	(10-12')	(5-7')	(5-7')	(10-12')	(5-7')	(5-7')	(10-12')	(10-12')	
VPH									
C9-C12 Aliphatics	<0.24	0.418	<0.169	<0.165	<0.194	<0.198	<0.128	<0.148	1,000
C9-C10 Aromatics	<0.24	0.301	<0.169	<0.165	<0.194	<0.198	<0.128	<0.148	100
VOC's									
Ethylbenzene	<0.05	0.9	<0.03	<0.03	<0.04	<0.04	<0.03	<0.03	40
o-Xylene	<0.05	1.1	<0.03	<0.03	<0.04	<0.04	<0.03	<0.03	300
EPH									
C19-C36 Aliphatics	<10.1	<10.5	<10.3	<10	46.4	<10.3	<10	<9.81	3,000
C11-C22 Aromatics	<10.1	<10.5	<10.3	<10	31.6	<10.3	<10	<9.81	1,000
PAHs									
Acenaphthene	<0.335	<0.35	<0.344	<0.334	0.421	<0.341	<0.334	<0.327	
Phenanthrene	<0.335	<0.35	<0.344	<0.334	2.54	<0.341	<0.334	<0.327	10
Anthracene	<0.335	<0.35	<0.344	<0.334	0.548	<0.341	<0.334	<0.327	1,000
Fluoranthene	<0.335	<0.35	<0.344	<0.334	6.48	<0.341	<0.334	<0.327	1,000
Pyrene	<0.335	<0.35	<0.344	<0.334	5.34	<0.341	<0.334	<0.327	1,000
Benzo (a) anthracene	<0.335	<0.35	<0.344	<0.334	2.69	<0.341	<0.334	<0.327	7
Chrysene	<0.335	<0.35	<0.344	<0.334	2.63	<0.341	<0.334	<0.327	70
Benzo (b) fluoranthene	<0.335	<0.35	<0.344	<0.334	2.37	<0.341	<0.334	<0.327	7
Benzo (k) fluoranthene	<0.335	<0.35	<0.344	<0.334	2.22	<0.341	<0.334	<0.327	70
Benzo (a) pyrene	<0.335	<0.35	<0.344	<0.334	2.59	<0.341	<0.334	<0.327	2
Indeno (1,2,3-cd) pyrene	<0.335	<0.35	<0.344	<0.334	1.25	<0.341	<0.334	<0.327	7
Dibenzo (a,h) anthracene	<0.335	<0.35	<0.344	<0.334	1.23	<0.341	<0.334	<0.327	0.7
Benzo (g,h,i) perylene	<0.335	<0.35	<0.344	<0.334	1.59	<0.341	<0.334	<0.327	1000

Bold = Exceed MCP Reportable Concentrations

PPM = Parts Per Million

* = Duplicate sample collected from this location

TABLE 3
Soil Analytical Results - PP13 Metals (PPM)
Concord Carlisle High School

Sample ID	B-1/S-3	B-2/S-2	B-3/S-2	B-4/S-3	B-5/S-2	B-6/S-2	B-7/S-3*	B-8/S-2	Reportable Concentrations RCS-1	
(depth)	(10-12')	(5-7')	(5-7')	(10-12')	(5-7')	(5-7')	(10-12')	(10-12')		
EPA 6010C								EPA 6020A		
Arsenic	6.23	4.61	3.6	3.44	4.14	4.69	2.72	7.32	-	20
Cadmium	0.521	<0.457	<0.511	<0.461	<0.477	<0.459	<0.443	1.24	-	2
Chromium	16.8	16.1	14.8	15.6	12.4	14.8	14.2	12.1	-	30
Copper	11.3	8.02	6.19	6.53	8.63	9.69	11.6	4150	4300	1,000
Nickel	6.34	5.04	4.89	5.5	4.71	6	9.84	7.44	-	20
Lead	6.91	4.71	4.07	4.56	6.93	3.92	4.02	198	-	300
Zinc	52.2	17.5	11.4	16.5	17.60	18	28.7	2240	2300	2,500

PPM = Parts Per Million

* = Duplicate sample collected from this location

Bold = Exceed MCP Reportable Concentrations

APPENDIX C
SOIL BORING LOGS

Boring/Monitoring Well Installation Report



Project Name: <u>Concord Carlisle HS</u>	Sheet: _____
Project Location: <u>500 Walden St., Concord, MA</u>	Boring No. B1
Project Number: <u>1234.1</u>	Location Concord, MA
	GW Elev. _____

Groundwater Readings		Casing	Sampler	Core
Date	Reading	Type	HSA.	SS
1		Size O.D.		
2		Hammer Wt.	140	
3		Hammer Fall		

Start Date	<u>10/5/2011</u>
Finish Date	<u>10/5/2011</u>
Driller	<u>GeoSearch</u>
Inspector	<u>Mike Gagne</u>

Depth	Sample type-No.	Sampling Depth (ft)	Inches		Blow Count	PPM	SPT	Moisture	Soil Description	Well Installation	
			Pen	Rec							6"
1-ft	B1-S1	0-2'		15"	6	12	16	22	0	Dry	NO WELL
2-ft											
3-ft											
4-ft											
5-ft											
6-ft	B1-S2	5-7'		2"	5	7	5	4	0	Dry	NO WELL
7-ft											
8-ft											
9-ft											
10-ft											
11-ft	B1-S3	10-12'		2"	3	4	1		0	Dry	NO WELL
12-ft											
13-ft											
14-ft											
15-ft											
16-ft	B1-S4	15-17'		0	5	5	6	7	0	Dry	NO WELL
17-ft											
18-ft											
19-ft											
20-ft											
21-ft	B1-S5	20-22'		2"	3	5	6	7	0	Dry	NO WELL
22-ft											
23-ft											
24-ft											
25-ft											
26-ft											
27-ft											
28-ft											
29-ft											
30-ft											
31-ft											
32-ft											

Granular Soils < 4 = very loose 5-10 = loose 11-30 = medium 30-50 = dense > 50 = very dense	Cohesive Soils < 2 = very soft 2-4 = soft 4-8 = medium stiff 8-15 = stiff 15-30 = very stiff > 30 = Hard	Sample Type SS - split spoon ST - Shelby tube O/A - auger flights RC - rock core MA - Microliners	Notes
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Boring/Monitoring Well Installation Report



Project Name: <u>Concord Carlisle HS</u>	Sheet: _____
Project Location: <u>500 Walden St., Concord, MA</u>	Boring No. <u>B2</u>
Project Number: <u>1234.1</u>	Location <u>Concord Carlisle HS</u>
	GW Elev. _____
	Start Date <u>10/5/2011</u>
	Finish Date <u>10/5/2011</u>
	Driller <u>GeoSearch</u>
	Inspector <u>Mike Gagne</u>

Groundwater Readings		Casing	Sampler	Core	Soil Description	Well Installation
Date	Reading					
1		Type HSA	SS		Tan, FINE-MEDIUM SAND	NO WELL
2		Size O.D.				
3		Hammer Wt. 140				
		Hammer Fall				

Depth	Sample type-No.	Sampling Depth (ft)	Inches		Blow Count 6" Reading	PPM	SPT N-Value	Moisture	Soil Description	Well Installation	
			Pen	Rec							
1-ft	B2-S1	0-2'	6"	2	7	4	3	0	Dry	Tan, FINE-MEDIUM SAND	NO WELL
2-ft											
3-ft											
4-ft											
5-ft											
6-ft	B2-S2	5-7'	12"	4	4	11	8	0	Dry	Tan, FINE-MEDIUM SAND	
7-ft											
8-ft											
9-ft											
10-ft											
11-ft	B2-S3	10-12'	24"	10	14	13	8	0	Dry	Brown, FINE SAND with cobbles over tan FINE SAND	
12-ft											
13-ft											
14-ft											
15-ft											
16-ft	B2-S4	15-17'	16"	8	2	6	7	0	Dry	Tan, FINE SAND, some cobbles	
17-ft										End of boring	
18-ft										End of Boring at 17'	
19-ft											
20-ft											
21-ft											
22-ft											
23-ft											
24-ft											
25-ft											
26-ft											
27-ft											
28-ft											
29-ft											
30-ft											
31-ft											
32-ft											

Granular Soils < 4 = very loose 5-10 = loose 11-30 = medium 30-50 = dense > 50 = very dense	Cohesive Soils < 2 = very soft 2-4 = soft 4-8 = medium stiff 8-15 = stiff 15-30 = very stiff > 30 = Hard	Sample Type SS - split spoon ST - shelly tube O/A - auger flights RC - rock core MA - Microliners	Notes
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Boring/Monitoring Well Installation Report



Project Name: Concord Carlisle HS	Sheet
Project Location: 500 Walden St., Concord, MA	Boring No. B3
Project Number: 1234.1	Location Concord Carlisle HS
	GW Elev. _____
	Start Date 10/5/2011
	Finish Date 10/5/2011
	Driller GeoSearch
	Inspector Mike Gagne

Groundwater Readings		Date	Reading	Type	Casing		Sampler		Core		Moisture	Soil Description	Well Installation
					HSA	SS							
1	2	3		Size O.D.	Hammer Wt.	Hammer Fall							
1-ft	B3-S1	0-2'		12"	7	7	4	1	0		Dry	Tan, FINE SAND, some cobbles	NO WELL
2-ft													
3-ft													
4-ft													
5-ft													
6-ft	B3-S2	5-7'		12"	4	5	5	13	0		Dry	Tan, FINE SAND, some cobbles	
7-ft													
8-ft													
9-ft													
10-ft													
11-ft	B3-S3	10-12'		12"	1	5	7	6	0		Dry	Tan, FINE SAND, some cobbles	
12-ft													
13-ft													
14-ft													
15-ft													
16-ft	B3-S4	15-17'		12"	1	3	2	4	0		Dry	Tan, FINE SAND, some cobbles	End of Boring at 17'
17-ft													
18-ft													
19-ft													
20-ft													
21-ft													
22-ft													
23-ft													
24-ft													
25-ft													
26-ft													
27-ft													
28-ft													
29-ft													
30-ft													
31-ft													
32-ft													

Granular Soils	Cohesive Soils	Sample Type
< 4 = very loose	< 2 = very soft	SS - split spoon
5-10 = loose	2-4 = soft	ST - shelly tube
11-30 = medium	4-8 = medium stiff	O/A - auger flights
30-50 = dense	8-15 = stiff	RC - rock core
> 50 = very dense	15-30 = very stiff	MA - Microliners
	> 30 = Hard	

Notes

Boring/Monitoring Well Installation Report



Project Name: Concord Carlisle HS	Sheet: B4
Project Location: 500 Walden St., Concord, MA	Boring No. Concord Carlisle HS
Project Number: 1234.1	Location
	GW Elev.
	Start Date: 10/5/2011
	Finish Date: 10/5/2011
	Driller: GeoSearch
	Inspector: Mike Gagne

Groundwater Readings		Casing		Sampler		Core			
Date	Reading	Type	Size O.D.	Hammer Wt.	Hammer Fall				
1		HSA		140					
2									
3									

Depth	Sample type-No.	Sampling Depth (ft)	Inches		Blow Count 6" Reading				PPM	SPT N-Value	Moisture	Soil Description	Well Installation
			Pen	Rec									
1-ft	B4-S1	0-2'		2"	15	15	10	6	0		Dry	Brown, MEDIUM SAND, some cobbles	NO WELL
2-ft													
3-ft													
4-ft													
5-ft													
6-ft	B4-S2	5-7'		18"	3	3	3	2	0		Dry	Tan, FINE SAND, over orange, FINE SAND	
7-ft													
8-ft													
9-ft													
10-ft													
11-ft	B4-S3*	10-12'		24"	5	5	5	7	0		Dry	Tan, FINE SAND, some cobbles	
12-ft													
13-ft													
14-ft													
15-ft													
16-ft	B4-S4	15-17'		24"	1	3	3	4	0		Dry	Tan, FINE SAND, some cobbles	End of Boring at 17'
17-ft													
18-ft													
19-ft													
20-ft													
21-ft													
22-ft													
23-ft													
24-ft													
25-ft													
26-ft													
27-ft													
28-ft													
29-ft													
30-ft													
31-ft													
32-ft													

Granular Soils < 4 = very loose 5-10 = loose 11-30 = medium 30-50 = dense > 50 = very dense	Cohesive Soils < 2 = very soft 2-4 = soft 4-8 = medium stiff 8-15 = stiff 15-30 = very stiff > 30 = Hard	Sample Type SS - split spoon ST - shelly tube O/A - auger flights RC - rock core MA - Microliners
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Notes

Boring/Monitoring Well Installation Report



Project Name: <u>Concord Carlisle HS</u>	Sheet: _____
Project Location: <u>500 Walden St., Concord, MA</u>	Boring No. <u>B5</u>
Project Number: <u>1234.1</u>	Location <u>Concord Carlisle HS</u>
	GW Elev. _____
	Start Date <u>10/5/2011</u>
	Finish Date <u>10/5/2011</u>
	Driller <u>GeoSearch</u>
	Inspector <u>Mike Gagne</u>

Groundwater Readings		Casing	Sampler	Core
Date	Reading	Type		
1		HSA	SS	
2		Size O.D.		
3		Hammer Wt.	140	
		Hammer Fall		

Depth	Sample Type-No.	Sampling Depth (ft)	Inches		Blow Count 6"	PPM Reading	SPT N-Value	Moisture	Soil Description	Well Installation
			Pen	Rec						
1-ft	B5-S1	0-2'		12"	1 1 2	0		Dry	Tan, FINE SAND	NO WELL
2-ft										
3-ft										
4-ft										
5-ft										
6-ft	B5-S2	5-7'		12"	4 10 10 7	0		Dry	Tan, FINE SAND	
7-ft										
8-ft										
9-ft										
10-ft										
11-ft	B5-S3	10-12'		0	2 3 3 2	0		Dry	no recovery	NO WELL
12-ft									End of Boring at 12'	
13-ft										
14-ft										
15-ft										
16-ft										
17-ft										
18-ft										
19-ft										
20-ft										
21-ft										
22-ft										
23-ft										
24-ft										
25-ft										
26-ft										
27-ft										
28-ft										
29-ft										
30-ft										
31-ft										
32-ft										

Granular Soils < 4 = very loose 5-10 = loose 11-30 = medium 30-50 = dense > 50 = very dense	Cohesive Soils < 2 = very soft 2-4 = soft 4-8 = medium stiff 8-15 = stiff 15-30 = very stiff > 30 = Hard	Sample Type SS - split spoon ST - shelly tube O/A - auger flights RC - rock core MA - Microliners	Notes
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Project Name: Concord Carlisle HS
 Project Location: 500 Walden St., Concord, MA
 Project Number: 1234.1

Sheet B6
 Boring No. B6
 Location Concord Carlisle HS
 GW Elev.

Groundwater Readings		Type	Casing	Sampler	Core	Start Date	Finish Date	Driller	Inspector
Date	Reading								
1		Size O.D.							
2		Hammer Wt.	140						
3		Hammer Fall							

Depth	Sample type-No	Sampling Depth (ft)	Inches		Blow Count	6" Reading	PPM	SPT	Moisture	Soil Description	Well Installation	
			Pen	Rec								N-Value
1-ft	B6-S1	0-2'	6"		2	2	2	1	0	Dry	Organic soil over tan, FINE SAND	NO WELL
2-ft												
3-ft												
4-ft												
5-ft												
6-ft	B6-S2	5-7'	12"		1	1	5	4	0	Dry	Tan, FINE-MEDIUM SAND	
7-ft												
8-ft												
9-ft												
10-ft												
11-ft	B6-S3	10-12'	6"		10	10	10	9	0	Dry	Tan, FINE-MEDIUM SAND, some cobbles	
12-ft												
13-ft												
14-ft												
15-ft												
16-ft	B6-S4	15-17'	12"		9	9	9	12	0	Dry	Tan, FINE SAND, some cobbles	
17-ft												
18-ft												
19-ft												
20-ft												
21-ft	B6-S5	20-22'	12"		5	9	10	11	0	Dry	White, MEDIUM SAND over orange, FINE SAND	
22-ft												
23-ft												
24-ft												
25-ft												
26-ft												
27-ft												
28-ft												
29-ft												
30-ft												
31-ft												
32-ft												

Granular Soils
 <4 = very loose
 5-10 = loose
 11-30 = medium
 30-50 = dense
 >50 = very dense

Cohesive Soils
 <2 = very soft
 2-4 = soft
 4-8 = medium stiff
 8-15 = stiff
 15-30 = very stiff
 >30 = Hard

Sample Type
 SS - split spoon
 ST - Shelby tube
 O/A - auger flights
 RC - rock core
 MA - Microliners

Notes



Project Name:	Concord Carlisle HS	Sheet	
Project Location:	500 Walden St., Concord, MA	Boring No.	B7
Project Number:	1234.1	Location	Concord Carlisle HS
		GW Elev.	
		Start Date	10/5/2011
		Finish Date	10/5/2011
		Driller	GeoSearch
		Inspector	Mike Gagne

Groundwater Readings		Casing		Sampler		Core						
Date	Reading	Type	HSA	SS								
1		Size O.D.										
2		Hammer Wt.	140									
3		Hammer Fall										
Depth	Sample type-No	Sampling Depth (ft)	Inches Pen	Rec	Blow Count	6"	PPM Reading	SPT N-Value	Moisture	Soil Description	Well Installation	
1-ft	B7-S1	0-2'	18"		2	5	5	7	0	Dry	Organic top soil over tan, FINE SAND	NO WELL
2-ft												
3-ft												
4-ft												
5-ft												
6-ft	B7-S2	5-7'	6"		8	13	11	9	0	Dry	Crushed stone over tan, MEDIUM SAND	
7-ft												
8-ft												
9-ft												
10-ft												
11-ft	B7-S3	10-12'	6"		4	8	8	10	0	Dry	Tan, MEDIUM SAND over some coarse sand	
12-ft												
13-ft												
14-ft												
15-ft												
16-ft	B7-S4	15-17'	2"		4	3	9	11	0	Dry	Tan, MEDIUM SAND, some cobbles	
17-ft												
18-ft												
19-ft												
20-ft												
21-ft	B7-S5	20-22'	6"		6	8	12	12	0	Moist	Tan, FINE SAND, some cobbles	
22-ft												
23-ft												
24-ft												
25-ft												
26-ft	B7-S6	25-27'	6"		14	16	23	26	0	Moist	Tan, FINE SAND, some cobbles	
27-ft												
28-ft												
29-ft												
30-ft												
31-ft	B7-S7	30-32'	18"		5	7	12	29	0	Wet	Tan FINE SAND and SILT, little gravel	End of Boring at 32'
32-ft												

Granular Soils <4 = very loose 5-10 = loose 11-30 = medium 30-50 = dense >50 = very dense	Cohesive Soils <2 = very soft 2-4 = soft 4-8 = medium stiff 8-15 = stiff 15-30 = very stiff >30 = Hard	Sample Type SS - split spoon ST - Shelby tube O/A - auger flights RC - rock core MA - Microliners
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Notes



Project Name:	Concord Carlisle HS	Sheet	
Project Location:	500 Walden St., Concord, MA	Boring No.	B8
Project Number:	1234.1	Location	Concord Carlisle HS
		GW Elev.	

Groundwater Readings		Casing	Sampler	Core	Start Date 10/5/2011 Finish Date 10/5/2011 Driller GeoSearch Inspector Mike Gagne
Date	Reading	HSA	SS		
1		Type			
2		Size O.D.			
3		Hammer Wt.	140		
		Hammer Fall			

Depth	Sample type-No.	Sampling Depth (ft)	Inches		Blow Count 6"			PPM Reading	SPT N-Value	Moisture	Soil Description	Well Installation
			Pen	Rec								
1-ft	B8-S1	0-2'	6"	3	3	3	3	0		Dry	Tan, FINE-MEDIUM SAND	NO WELL
2-ft												
3-ft												
4-ft												
5-ft												
6-ft												
7-ft												
8-ft												
9-ft												
10-ft												
11-ft	B8-S2	10-12'	12"	12	12	12	12	0		Dry	Tan, MEDIUM SAND, some gravel	
12-ft												
13-ft												
14-ft												
15-ft												
16-ft	B8-S3	15-17'	12"	3	6	8	4	0		Moist	Tan, MEDIUM SAND, some gravel	
17-ft												
18-ft												
19-ft												
20-ft												
21-ft	B8-S4	20-22'	4"	7	10	10	8	0		Wet	Tan, MEDIUM SAND, some gravel	
22-ft												
23-ft												
24-ft												
25-ft												
26-ft	B8-S5	25-27'	24"	4	9	9	12	0		Wet	Tan, MEDIUM SAND, some gravel	
27-ft											End of Boring at 27'	
28-ft												
29-ft												
30-ft												
31-ft												
32-ft												

Granular Soils <4 = very loose 5-10 = loose 11-30 = medium 30-50 = dense >50 = very dense	Cohesive Soils <2 = very soft 2-4 = soft 4-8 = medium stiff 8-15 = stiff 15-30 = very stiff >30 = Hard	Sample Type SS - split spoon ST - Shelby tube O/A - auger flights RC - rock core MA - Microliners	Notes
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APPENDIX D

**LABORATORY REPORTS AND
CHAIN OF CUSTODY RECORDS**

Report Date:
20-Oct-11 11:46



- Final Report
- Re-Issued Report
- Revised Report

SPECTRUM ANALYTICAL, INC.
Featuring
HANIBAL TECHNOLOGY
Laboratory Report

CDW Consultants, Inc.
40 Speen Street; Suite 301
Framingham, MA 01701
Attn: Brian Miller

Project: Concord Carlisle High School - Concord , MA
Project #: 1234.1

<u>Laboratory ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Date Sampled</u>	<u>Date Received</u>
SB37055-01	B1-S3	Soil	05-Oct-11 08:39	06-Oct-11 18:05
SB37055-02	B2-S2	Soil	05-Oct-11 09:44	06-Oct-11 18:05
SB37055-03	B3-S2	Soil	05-Oct-11 11:45	06-Oct-11 18:05
SB37055-04	B4-S3	Soil	05-Oct-11 10:55	06-Oct-11 18:05
SB37055-05	B5-S2	Soil	05-Oct-11 13:10	06-Oct-11 18:05
SB37055-06	B6-S2	Soil	05-Oct-11 13:52	06-Oct-11 18:05
SB37055-07	B7-S3	Soil	05-Oct-11 15:23	06-Oct-11 18:05
SB37055-08	B8-S2	Soil	05-Oct-11 17:03	06-Oct-11 18:05
SB37055-09	DUP	Soil	05-Oct-11 08:00	06-Oct-11 18:05
SB37055-10	Blank	Trip	05-Oct-11 08:00	06-Oct-11 18:05

I attest that the information contained within the report has been reviewed for accuracy and checked against the quality control requirements for each method. These results relate only to the sample(s) as received. All applicable NELAC requirements have been met.

Massachusetts # M-MA138/MA1110
Connecticut # PH-0777
Florida # E87600/E87936
Maine # MA138
New Hampshire # 2538
New Jersey # MA011/MA012
New York # 11393/11840
Pennsylvania # 68-04426/68-02924
Rhode Island # 98
USDA # S-51435



Authorized by:

Nicole Leja
Laboratory Director

Spectrum Analytical holds certification in the State of Massachusetts for the analytes as indicated with an X in the "Cert." column within this report. Please note that the State of Massachusetts does not offer certification for all analytes. Please note that this report contains 40 pages of analytical data plus Chain of Custody document(s). When the Laboratory Report is indicated as revised, this report supersedes any previously dated reports for the laboratory ID(s) referenced above. Where this report identifies subcontracted analyses, copies of the subcontractor's test report are available upon request. This report may not be reproduced, except in full, without written approval from Spectrum Analytical, Inc.

Spectrum Analytical, Inc. is a NELAC accredited laboratory organization and meets NELAC testing standards. Use of the NELAC logo however does not insure that Spectrum is currently accredited for the specific method or analyte indicated. Please refer to our "Quality" web page at www.spectrum-analytical.com for a full listing of our current certifications and fields of accreditation. States in which Spectrum Analytical, Inc. holds NELAC certification are New York, New Hampshire, New Jersey and Florida. All analytical work for Volatile Organic and Air analysis are transferred to and conducted at our 830 Silver Street location (NY-11840, FL-E87936 and NJ-MA012).

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

Matrices	Soil Trip		
Containers	✓ Satisfactory		
Sample Preservative	Aqueous (acid preserved)	✓ N/A	pH _≤ 2 pH _{>} 2
	Soil or Sediment	N/A	Samples not received in Methanol
		✓ Samples received in Methanol:	✓ covering soil/sediment not covering soil/sediment
✓ Samples received in air-tight container			
Temperature	Received on ice ✓ Received at 4 ± 2 °C		

Were all QA/QC procedures followed as required by the VPH method? *Yes*

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

Were all performance/acceptance standards for required QA/QC procedures achieved? *Yes*

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

Matrices	Soil		
Containers	✓ Satisfactory		
Aqueous Preservative	✓ N/A	pH _≤ 2 pH _{>} 2	pH adjusted to <2 in lab
Temperature	Received on ice ✓ Received at 4 ± 2 °C		

Were all QA/QC procedures followed as required by the EPH method? *Yes*

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

Were all performance/acceptance standards for required QA/QC procedures achieved? *Yes*


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

Authorized by:



Nicole Leja
Laboratory Director

MassDEP Analytical Protocol Certification Form

Laboratory Name: Spectrum Analytical, Inc.			Project #: 1234.1			
Project Location: Concord Carlisle High School - Concord , MA			RTN:			
This form provides certifications for the following data set:			SB37055-01 through SB37055-10			
Matrices: Soil Trip						
CAM Protocol						
8260 VOC CAM II A	✓ 7470/7471 Hg CAM III B	✓ MassDEP VPH CAM IV A	8081 Pesticides CAM V B	7196 Hex Cr CAM VI B	MassDEP APH CAM IX A	
8270 SVOC CAM II B	7010 Metals CAM III C	✓ MassDEP EPH CAM IV B	8151 Herbicides CAM V C	8330 Explosives CAM VIII A	TO-15 VOC CAM IX B	
✓ 6010 Metals CAM III A	✓ 6020 Metals CAM III D	8082 PCB CAM V A	9012 Total Cyanide/PAC CAM VI A	9014 Total Cyanide/PAC CAM VI A	6860 Perchlorate CAM VIII B	
<i>Affirmative responses to questions A through F are required for "Presumptive Certainty" status</i>						
A	Were all samples received in a condition consistent with those described on the Chain of Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?				✓ Yes	No
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?				✓ Yes	No
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?				✓ Yes	No
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"?				✓ Yes	No
E	a. VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? b. APH and TO-15 Methods only: Was the complete analyte list reported for each method?				✓ Yes Yes	No No
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to questions A through E)?				✓ Yes	No
<i>Responses to questions G, H and I below are required for "Presumptive Certainty" status</i>						
G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?				Yes	✓ No
Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.						
H	Were all QC performance standards specified in the CAM protocol(s) achieved?				Yes	✓ No
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?				Yes	✓ No
<i>All negative responses are addressed in a case narrative on the cover page of this report.</i>						
<i>I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.</i>						
 Nicole Leja Laboratory Director Date: 10/20/2011						

CASE NARRATIVE:

The sample temperature upon receipt by Spectrum Analytical courier was recorded as 2.6 degrees Celsius. The condition of these samples was further noted as refrigerated. The samples were transported on ice to the laboratory facility and the temperature was recorded at 0.2 degrees Celsius upon receipt at the laboratory. Please refer to the Chain of Custody for details specific to sample receipt times.

An infrared thermometer with a tolerance of +/- 2.0 degrees Celsius was used immediately upon receipt of the samples.

If a Matrix Spike (MS), Matrix Spike Duplicate (MSD) or Duplicate (DUP) was not requested on the Chain of Custody, method criteria may have been fulfilled with a source sample not of this Sample Delivery Group.

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

According to WSC-CAM 5/2009 Rev.1, Table 11 A-1, recovery for some VOC analytes have been deemed potentially difficult. Although they may still be within the recommended recovery range, a range has been set based on historical control limits.

Some target analytes which are not listed as exceptions in the Summary of CAM Reporting Limits may exceed the recommended RL based on sample initial volume or weight provided, % moisture content, or responsiveness of a particular analyte to purge and trap instrumentation.

All VOC soils samples submitted and analyzed in methanol will have a minimum dilution factor of 50. This is the minimum amount of solvent allowed on the instrumentation without causing interference. Additional dilution factors may be required to keep analyte concentration within instrument calibration.

See below for any non-conformances and issues relating to quality control samples and/or sample analysis/matrix.

MADEP EPH 5/2004 R

Laboratory Control Samples:

1120847 BSD

Benzo (k) fluoranthene RPD 26% (25%) is outside individual acceptance criteria, but within overall method allowances.

1120847-BSD1

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

- Benzo (k) fluoranthene
- n-Decane
- n-Hexatriacontane
- n-Nonane (C9)

MADEP VPH 5/2004 Rev. 1.1

Laboratory Control Samples:

1120943-BSD1

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

- n-Decane

Spikes:

1120943-MS1 *Source: SB37055-01*

MADEP VPH 5/2004 Rev. 1.1

Spikes:

1120943-MS1 *Source: SB37055-01*

The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.

n-Nonane

Samples:

SB37055-02 *B2-S2*

The VOC preserved soil sample is not within the 1:1 weight to volume ratio as recommended by SW846 methods 5030 and 5035 but may be within the 1:1 volume to volume ratio. This variance may affect the final reporting limit.

SB37055-03 *B3-S2*

The VOC preserved soil sample is not within the 1:1 weight to volume ratio as recommended by SW846 methods 5030 and 5035 but may be within the 1:1 volume to volume ratio. This variance may affect the final reporting limit.

SB37055-04 *B4-S3*

The VOC preserved soil sample is not within the 1:1 weight to volume ratio as recommended by SW846 methods 5030 and 5035 but may be within the 1:1 volume to volume ratio. This variance may affect the final reporting limit.

SB37055-05 *B5-S2*

The VOC preserved soil sample is not within the 1:1 weight to volume ratio as recommended by SW846 methods 5030 and 5035 but may be within the 1:1 volume to volume ratio. This variance may affect the final reporting limit.

SB37055-06 *B6-S2*

The VOC preserved soil sample is not within the 1:1 weight to volume ratio as recommended by SW846 methods 5030 and 5035 but may be within the 1:1 volume to volume ratio. This variance may affect the final reporting limit.

SB37055-07 *B7-S3*

The VOC preserved soil sample is not within the 1:1 weight to volume ratio as recommended by SW846 methods 5030 and 5035 but may be within the 1:1 volume to volume ratio. This variance may affect the final reporting limit.

SB37055-08 *B8-S2*

The VOC preserved soil sample is not within the 1:1 weight to volume ratio as recommended by SW846 methods 5030 and 5035 but may be within the 1:1 volume to volume ratio. This variance may affect the final reporting limit.

SB37055-09 *DUP*

The VOC preserved soil sample is not within the 1:1 weight to volume ratio as recommended by SW846 methods 5030 and 5035 but may be within the 1:1 volume to volume ratio. This variance may affect the final reporting limit.

SW846 6010C

Spikes:

1120925-MS1 *Source: SB37055-04*

The spike recovery exceeded the QC control limits for the MS and/or MSD. The batch was accepted based upon acceptable PS and /or LCS recovery.

Antimony

1120925-MSD1 *Source: SB37055-04*

SW846 6010C

Spikes:

1120925-MSD1 *Source: SB37055-04*

The spike recovery exceeded the QC control limits for the MS and/or MSD. The batch was accepted based upon acceptable PS and /or LCS recovery.

Antimony

Duplicates:

1120925-DUP1 *Source: SB37055-04*

Analyses are not controlled on RPD values from sample concentrations that are less than 5 times the reporting level. The batch is accepted based upon the difference between the sample and duplicate is less than or equal to the reporting limit.

Antimony
Selenium

Samples:

SB37055-08 *B8-S2*

Sample dilution required for high concentration of target analytes to be within the instrument calibration range.

Copper
Zinc

Sample Identification

B1-S3 Client Project # 1234.1 Matrix Soil Collection Date/Time 05-Oct-11 08:39 Received 06-Oct-11
 SB37055-01

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

VOC Extraction **Field extracted** N/A 1 VOC Soil Extraction 08-Oct-11 08-Oct-11 BD 1120828

VPH Aliphatic/Aromatic Carbon Ranges

Prepared by method VPH - EPA 5030B

Initial weight: 17.12 g

C5-C8 Aliphatic Hydrocarbons	< 0.720	mg/kg dry	0.720	0.0676	50	MADEP VPH 5/2004 Rev. 1.1	11-Oct-11	11-Oct-11	mp	1120943
C9-C12 Aliphatic Hydrocarbons	< 0.240	mg/kg dry	0.240	0.0350	50	"	"	"	"	"
C9-C10 Aromatic Hydrocarbons	< 0.240	mg/kg dry	0.240	0.00619	50	"	"	"	"	"
Unadjusted C5-C8 Aliphatic Hydrocarbons	< 0.720	mg/kg dry	0.720	0.0552	50	"	"	"	"	"
Unadjusted C9-C12 Aliphatic Hydrocarbons	< 0.240	mg/kg dry	0.240	0.0329	50	"	"	"	"	"

VPH Target Analytes

Prepared by method VPH - EPA 5030B

Initial weight: 17.12 g

71-43-2 Benzene	< 0.05	mg/kg dry	0.05	0.01	50	"	"	"	"	"
100-41-4 Ethylbenzene	< 0.05	mg/kg dry	0.05	0.01	50	"	"	"	"	"
1634-04-4 Methyl tert-butyl ether	< 0.05	mg/kg dry	0.05	0.007	50	"	"	"	"	"
91-20-3 Naphthalene	< 0.05	mg/kg dry	0.05	0.009	50	"	"	"	"	"
108-88-3 Toluene	< 0.05	mg/kg dry	0.05	0.01	50	"	"	"	"	"
179601-23-1 m,p-Xylene	< 0.1	mg/kg dry	0.1	0.03	50	"	"	"	"	"
95-47-6 o-Xylene	< 0.05	mg/kg dry	0.05	0.01	50	"	"	"	"	"

Surrogate recoveries:

615-59-8 2,5-Dibromotoluene (FID)	71		70-130 %	"	"	"	"	"	"
615-59-8 2,5-Dibromotoluene (PID)	72		70-130 %	"	"	"	"	"	"

Extractable Petroleum Hydrocarbons

EPH Aliphatic/Aromatic Ranges

Prepared by method SW846 3545A

C9-C18 Aliphatic Hydrocarbons	< 10.1	mg/kg dry	10.1	1.48	1	MADEP EPH 5/2004 R	11-Oct-11	13-Oct-11	kg	1120847
C19-C36 Aliphatic Hydrocarbons	< 10.1	mg/kg dry	10.1	4.92	1	"	"	"	"	"
C11-C22 Aromatic Hydrocarbons	< 10.1	mg/kg dry	10.1	3.64	1	"	"	"	"	"
Unadjusted C11-C22 Aromatic Hydrocarbons	< 10.1	mg/kg dry	10.1	3.64	1	"	"	"	"	"
Total Petroleum Hydrocarbons	< 10.1	mg/kg dry	10.1	10.0	1	"	"	"	"	"
Unadjusted Total Petroleum Hydrocarbons	< 10.1	mg/kg dry	10.1	10.0	1	"	"	"	"	"

EPH Target PAH Analytes

Prepared by method SW846 3545A

91-20-3 Naphthalene	< 0.335	mg/kg dry	0.335	0.175	1	"	"	"	"	"
91-57-6 2-Methylnaphthalene	< 0.335	mg/kg dry	0.335	0.175	1	"	"	"	"	"
208-96-8 Acenaphthylene	< 0.335	mg/kg dry	0.335	0.196	1	"	"	"	"	"
83-32-9 Acenaphthene	< 0.335	mg/kg dry	0.335	0.196	1	"	"	"	"	"
86-73-7 Fluorene	< 0.335	mg/kg dry	0.335	0.198	1	"	"	"	"	"
85-01-8 Phenanthrene	< 0.335	mg/kg dry	0.335	0.228	1	"	"	"	"	"
120-12-7 Anthracene	< 0.335	mg/kg dry	0.335	0.248	1	"	"	"	"	"
206-44-0 Fluoranthene	< 0.335	mg/kg dry	0.335	0.224	1	"	"	"	"	"
129-00-0 Pyrene	< 0.335	mg/kg dry	0.335	0.241	1	"	"	"	"	"

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

* Reportable Detection Limit

Sample Identification**B1-S3**

SB37055-01

Client Project #

1234.1

Matrix

Soil

Collection Date/Time

05-Oct-11 08:39

Received

06-Oct-11

<u>CAS No.</u>	<u>Analyte(s)</u>	<u>Result</u>	<u>Flag</u>	<u>Units</u>	<u>*RDL</u>	<u>MDL</u>	<u>Dilution</u>	<u>Method Ref.</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Analyst</u>	<u>Batch</u>	<u>Cert.</u>
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Extractable Petroleum HydrocarbonsEPH Target PAH AnalytesPrepared by method SW846 3545A

56-55-3	Benzo (a) anthracene	< 0.335		mg/kg dry	0.335	0.243	1	MADEP EPH 5/2004 R	11-Oct-11	13-Oct-11	yg	1120847	
218-01-9	Chrysene	< 0.335		mg/kg dry	0.335	0.260	1	"	"	"	"	"	"
205-99-2	Benzo (b) fluoranthene	< 0.335		mg/kg dry	0.335	0.298	1	"	"	"	"	"	"
207-08-9	Benzo (k) fluoranthene	< 0.335		mg/kg dry	0.335	0.279	1	"	"	"	"	"	"
50-32-8	Benzo (a) pyrene	< 0.335		mg/kg dry	0.335	0.225	1	"	"	"	"	"	"
193-39-5	Indeno (1,2,3-cd) pyrene	< 0.335		mg/kg dry	0.335	0.298	1	"	"	"	"	"	"
53-70-3	Dibenzo (a,h) anthracene	< 0.335		mg/kg dry	0.335	0.243	1	"	"	"	"	"	"
191-24-2	Benzo (g,h,i) perylene	< 0.335		mg/kg dry	0.335	0.251	1	"	"	"	"	"	"

Surrogate recoveries:

3386-33-2	1-Chlorooctadecane	44			40-140 %			"	"	"	"	"	"
84-15-1	Ortho-Terphenyl	52			40-140 %			"	"	"	"	"	"
321-60-8	2-Fluorobiphenyl	57			40-140 %			"	"	"	"	"	"

Total Metals by EPA 6000/7000 Series Methods

7440-22-4	Silver	< 1.47		mg/kg dry	1.47	0.227	1	SW846 6010C	11-Oct-11	12-Oct-11	ARF	1120925	
7440-38-2	Arsenic	6.23		mg/kg dry	1.47	0.237	1	"	"	"	"	"	"
7440-41-7	Beryllium	< 0.491		mg/kg dry	0.491	0.157	1	"	"	"	"	"	"
7440-43-9	Cadmium	0.521		mg/kg dry	0.491	0.0542	1	"	"	"	"	"	"
7440-47-3	Chromium	16.8		mg/kg dry	0.982	0.358	1	"	"	"	"	"	"
7440-50-8	Copper	11.3		mg/kg dry	0.982	0.110	1	"	"	"	"	"	"
7439-97-6	Mercury	< 0.0282		mg/kg dry	0.0282	0.0058	1	SW846 7471B	"	13-Oct-11	EDT	1120926	
7440-02-0	Nickel	6.34		mg/kg dry	0.982	0.0677	1	SW846 6010C	"	12-Oct-11	ARF	1120925	
7439-92-1	Lead	6.91		mg/kg dry	1.47	0.175	1	"	"	"	"	"	"
7440-36-0	Antimony	< 4.91		mg/kg dry	4.91	0.216	1	"	"	"	"	"	"
7782-49-2	Selenium	< 1.47		mg/kg dry	1.47	0.218	1	"	"	"	"	"	"
7440-28-0	Thallium	< 2.95		mg/kg dry	2.95	0.242	1	"	"	"	"	"	"
7440-66-6	Zinc	52.2		mg/kg dry	0.982	0.213	1	"	"	"	"	"	"

General Chemistry Parameters

% Solids	95.7		%				1	SM2540 G Mod.	12-Oct-11	12-Oct-11	DT	1121042	
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Sample Identification

B2-S2 Client Project # 1234.1 Matrix Soil Collection Date/Time 05-Oct-11 09:44 Received 06-Oct-11
 SB37055-02

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

VOC Extraction **Field extracted** N/A 1 VOC Soil Extraction 08-Oct-11 08-Oct-11 BD 1120828

VPH Aliphatic/Aromatic Carbon Ranges

Prepared by method VPH - EPA 5030B

Initial weight: 26.64 g

C5-C8 Aliphatic Hydrocarbons	< 0.501	mg/kg dry		0.501	0.0471	50	MADEP VPH 5/2004 Rev. 1.1	11-Oct-11	11-Oct-11	mp	1120943
C9-C12 Aliphatic Hydrocarbons	0.418	mg/kg dry		0.167	0.0244	50	"	"	"	"	"
C9-C10 Aromatic Hydrocarbons	0.301	mg/kg dry		0.167	0.00431	50	"	"	"	"	"
Unadjusted C5-C8 Aliphatic Hydrocarbons	2.46	mg/kg dry		0.501	0.0384	50	"	"	"	"	"
Unadjusted C9-C12 Aliphatic Hydrocarbons	0.719	mg/kg dry		0.167	0.0229	50	"	"	"	"	"

VPH Target Analytes

Prepared by method VPH - EPA 5030B

Initial weight: 26.64 g

71-43-2 Benzene	< 0.03	mg/kg dry		0.03	0.007	50	"	"	"	"	"
100-41-4 Ethylbenzene	0.9	mg/kg dry		0.03	0.008	50	"	"	"	"	"
1634-04-4 Methyl tert-butyl ether	< 0.03	mg/kg dry		0.03	0.005	50	"	"	"	"	"
91-20-3 Naphthalene	< 0.03	mg/kg dry		0.03	0.006	50	"	"	"	"	"
108-88-3 Toluene	< 0.03	mg/kg dry		0.03	0.007	50	"	"	"	"	"
179601-23-1 m,p-Xylene	< 0.07	mg/kg dry		0.07	0.02	50	"	"	"	"	"
95-47-6 o-Xylene	1.1	mg/kg dry		0.03	0.009	50	"	"	"	"	"

Surrogate recoveries:

615-59-8 2,5-Dibromotoluene (FID)	75			70-130 %			"	"	"	"	"
615-59-8 2,5-Dibromotoluene (PID)	73			70-130 %			"	"	"	"	"

Extractable Petroleum Hydrocarbons

EPH Aliphatic/Aromatic Ranges

Prepared by method SW846 3545A

C9-C18 Aliphatic Hydrocarbons	< 10.5	mg/kg dry		10.5	1.55	1	MADEP EPH 5/2004 R	11-Oct-11	13-Oct-11	ig	1120847
C19-C36 Aliphatic Hydrocarbons	< 10.5	mg/kg dry		10.5	5.14	1	"	"	"	"	"
C11-C22 Aromatic Hydrocarbons	< 10.5	mg/kg dry		10.5	3.81	1	"	"	"	"	"
Unadjusted C11-C22 Aromatic Hydrocarbons	< 10.5	mg/kg dry		10.5	3.81	1	"	"	"	"	"
Total Petroleum Hydrocarbons	< 10.5	mg/kg dry		10.5	10.5	1	"	"	"	"	"
Unadjusted Total Petroleum Hydrocarbons	< 10.5	mg/kg dry		10.5	10.5	1	"	"	"	"	"

EPH Target PAH Analytes

Prepared by method SW846 3545A

91-20-3 Naphthalene	< 0.350	mg/kg dry		0.350	0.183	1	"	"	"	"	"
91-57-6 2-Methylnaphthalene	< 0.350	mg/kg dry		0.350	0.183	1	"	"	"	"	"
208-96-8 Acenaphthylene	< 0.350	mg/kg dry		0.350	0.205	1	"	"	"	"	"
83-32-9 Acenaphthene	< 0.350	mg/kg dry		0.350	0.205	1	"	"	"	"	"
86-73-7 Fluorene	< 0.350	mg/kg dry		0.350	0.207	1	"	"	"	"	"
85-01-8 Phenanthrene	< 0.350	mg/kg dry		0.350	0.238	1	"	"	"	"	"
120-12-7 Anthracene	< 0.350	mg/kg dry		0.350	0.259	1	"	"	"	"	"
206-44-0 Fluoranthene	< 0.350	mg/kg dry		0.350	0.235	1	"	"	"	"	"
129-00-0 Pyrene	< 0.350	mg/kg dry		0.350	0.252	1	"	"	"	"	"

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* Reportable Detection Limit

Sample Identification**B2-S2**

SB37055-02

Client Project #

1234.1

Matrix

Soil

Collection Date/Time

05-Oct-11 09:44

Received

06-Oct-11

<u>CAS No.</u>	<u>Analyte(s)</u>	<u>Result</u>	<u>Flag</u>	<u>Units</u>	<u>*RDL</u>	<u>MDL</u>	<u>Dilution</u>	<u>Method Ref.</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Analyst</u>	<u>Batch</u>	<u>Cert.</u>
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Extractable Petroleum HydrocarbonsEPH Target PAH AnalytesPrepared by method SW846 3545A

56-55-3	Benzo (a) anthracene	< 0.350		mg/kg dry	0.350	0.254	1	MADEP EPH 5/2004 R	11-Oct-11	13-Oct-11	yg	1120847	
218-01-9	Chrysene	< 0.350		mg/kg dry	0.350	0.272	1	"	"	"	"	"	"
205-99-2	Benzo (b) fluoranthene	< 0.350		mg/kg dry	0.350	0.312	1	"	"	"	"	"	"
207-08-9	Benzo (k) fluoranthene	< 0.350		mg/kg dry	0.350	0.292	1	"	"	"	"	"	"
50-32-8	Benzo (a) pyrene	< 0.350		mg/kg dry	0.350	0.235	1	"	"	"	"	"	"
193-39-5	Indeno (1,2,3-cd) pyrene	< 0.350		mg/kg dry	0.350	0.311	1	"	"	"	"	"	"
53-70-3	Dibenzo (a,h) anthracene	< 0.350		mg/kg dry	0.350	0.254	1	"	"	"	"	"	"
191-24-2	Benzo (g,h,i) perylene	< 0.350		mg/kg dry	0.350	0.262	1	"	"	"	"	"	"

Surrogate recoveries:

3386-33-2	1-Chlorooctadecane	58			40-140 %			"	"	"	"	"	"
84-15-1	Ortho-Terphenyl	47			40-140 %			"	"	"	"	"	"
321-60-8	2-Fluorobiphenyl	50			40-140 %			"	"	"	"	"	"

Total Metals by EPA 6000/7000 Series Methods

7440-22-4	Silver	< 1.37		mg/kg dry	1.37	0.211	1	SW846 6010C	11-Oct-11	12-Oct-11	ARF	1120925	
7440-38-2	Arsenic	4.61		mg/kg dry	1.37	0.220	1	"	"	"	"	"	"
7440-41-7	Beryllium	< 0.457		mg/kg dry	0.457	0.147	1	"	"	"	"	"	"
7440-43-9	Cadmium	< 0.457		mg/kg dry	0.457	0.0505	1	"	"	"	"	"	"
7440-47-3	Chromium	16.1		mg/kg dry	0.914	0.333	1	"	"	"	"	"	"
7440-50-8	Copper	8.02		mg/kg dry	0.914	0.103	1	"	"	"	"	"	"
7439-97-6	Mercury	< 0.0319		mg/kg dry	0.0319	0.0065	1	SW846 7471B	"	13-Oct-11	EDT	1120926	
7440-02-0	Nickel	5.04		mg/kg dry	0.914	0.0630	1	SW846 6010C	"	12-Oct-11	ARF	1120925	
7439-92-1	Lead	4.71		mg/kg dry	1.37	0.163	1	"	"	"	"	"	"
7440-36-0	Antimony	< 4.57		mg/kg dry	4.57	0.201	1	"	"	"	"	"	"
7782-49-2	Selenium	< 1.37		mg/kg dry	1.37	0.203	1	"	"	"	"	"	"
7440-28-0	Thallium	< 2.74		mg/kg dry	2.74	0.225	1	"	"	"	"	"	"
7440-66-6	Zinc	17.5		mg/kg dry	0.914	0.199	1	"	"	"	"	"	"

General Chemistry Parameters

% Solids		93.7		%			1	SM2540 G Mod.	12-Oct-11	12-Oct-11	DT	1121043	
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Sample Identification

B3-S2 Client Project # 1234.1 Matrix Soil Collection Date/Time 05-Oct-11 11:45 Received 06-Oct-11
 SB37055-03

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

VOC Extraction **Field extracted** N/A 1 VOC Soil Extraction 08-Oct-11 08-Oct-11 BD 1120828

VPH Aliphatic/Aromatic Carbon Ranges

Prepared by method VPH - EPA 5030B

Initial weight: 24.14 g

C5-C8 Aliphatic Hydrocarbons	< 0.507	mg/kg dry	0.507	0.0476	50	MADEP VPH 5/2004 Rev. 1.1	11-Oct-11	12-Oct-11	mp	1120943
C9-C12 Aliphatic Hydrocarbons	< 0.169	mg/kg dry	0.169	0.0247	50	"	"	"	"	"
C9-C10 Aromatic Hydrocarbons	< 0.169	mg/kg dry	0.169	0.00436	50	"	"	"	"	"
Unadjusted C5-C8 Aliphatic Hydrocarbons	< 0.507	mg/kg dry	0.507	0.0389	50	"	"	"	"	"
Unadjusted C9-C12 Aliphatic Hydrocarbons	< 0.169	mg/kg dry	0.169	0.0232	50	"	"	"	"	"

VPH Target Analytes

Prepared by method VPH - EPA 5030B

Initial weight: 24.14 g

71-43-2 Benzene	< 0.03	mg/kg dry	0.03	0.007	50	"	"	"	"	"
100-41-4 Ethylbenzene	< 0.03	mg/kg dry	0.03	0.008	50	"	"	"	"	"
1634-04-4 Methyl tert-butyl ether	< 0.03	mg/kg dry	0.03	0.005	50	"	"	"	"	"
91-20-3 Naphthalene	< 0.03	mg/kg dry	0.03	0.006	50	"	"	"	"	"
108-88-3 Toluene	< 0.03	mg/kg dry	0.03	0.007	50	"	"	"	"	"
179601-23-1 m,p-Xylene	< 0.07	mg/kg dry	0.07	0.02	50	"	"	"	"	"
95-47-6 o-Xylene	< 0.03	mg/kg dry	0.03	0.01	50	"	"	"	"	"

Surrogate recoveries:

615-59-8 2,5-Dibromotoluene (FID)	91		70-130 %	"	"	"	"	"	"
615-59-8 2,5-Dibromotoluene (PID)	83		70-130 %	"	"	"	"	"	"

Extractable Petroleum Hydrocarbons

EPH Aliphatic/Aromatic Ranges

Prepared by method SW846 3545A

C9-C18 Aliphatic Hydrocarbons	< 10.3	mg/kg dry	10.3	1.52	1	MADEP EPH 5/2004 R	11-Oct-11	13-Oct-11	kg	1120847
C19-C36 Aliphatic Hydrocarbons	< 10.3	mg/kg dry	10.3	5.05	1	"	"	"	"	"
C11-C22 Aromatic Hydrocarbons	< 10.3	mg/kg dry	10.3	3.74	1	"	"	"	"	"
Unadjusted C11-C22 Aromatic Hydrocarbons	< 10.3	mg/kg dry	10.3	3.74	1	"	"	"	"	"
Total Petroleum Hydrocarbons	< 10.3	mg/kg dry	10.3	10.3	1	"	"	"	"	"
Unadjusted Total Petroleum Hydrocarbons	< 10.3	mg/kg dry	10.3	10.3	1	"	"	"	"	"

EPH Target PAH Analytes

Prepared by method SW846 3545A

91-20-3 Naphthalene	< 0.344	mg/kg dry	0.344	0.180	1	"	"	"	"	"
91-57-6 2-Methylnaphthalene	< 0.344	mg/kg dry	0.344	0.180	1	"	"	"	"	"
208-96-8 Acenaphthylene	< 0.344	mg/kg dry	0.344	0.202	1	"	"	"	"	"
83-32-9 Acenaphthene	< 0.344	mg/kg dry	0.344	0.201	1	"	"	"	"	"
86-73-7 Fluorene	< 0.344	mg/kg dry	0.344	0.203	1	"	"	"	"	"
85-01-8 Phenanthrene	< 0.344	mg/kg dry	0.344	0.234	1	"	"	"	"	"
120-12-7 Anthracene	< 0.344	mg/kg dry	0.344	0.255	1	"	"	"	"	"
206-44-0 Fluoranthene	< 0.344	mg/kg dry	0.344	0.231	1	"	"	"	"	"
129-00-0 Pyrene	< 0.344	mg/kg dry	0.344	0.248	1	"	"	"	"	"

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* Reportable Detection Limit

Sample Identification**B3-S2**

SB37055-03

Client Project #

1234.1

Matrix

Soil

Collection Date/Time

05-Oct-11 11:45

Received

06-Oct-11

<u>CAS No.</u>	<u>Analyte(s)</u>	<u>Result</u>	<u>Flag</u>	<u>Units</u>	<u>*RDL</u>	<u>MDL</u>	<u>Dilution</u>	<u>Method Ref.</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Analyst</u>	<u>Batch</u>	<u>Cert.</u>
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Extractable Petroleum HydrocarbonsEPH Target PAH AnalytesPrepared by method SW846 3545A

56-55-3	Benzo (a) anthracene	< 0.344		mg/kg dry	0.344	0.249	1	MADEP EPH 5/2004	11-Oct-11	13-Oct-11	yg	1120847	
								R					
218-01-9	Chrysene	< 0.344		mg/kg dry	0.344	0.268	1	"	"	"	"	"	"
205-99-2	Benzo (b) fluoranthene	< 0.344		mg/kg dry	0.344	0.307	1	"	"	"	"	"	"
207-08-9	Benzo (k) fluoranthene	< 0.344		mg/kg dry	0.344	0.287	1	"	"	"	"	"	"
50-32-8	Benzo (a) pyrene	< 0.344		mg/kg dry	0.344	0.231	1	"	"	"	"	"	"
193-39-5	Indeno (1,2,3-cd) pyrene	< 0.344		mg/kg dry	0.344	0.306	1	"	"	"	"	"	"
53-70-3	Dibenzo (a,h) anthracene	< 0.344		mg/kg dry	0.344	0.249	1	"	"	"	"	"	"
191-24-2	Benzo (g,h,i) perylene	< 0.344		mg/kg dry	0.344	0.258	1	"	"	"	"	"	"

Surrogate recoveries:

3386-33-2	1-Chlorooctadecane	46			40-140 %			"	"	"	"	"	"
84-15-1	Ortho-Terphenyl	61			40-140 %			"	"	"	"	"	"
321-60-8	2-Fluorobiphenyl	62			40-140 %			"	"	"	"	"	"

Total Metals by EPA 6000/7000 Series Methods

7440-22-4	Silver	< 1.53		mg/kg dry	1.53	0.236	1	SW846 6010C	11-Oct-11	12-Oct-11	ARF	1120925	
7440-38-2	Arsenic	3.60		mg/kg dry	1.53	0.246	1	"	"	"	"	"	"
7440-41-7	Beryllium	< 0.511		mg/kg dry	0.511	0.164	1	"	"	"	"	"	"
7440-43-9	Cadmium	< 0.511		mg/kg dry	0.511	0.0564	1	"	"	"	"	"	"
7440-47-3	Chromium	14.8		mg/kg dry	1.02	0.373	1	"	"	"	"	"	"
7440-50-8	Copper	6.19		mg/kg dry	1.02	0.115	1	"	"	"	"	"	"
7439-97-6	Mercury	< 0.0275		mg/kg dry	0.0275	0.0056	1	SW846 7471B	"	13-Oct-11	EDT	1120926	
7440-02-0	Nickel	4.89		mg/kg dry	1.02	0.0704	1	SW846 6010C	"	12-Oct-11	ARF	1120925	
7439-92-1	Lead	4.07		mg/kg dry	1.53	0.182	1	"	"	"	"	"	"
7440-36-0	Antimony	< 5.11		mg/kg dry	5.11	0.225	1	"	"	"	"	"	"
7782-49-2	Selenium	< 1.53		mg/kg dry	1.53	0.227	1	"	"	"	"	"	"
7440-28-0	Thallium	< 3.07		mg/kg dry	3.07	0.252	1	"	"	"	"	"	"
7440-66-6	Zinc	11.4		mg/kg dry	1.02	0.222	1	"	"	"	"	"	"

General Chemistry Parameters

% Solids	96.7		%				1	SM2540 G Mod.	12-Oct-11	12-Oct-11	DT	1121043	
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* Reportable Detection Limit

Page 12 of 40

Sample Identification

B4-S3 Client Project # 1234.1 Matrix Soil Collection Date/Time 05-Oct-11 10:55 Received 06-Oct-11
 SB37055-04

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

Volatile Organic Compounds

VOC Extraction **Field extracted** N/A 1 VOC Soil Extraction 08-Oct-11 08-Oct-11 BD 1120828

VPH Aliphatic/Aromatic Carbon Ranges

Prepared by method VPH - EPA 5030B

Initial weight: 24.42 g

C5-C8 Aliphatic Hydrocarbons	< 0.496	mg/kg dry	0.496	0.0466	50	MADEP VPH 5/2004 Rev. 1.1	11-Oct-11	12-Oct-11	mp	1120943
C9-C12 Aliphatic Hydrocarbons	< 0.165	mg/kg dry	0.165	0.0241	50	"	"	"	"	"
C9-C10 Aromatic Hydrocarbons	< 0.165	mg/kg dry	0.165	0.00426	50	"	"	"	"	"
Unadjusted C5-C8 Aliphatic Hydrocarbons	< 0.496	mg/kg dry	0.496	0.0380	50	"	"	"	"	"
Unadjusted C9-C12 Aliphatic Hydrocarbons	< 0.165	mg/kg dry	0.165	0.0226	50	"	"	"	"	"

VPH Target Analytes

Prepared by method VPH - EPA 5030B

Initial weight: 24.42 g

71-43-2 Benzene	< 0.03	mg/kg dry	0.03	0.007	50	"	"	"	"	"
100-41-4 Ethylbenzene	< 0.03	mg/kg dry	0.03	0.008	50	"	"	"	"	"
1634-04-4 Methyl tert-butyl ether	< 0.03	mg/kg dry	0.03	0.005	50	"	"	"	"	"
91-20-3 Naphthalene	< 0.03	mg/kg dry	0.03	0.006	50	"	"	"	"	"
108-88-3 Toluene	< 0.03	mg/kg dry	0.03	0.007	50	"	"	"	"	"
179601-23-1 m,p-Xylene	< 0.07	mg/kg dry	0.07	0.02	50	"	"	"	"	"
95-47-6 o-Xylene	< 0.03	mg/kg dry	0.03	0.009	50	"	"	"	"	"

Surrogate recoveries:

615-59-8 2,5-Dibromotoluene (FID)	83		70-130 %			"	"	"	"	"
615-59-8 2,5-Dibromotoluene (PID)	79		70-130 %			"	"	"	"	"

Extractable Petroleum Hydrocarbons

EPH Aliphatic/Aromatic Ranges

Prepared by method SW846 3545A

C9-C18 Aliphatic Hydrocarbons	< 10.0	mg/kg dry	10.0	1.47	1	MADEP EPH 5/2004 R	11-Oct-11	13-Oct-11	kg	1120847
C19-C36 Aliphatic Hydrocarbons	< 10.0	mg/kg dry	10.0	4.90	1	"	"	"	"	"
C11-C22 Aromatic Hydrocarbons	< 10.0	mg/kg dry	10.0	3.63	1	"	"	"	"	"
Unadjusted C11-C22 Aromatic Hydrocarbons	< 10.0	mg/kg dry	10.0	3.63	1	"	"	"	"	"
Total Petroleum Hydrocarbons	< 10.0	mg/kg dry	10.0	10.0	1	"	"	"	"	"
Unadjusted Total Petroleum Hydrocarbons	< 10.0	mg/kg dry	10.0	10.0	1	"	"	"	"	"

EPH Target PAH Analytes

Prepared by method SW846 3545A

91-20-3 Naphthalene	< 0.334	mg/kg dry	0.334	0.175	1	"	"	"	"	"
91-57-6 2-Methylnaphthalene	< 0.334	mg/kg dry	0.334	0.174	1	"	"	"	"	"
208-96-8 Acenaphthylene	< 0.334	mg/kg dry	0.334	0.195	1	"	"	"	"	"
83-32-9 Acenaphthene	< 0.334	mg/kg dry	0.334	0.195	1	"	"	"	"	"
86-73-7 Fluorene	< 0.334	mg/kg dry	0.334	0.197	1	"	"	"	"	"
85-01-8 Phenanthrene	< 0.334	mg/kg dry	0.334	0.227	1	"	"	"	"	"
120-12-7 Anthracene	< 0.334	mg/kg dry	0.334	0.247	1	"	"	"	"	"
206-44-0 Fluoranthene	< 0.334	mg/kg dry	0.334	0.224	1	"	"	"	"	"
129-00-0 Pyrene	< 0.334	mg/kg dry	0.334	0.241	1	"	"	"	"	"

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* Reportable Detection Limit

Sample Identification

B4-S3

SB37055-04

Client Project #

1234.1

Matrix

Soil

Collection Date/Time

05-Oct-11 10:55

Received

06-Oct-11

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

EPH Target PAH Analytes

Prepared by method SW846 3545A

56-55-3	Benzo (a) anthracene	< 0.334		mg/kg dry	0.334	0.242	1	MADEP EPH 5/2004 R	11-Oct-11	13-Oct-11	yg	1120847	
218-01-9	Chrysene	< 0.334		mg/kg dry	0.334	0.260	1	"	"	"	"	"	"
205-99-2	Benzo (b) fluoranthene	< 0.334		mg/kg dry	0.334	0.298	1	"	"	"	"	"	"
207-08-9	Benzo (k) fluoranthene	< 0.334		mg/kg dry	0.334	0.278	1	"	"	"	"	"	"
50-32-8	Benzo (a) pyrene	< 0.334		mg/kg dry	0.334	0.224	1	"	"	"	"	"	"
193-39-5	Indeno (1,2,3-cd) pyrene	< 0.334		mg/kg dry	0.334	0.297	1	"	"	"	"	"	"
53-70-3	Dibenzo (a,h) anthracene	< 0.334		mg/kg dry	0.334	0.242	1	"	"	"	"	"	"
191-24-2	Benzo (g,h,i) perylene	< 0.334		mg/kg dry	0.334	0.250	1	"	"	"	"	"	"

Surrogate recoveries:

3386-33-2	1-Chlorooctadecane	43			40-140 %			"	"	"	"	"	"
84-15-1	Ortho-Terphenyl	64			40-140 %			"	"	"	"	"	"
321-60-8	2-Fluorobiphenyl	57			40-140 %			"	"	"	"	"	"

Total Metals by EPA 6000/7000 Series Methods

7440-22-4	Silver	< 1.38		mg/kg dry	1.38	0.213	1	SW846 6010C	11-Oct-11	12-Oct-11	ARF	1120925	
7440-38-2	Arsenic	3.44		mg/kg dry	1.38	0.222	1	"	"	"	"	"	"
7440-41-7	Beryllium	< 0.461		mg/kg dry	0.461	0.148	1	"	"	"	"	"	"
7440-43-9	Cadmium	< 0.461		mg/kg dry	0.461	0.0509	1	"	"	"	"	"	"
7440-47-3	Chromium	15.6		mg/kg dry	0.923	0.336	1	"	"	"	"	"	"
7440-50-8	Copper	6.53		mg/kg dry	0.923	0.104	1	"	"	"	"	"	"
7439-97-6	Mercury	< 0.0287		mg/kg dry	0.0287	0.0059	1	SW846 7471B	"	13-Oct-11	EDT	1120926	
7440-02-0	Nickel	5.50		mg/kg dry	0.923	0.0636	1	SW846 6010C	"	12-Oct-11	ARF	1120925	
7439-92-1	Lead	4.56		mg/kg dry	1.38	0.164	1	"	"	"	"	"	"
7440-36-0	Antimony	< 4.61		mg/kg dry	4.61	0.203	1	"	"	"	"	"	"
7782-49-2	Selenium	< 1.38		mg/kg dry	1.38	0.205	1	"	"	"	"	"	"
7440-28-0	Thallium	< 2.77		mg/kg dry	2.77	0.227	1	"	"	"	"	"	"
7440-66-6	Zinc	16.5		mg/kg dry	0.923	0.200	1	"	"	"	"	"	"

General Chemistry Parameters

% Solids		97.2		%			1	SM2540 G Mod.	12-Oct-11	12-Oct-11	DT	1121043	
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Sample Identification

B5-S2 Client Project # 1234.1 Matrix Soil Collection Date/Time 05-Oct-11 13:10 Received 06-Oct-11
 SB37055-05

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

VOC Extraction **Field extracted** N/A 1 VOC Soil Extraction 08-Oct-11 08-Oct-11 BD 1120828

VPH Aliphatic/Aromatic Carbon Ranges

Prepared by method VPH - EPA 5030B

Initial weight: 22.84 g

C5-C8 Aliphatic Hydrocarbons	< 0.581	mg/kg dry	0.581	0.0546	50	MADEP VPH 5/2004 Rev. 1.1	11-Oct-11	12-Oct-11	mp	1120943
C9-C12 Aliphatic Hydrocarbons	< 0.194	mg/kg dry	0.194	0.0282	50	"	"	"	"	"
C9-C10 Aromatic Hydrocarbons	< 0.194	mg/kg dry	0.194	0.00500	50	"	"	"	"	"
Unadjusted C5-C8 Aliphatic Hydrocarbons	< 0.581	mg/kg dry	0.581	0.0446	50	"	"	"	"	"
Unadjusted C9-C12 Aliphatic Hydrocarbons	< 0.194	mg/kg dry	0.194	0.0265	50	"	"	"	"	"

VPH Target Analytes

Prepared by method VPH - EPA 5030B

Initial weight: 22.84 g

71-43-2 Benzene	< 0.04	mg/kg dry	0.04	0.008	50	"	"	"	"	"
100-41-4 Ethylbenzene	< 0.04	mg/kg dry	0.04	0.009	50	"	"	"	"	"
1634-04-4 Methyl tert-butyl ether	< 0.04	mg/kg dry	0.04	0.006	50	"	"	"	"	"
91-20-3 Naphthalene	< 0.04	mg/kg dry	0.04	0.007	50	"	"	"	"	"
108-88-3 Toluene	< 0.04	mg/kg dry	0.04	0.008	50	"	"	"	"	"
179601-23-1 m,p-Xylene	< 0.08	mg/kg dry	0.08	0.02	50	"	"	"	"	"
95-47-6 o-Xylene	< 0.04	mg/kg dry	0.04	0.01	50	"	"	"	"	"

Surrogate recoveries:

615-59-8 2,5-Dibromotoluene (FID)	72		70-130 %			"	"	"	"	"
615-59-8 2,5-Dibromotoluene (PID)	77		70-130 %			"	"	"	"	"

Extractable Petroleum Hydrocarbons

EPH Aliphatic/Aromatic Ranges

Prepared by method SW846 3545A

C9-C18 Aliphatic Hydrocarbons	< 10.4	mg/kg dry	10.4	1.53	1	MADEP EPH 5/2004 R	11-Oct-11	13-Oct-11	kg	1120847
C19-C36 Aliphatic Hydrocarbons	46.4	mg/kg dry	10.4	5.09	1	"	"	"	"	"
C11-C22 Aromatic Hydrocarbons	31.6	mg/kg dry	10.4	3.77	1	"	"	"	"	"
Unadjusted C11-C22 Aromatic Hydrocarbons	63.8	mg/kg dry	10.4	3.77	1	"	"	"	"	"
Total Petroleum Hydrocarbons	77.9	mg/kg dry	10.4	10.4	1	"	"	"	"	"
Unadjusted Total Petroleum Hydrocarbons	110	mg/kg dry	10.4	10.4	1	"	"	"	"	"

EPH Target PAH Analytes

Prepared by method SW846 3545A

91-20-3 Naphthalene	< 0.347	mg/kg dry	0.347	0.181	1	"	"	"	"	"
91-57-6 2-Methylnaphthalene	< 0.347	mg/kg dry	0.347	0.181	1	"	"	"	"	"
208-96-8 Acenaphthylene	< 0.347	mg/kg dry	0.347	0.203	1	"	"	"	"	"
83-32-9 Acenaphthene	0.421	mg/kg dry	0.347	0.203	1	"	"	"	"	"
86-73-7 Fluorene	< 0.347	mg/kg dry	0.347	0.205	1	"	"	"	"	"
85-01-8 Phenanthrene	2.54	mg/kg dry	0.347	0.236	1	"	"	"	"	"
120-12-7 Anthracene	0.548	mg/kg dry	0.347	0.257	1	"	"	"	"	"
206-44-0 Fluoranthene	6.48	mg/kg dry	0.347	0.232	1	"	"	"	"	"
129-00-0 Pyrene	5.34	mg/kg dry	0.347	0.250	1	"	"	"	"	"

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* Reportable Detection Limit

Sample Identification**B5-S2**

SB37055-05

Client Project #

1234.1

Matrix

Soil

Collection Date/Time

05-Oct-11 13:10

Received

06-Oct-11

<u>CAS No.</u>	<u>Analyte(s)</u>	<u>Result</u>	<u>Flag</u>	<u>Units</u>	<u>*RDL</u>	<u>MDL</u>	<u>Dilution</u>	<u>Method Ref.</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Analyst</u>	<u>Batch</u>	<u>Cert.</u>
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Extractable Petroleum HydrocarbonsEPH Target PAH AnalytesPrepared by method SW846 3545A

56-55-3	Benzo (a) anthracene	2.69		mg/kg dry	0.347	0.251	1	MADEP EPH 5/2004	11-Oct-11	13-Oct-11	yg	1120847	
								R					
218-01-9	Chrysene	2.63		mg/kg dry	0.347	0.270	1	"	"	"	"	"	"
205-99-2	Benzo (b) fluoranthene	2.37		mg/kg dry	0.347	0.309	1	"	"	"	"	"	"
207-08-9	Benzo (k) fluoranthene	2.22		mg/kg dry	0.347	0.289	1	"	"	"	"	"	"
50-32-8	Benzo (a) pyrene	2.59		mg/kg dry	0.347	0.233	1	"	"	"	"	"	"
193-39-5	Indeno (1,2,3-cd) pyrene	1.25		mg/kg dry	0.347	0.308	1	"	"	"	"	"	"
53-70-3	Dibenzo (a,h) anthracene	1.23		mg/kg dry	0.347	0.251	1	"	"	"	"	"	"
191-24-2	Benzo (g,h,i) perylene	1.59		mg/kg dry	0.347	0.260	1	"	"	"	"	"	"

Surrogate recoveries:

3386-33-2	1-Chlorooctadecane	49			40-140 %			"	"	"	"	"	"
84-15-1	Ortho-Terphenyl	62			40-140 %			"	"	"	"	"	"
321-60-8	2-Fluorobiphenyl	62			40-140 %			"	"	"	"	"	"

Total Metals by EPA 6000/7000 Series Methods

7440-22-4	Silver	< 1.43		mg/kg dry	1.43	0.220	1	SW846 6010C	11-Oct-11	12-Oct-11	ARF	1120925	
7440-38-2	Arsenic	4.14		mg/kg dry	1.43	0.230	1	"	"	"	"	"	"
7440-41-7	Beryllium	< 0.477		mg/kg dry	0.477	0.153	1	"	"	"	"	"	"
7440-43-9	Cadmium	< 0.477		mg/kg dry	0.477	0.0526	1	"	"	"	"	"	"
7440-47-3	Chromium	12.4		mg/kg dry	0.953	0.347	1	"	"	"	"	"	"
7440-50-8	Copper	8.63		mg/kg dry	0.953	0.107	1	"	"	"	"	"	"
7439-97-6	Mercury	< 0.0315		mg/kg dry	0.0315	0.0065	1	SW846 7471B	"	13-Oct-11	EDT	1120926	
7440-02-0	Nickel	4.71		mg/kg dry	0.953	0.0657	1	SW846 6010C	"	12-Oct-11	ARF	1120925	
7439-92-1	Lead	6.93		mg/kg dry	1.43	0.170	1	"	"	"	"	"	"
7440-36-0	Antimony	< 4.77		mg/kg dry	4.77	0.210	1	"	"	"	"	"	"
7782-49-2	Selenium	< 1.43		mg/kg dry	1.43	0.211	1	"	"	"	"	"	"
7440-28-0	Thallium	< 2.86		mg/kg dry	2.86	0.235	1	"	"	"	"	"	"
7440-66-6	Zinc	17.6		mg/kg dry	0.953	0.207	1	"	"	"	"	"	"

General Chemistry Parameters

% Solids	93.3		%				1	SM2540 G Mod.	12-Oct-11	12-Oct-11	DT	1121043	
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Sample Identification

B6-S2 Client Project # 1234.1 Matrix Soil Collection Date/Time 05-Oct-11 13:52 Received 06-Oct-11
 SB37055-06

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

VOC Extraction **Field extracted** N/A 1 VOC Soil Extraction 08-Oct-11 08-Oct-11 BD 1120828

VPH Aliphatic/Aromatic Carbon Ranges

Prepared by method VPH - EPA 5030B

Initial weight: 21.53 g

C5-C8 Aliphatic Hydrocarbons	< 0.594	mg/kg dry	0.594	0.0558	50	MADEP VPH 5/2004 Rev. 1.1	11-Oct-11	12-Oct-11	mp	1120943
C9-C12 Aliphatic Hydrocarbons	< 0.198	mg/kg dry	0.198	0.0288	50	"	"	"	"	"
C9-C10 Aromatic Hydrocarbons	< 0.198	mg/kg dry	0.198	0.00510	50	"	"	"	"	"
Unadjusted C5-C8 Aliphatic Hydrocarbons	< 0.594	mg/kg dry	0.594	0.0455	50	"	"	"	"	"
Unadjusted C9-C12 Aliphatic Hydrocarbons	< 0.198	mg/kg dry	0.198	0.0271	50	"	"	"	"	"

VPH Target Analytes

Prepared by method VPH - EPA 5030B

Initial weight: 21.53 g

71-43-2 Benzene	< 0.04	mg/kg dry	0.04	0.009	50	"	"	"	"	"
100-41-4 Ethylbenzene	< 0.04	mg/kg dry	0.04	0.009	50	"	"	"	"	"
1634-04-4 Methyl tert-butyl ether	< 0.04	mg/kg dry	0.04	0.006	50	"	"	"	"	"
91-20-3 Naphthalene	< 0.04	mg/kg dry	0.04	0.007	50	"	"	"	"	"
108-88-3 Toluene	< 0.04	mg/kg dry	0.04	0.008	50	"	"	"	"	"
179601-23-1 m,p-Xylene	< 0.08	mg/kg dry	0.08	0.02	50	"	"	"	"	"
95-47-6 o-Xylene	< 0.04	mg/kg dry	0.04	0.01	50	"	"	"	"	"

Surrogate recoveries:

615-59-8 2,5-Dibromotoluene (FID)	80		70-130 %	"	"	"	"	"	"	"
615-59-8 2,5-Dibromotoluene (PID)	74		70-130 %	"	"	"	"	"	"	"

Extractable Petroleum Hydrocarbons

EPH Aliphatic/Aromatic Ranges

Prepared by method SW846 3545A

C9-C18 Aliphatic Hydrocarbons	< 10.3	mg/kg dry	10.3	1.51	1	MADEP EPH 5/2004 R	11-Oct-11	13-Oct-11	kg	1120847
C19-C36 Aliphatic Hydrocarbons	< 10.3	mg/kg dry	10.3	5.01	1	"	"	"	"	"
C11-C22 Aromatic Hydrocarbons	< 10.3	mg/kg dry	10.3	3.71	1	"	"	"	"	"
Unadjusted C11-C22 Aromatic Hydrocarbons	< 10.3	mg/kg dry	10.3	3.71	1	"	"	"	"	"
Total Petroleum Hydrocarbons	< 10.3	mg/kg dry	10.3	10.2	1	"	"	"	"	"
Unadjusted Total Petroleum Hydrocarbons	< 10.3	mg/kg dry	10.3	10.2	1	"	"	"	"	"

EPH Target PAH Analytes

Prepared by method SW846 3545A

91-20-3 Naphthalene	< 0.341	mg/kg dry	0.341	0.179	1	"	"	"	"	"
91-57-6 2-Methylnaphthalene	< 0.341	mg/kg dry	0.341	0.178	1	"	"	"	"	"
208-96-8 Acenaphthylene	< 0.341	mg/kg dry	0.341	0.200	1	"	"	"	"	"
83-32-9 Acenaphthene	< 0.341	mg/kg dry	0.341	0.200	1	"	"	"	"	"
86-73-7 Fluorene	< 0.341	mg/kg dry	0.341	0.202	1	"	"	"	"	"
85-01-8 Phenanthrene	< 0.341	mg/kg dry	0.341	0.233	1	"	"	"	"	"
120-12-7 Anthracene	< 0.341	mg/kg dry	0.341	0.253	1	"	"	"	"	"
206-44-0 Fluoranthene	< 0.341	mg/kg dry	0.341	0.229	1	"	"	"	"	"
129-00-0 Pyrene	< 0.341	mg/kg dry	0.341	0.246	1	"	"	"	"	"

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* Reportable Detection Limit

Sample Identification**B6-S2**

SB37055-06

Client Project #

1234.1

Matrix

Soil

Collection Date/Time

05-Oct-11 13:52

Received

06-Oct-11

<u>CAS No.</u>	<u>Analyte(s)</u>	<u>Result</u>	<u>Flag</u>	<u>Units</u>	<u>*RDL</u>	<u>MDL</u>	<u>Dilution</u>	<u>Method Ref.</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Analyst</u>	<u>Batch</u>	<u>Cert.</u>
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Extractable Petroleum HydrocarbonsEPH Target PAH AnalytesPrepared by method SW846 3545A

56-55-3	Benzo (a) anthracene	< 0.341		mg/kg dry	0.341	0.247	1	MADEP EPH 5/2004 R	11-Oct-11	13-Oct-11	yg	1120847	
218-01-9	Chrysene	< 0.341		mg/kg dry	0.341	0.266	1	"	"	"	"	"	
205-99-2	Benzo (b) fluoranthene	< 0.341		mg/kg dry	0.341	0.304	1	"	"	"	"	"	
207-08-9	Benzo (k) fluoranthene	< 0.341		mg/kg dry	0.341	0.285	1	"	"	"	"	"	
50-32-8	Benzo (a) pyrene	< 0.341		mg/kg dry	0.341	0.230	1	"	"	"	"	"	
193-39-5	Indeno (1,2,3-cd) pyrene	< 0.341		mg/kg dry	0.341	0.304	1	"	"	"	"	"	
53-70-3	Dibenzo (a,h) anthracene	< 0.341		mg/kg dry	0.341	0.248	1	"	"	"	"	"	
191-24-2	Benzo (g,h,i) perylene	< 0.341		mg/kg dry	0.341	0.256	1	"	"	"	"	"	

Surrogate recoveries:

3386-33-2	1-Chlorooctadecane	44			40-140 %			"	"	"	"	"	
84-15-1	Ortho-Terphenyl	46			40-140 %			"	"	"	"	"	
321-60-8	2-Fluorobiphenyl	40			40-140 %			"	"	"	"	"	

Total Metals by EPA 6000/7000 Series Methods

7440-22-4	Silver	< 1.38		mg/kg dry	1.38	0.212	1	SW846 6010C	11-Oct-11	13-Oct-11	ARF	1120925	
7440-38-2	Arsenic	4.69		mg/kg dry	1.38	0.221	1	"	"	"	"	"	
7440-41-7	Beryllium	< 0.459		mg/kg dry	0.459	0.147	1	"	"	"	"	"	
7440-43-9	Cadmium	< 0.459		mg/kg dry	0.459	0.0507	1	"	"	"	"	"	
7440-47-3	Chromium	14.8		mg/kg dry	0.918	0.335	1	"	"	"	"	"	
7440-50-8	Copper	9.69		mg/kg dry	0.918	0.103	1	"	"	"	"	"	
7439-97-6	Mercury	< 0.0285		mg/kg dry	0.0285	0.0058	1	SW846 7471B	"	13-Oct-11	EDT	1120926	
7440-02-0	Nickel	6.00		mg/kg dry	0.918	0.0633	1	SW846 6010C	"	13-Oct-11	ARF	1120925	
7439-92-1	Lead	3.92		mg/kg dry	1.38	0.163	1	"	"	"	"	"	
7440-36-0	Antimony	< 4.59		mg/kg dry	4.59	0.202	1	"	"	"	"	"	
7782-49-2	Selenium	< 1.38		mg/kg dry	1.38	0.204	1	"	"	"	"	"	
7440-28-0	Thallium	< 2.75		mg/kg dry	2.75	0.226	1	"	"	"	"	"	
7440-66-6	Zinc	18.0		mg/kg dry	0.918	0.199	1	"	"	"	"	"	

General Chemistry Parameters

% Solids	94.7		%				1	SM2540 G Mod.	12-Oct-11	12-Oct-11	DT	1121043	
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* Reportable Detection Limit

Page 18 of 40

Sample Identification

B7-S3 Client Project # 1234.1 Matrix Soil Collection Date/Time 05-Oct-11 15:23 Received 06-Oct-11
 SB37055-07

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

VOC Extraction **Field extracted** N/A 1 VOC Soil Extraction 08-Oct-11 08-Oct-11 BD 1120828

VPH Aliphatic/Aromatic Carbon Ranges

Prepared by method VPH - EPA 5030B

Initial weight: 31.25 g

C5-C8 Aliphatic Hydrocarbons	< 0.385	mg/kg dry	0.385	0.0362	50	MADEP VPH 5/2004 Rev. 1.1	11-Oct-11	12-Oct-11	mp	1120943
C9-C12 Aliphatic Hydrocarbons	< 0.128	mg/kg dry	0.128	0.0187	50	"	"	"	"	"
C9-C10 Aromatic Hydrocarbons	< 0.128	mg/kg dry	0.128	0.00331	50	"	"	"	"	"
Unadjusted C5-C8 Aliphatic Hydrocarbons	< 0.385	mg/kg dry	0.385	0.0295	50	"	"	"	"	"
Unadjusted C9-C12 Aliphatic Hydrocarbons	< 0.128	mg/kg dry	0.128	0.0176	50	"	"	"	"	"

VPH Target Analytes

Prepared by method VPH - EPA 5030B

Initial weight: 31.25 g

71-43-2 Benzene	< 0.03	mg/kg dry	0.03	0.006	50	"	"	"	"	"
100-41-4 Ethylbenzene	< 0.03	mg/kg dry	0.03	0.006	50	"	"	"	"	"
1634-04-4 Methyl tert-butyl ether	< 0.03	mg/kg dry	0.03	0.004	50	"	"	"	"	"
91-20-3 Naphthalene	< 0.03	mg/kg dry	0.03	0.005	50	"	"	"	"	"
108-88-3 Toluene	< 0.03	mg/kg dry	0.03	0.005	50	"	"	"	"	"
179601-23-1 m,p-Xylene	< 0.05	mg/kg dry	0.05	0.02	50	"	"	"	"	"
95-47-6 o-Xylene	< 0.03	mg/kg dry	0.03	0.007	50	"	"	"	"	"

Surrogate recoveries:

615-59-8 2,5-Dibromotoluene (FID)	92		70-130 %	"	"	"	"	"	"
615-59-8 2,5-Dibromotoluene (PID)	85		70-130 %	"	"	"	"	"	"

Extractable Petroleum Hydrocarbons

EPH Aliphatic/Aromatic Ranges

Prepared by method SW846 3545A

C9-C18 Aliphatic Hydrocarbons	< 10.0	mg/kg dry	10.0	1.47	1	MADEP EPH 5/2004 R	11-Oct-11	13-Oct-11	ig	1120847
C19-C36 Aliphatic Hydrocarbons	< 10.0	mg/kg dry	10.0	4.90	1	"	"	"	"	"
C11-C22 Aromatic Hydrocarbons	< 10.0	mg/kg dry	10.0	3.63	1	"	"	"	"	"
Unadjusted C11-C22 Aromatic Hydrocarbons	< 10.0	mg/kg dry	10.0	3.63	1	"	"	"	"	"
Total Petroleum Hydrocarbons	< 10.0	mg/kg dry	10.0	10.0	1	"	"	"	"	"
Unadjusted Total Petroleum Hydrocarbons	< 10.0	mg/kg dry	10.0	10.0	1	"	"	"	"	"

EPH Target PAH Analytes

Prepared by method SW846 3545A

91-20-3 Naphthalene	< 0.334	mg/kg dry	0.334	0.175	1	"	"	"	"	"
91-57-6 2-Methylnaphthalene	< 0.334	mg/kg dry	0.334	0.174	1	"	"	"	"	"
208-96-8 Acenaphthylene	< 0.334	mg/kg dry	0.334	0.195	1	"	"	"	"	"
83-32-9 Acenaphthene	< 0.334	mg/kg dry	0.334	0.195	1	"	"	"	"	"
86-73-7 Fluorene	< 0.334	mg/kg dry	0.334	0.197	1	"	"	"	"	"
85-01-8 Phenanthrene	< 0.334	mg/kg dry	0.334	0.227	1	"	"	"	"	"
120-12-7 Anthracene	< 0.334	mg/kg dry	0.334	0.247	1	"	"	"	"	"
206-44-0 Fluoranthene	< 0.334	mg/kg dry	0.334	0.224	1	"	"	"	"	"
129-00-0 Pyrene	< 0.334	mg/kg dry	0.334	0.241	1	"	"	"	"	"

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* Reportable Detection Limit

Sample Identification**B7-S3**

SB37055-07

Client Project #

1234.1

Matrix

Soil

Collection Date/Time

05-Oct-11 15:23

Received

06-Oct-11

<u>CAS No.</u>	<u>Analyte(s)</u>	<u>Result</u>	<u>Flag</u>	<u>Units</u>	<u>*RDL</u>	<u>MDL</u>	<u>Dilution</u>	<u>Method Ref.</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Analyst</u>	<u>Batch</u>	<u>Cert.</u>
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Extractable Petroleum HydrocarbonsEPH Target PAH AnalytesPrepared by method SW846 3545A

56-55-3	Benzo (a) anthracene	< 0.334		mg/kg dry	0.334	0.242	1	MADEP EPH 5/2004 R	11-Oct-11	13-Oct-11	yg	1120847	
218-01-9	Chrysene	< 0.334		mg/kg dry	0.334	0.260	1	"	"	"	"	"	"
205-99-2	Benzo (b) fluoranthene	< 0.334		mg/kg dry	0.334	0.298	1	"	"	"	"	"	"
207-08-9	Benzo (k) fluoranthene	< 0.334		mg/kg dry	0.334	0.278	1	"	"	"	"	"	"
50-32-8	Benzo (a) pyrene	< 0.334		mg/kg dry	0.334	0.224	1	"	"	"	"	"	"
193-39-5	Indeno (1,2,3-cd) pyrene	< 0.334		mg/kg dry	0.334	0.297	1	"	"	"	"	"	"
53-70-3	Dibenzo (a,h) anthracene	< 0.334		mg/kg dry	0.334	0.242	1	"	"	"	"	"	"
191-24-2	Benzo (g,h,i) perylene	< 0.334		mg/kg dry	0.334	0.250	1	"	"	"	"	"	"

Surrogate recoveries:

3386-33-2	1-Chlorooctadecane	63			40-140 %			"	"	"	"	"	"
84-15-1	Ortho-Terphenyl	76			40-140 %			"	"	"	"	"	"
321-60-8	2-Fluorobiphenyl	75			40-140 %			"	"	"	"	"	"

Total Metals by EPA 6000/7000 Series Methods

7440-22-4	Silver	< 1.33		mg/kg dry	1.33	0.204	1	SW846 6010C	11-Oct-11	13-Oct-11	ARF	1120925	
7440-38-2	Arsenic	2.62		mg/kg dry	1.33	0.213	1	"	"	"	"	"	"
7440-41-7	Beryllium	< 0.443		mg/kg dry	0.443	0.142	1	"	"	"	"	"	"
7440-43-9	Cadmium	< 0.443		mg/kg dry	0.443	0.0489	1	"	"	"	"	"	"
7440-47-3	Chromium	13.8		mg/kg dry	0.885	0.323	1	"	"	"	"	"	"
7440-50-8	Copper	11.6		mg/kg dry	0.885	0.0995	1	"	"	"	"	"	"
7439-97-6	Mercury	< 0.0268		mg/kg dry	0.0268	0.0055	1	SW846 7471B	"	13-Oct-11	EDT	1120926	
7440-02-0	Nickel	9.84		mg/kg dry	0.885	0.0610	1	SW846 6010C	"	13-Oct-11	ARF	1120925	
7439-92-1	Lead	4.02		mg/kg dry	1.33	0.157	1	"	"	"	"	"	"
7440-36-0	Antimony	< 4.43		mg/kg dry	4.43	0.195	1	"	"	"	"	"	"
7782-49-2	Selenium	< 1.33		mg/kg dry	1.33	0.196	1	"	"	"	"	"	"
7440-28-0	Thallium	< 2.66		mg/kg dry	2.66	0.218	1	"	"	"	"	"	"
7440-66-6	Zinc	28.7		mg/kg dry	0.885	0.192	1	"	"	"	"	"	"

General Chemistry Parameters

% Solids	97.8		%				1	SM2540 G Mod.	12-Oct-11	12-Oct-11	DT	1121043	
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Sample Identification

B8-S2 Client Project # 1234.1 Matrix Soil Collection Date/Time 05-Oct-11 17:03 Received 06-Oct-11
 SB37055-08

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

VOC Extraction **Field extracted** N/A 1 VOC Soil Extraction 08-Oct-11 08-Oct-11 BD 1120828

VPH Aliphatic/Aromatic Carbon Ranges

Prepared by method VPH - EPA 5030B

Initial weight: 26.87 g

C5-C8 Aliphatic Hydrocarbons	< 0.444	mg/kg dry	0.444	0.0417	50	MADEP VPH 5/2004 Rev. 1.1	11-Oct-11	12-Oct-11	mp	1120943
C9-C12 Aliphatic Hydrocarbons	< 0.148	mg/kg dry	0.148	0.0216	50	"	"	"	"	"
C9-C10 Aromatic Hydrocarbons	< 0.148	mg/kg dry	0.148	0.00382	50	"	"	"	"	"
Unadjusted C5-C8 Aliphatic Hydrocarbons	< 0.444	mg/kg dry	0.444	0.0340	50	"	"	"	"	"
Unadjusted C9-C12 Aliphatic Hydrocarbons	< 0.148	mg/kg dry	0.148	0.0203	50	"	"	"	"	"

VPH Target Analytes

Prepared by method VPH - EPA 5030B

Initial weight: 26.87 g

71-43-2 Benzene	< 0.03	mg/kg dry	0.03	0.006	50	"	"	"	"	"
100-41-4 Ethylbenzene	< 0.03	mg/kg dry	0.03	0.007	50	"	"	"	"	"
1634-04-4 Methyl tert-butyl ether	< 0.03	mg/kg dry	0.03	0.005	50	"	"	"	"	"
91-20-3 Naphthalene	< 0.03	mg/kg dry	0.03	0.006	50	"	"	"	"	"
108-88-3 Toluene	< 0.03	mg/kg dry	0.03	0.006	50	"	"	"	"	"
179601-23-1 m,p-Xylene	< 0.06	mg/kg dry	0.06	0.02	50	"	"	"	"	"
95-47-6 o-Xylene	< 0.03	mg/kg dry	0.03	0.008	50	"	"	"	"	"

Surrogate recoveries:

615-59-8 2,5-Dibromotoluene (FID)	86		70-130 %	"	"	"	"	"	"	"
615-59-8 2,5-Dibromotoluene (PID)	78		70-130 %	"	"	"	"	"	"	"

Extractable Petroleum Hydrocarbons

EPH Aliphatic/Aromatic Ranges

Prepared by method SW846 3545A

C9-C18 Aliphatic Hydrocarbons	< 9.81	mg/kg dry	9.81	1.44	1	MADEP EPH 5/2004 R	11-Oct-11	13-Oct-11	kg	1120847
C19-C36 Aliphatic Hydrocarbons	< 9.81	mg/kg dry	9.81	4.80	1	"	"	"	"	"
C11-C22 Aromatic Hydrocarbons	< 9.81	mg/kg dry	9.81	3.55	1	"	"	"	"	"
Unadjusted C11-C22 Aromatic Hydrocarbons	< 9.81	mg/kg dry	9.81	3.55	1	"	"	"	"	"
Total Petroleum Hydrocarbons	< 9.81	mg/kg dry	9.81	9.79	1	"	"	"	"	"
Unadjusted Total Petroleum Hydrocarbons	< 9.81	mg/kg dry	9.81	9.79	1	"	"	"	"	"

EPH Target PAH Analytes

Prepared by method SW846 3545A

91-20-3 Naphthalene	< 0.327	mg/kg dry	0.327	0.171	1	"	"	"	"	"
91-57-6 2-Methylnaphthalene	< 0.327	mg/kg dry	0.327	0.171	1	"	"	"	"	"
208-96-8 Acenaphthylene	< 0.327	mg/kg dry	0.327	0.191	1	"	"	"	"	"
83-32-9 Acenaphthene	< 0.327	mg/kg dry	0.327	0.191	1	"	"	"	"	"
86-73-7 Fluorene	< 0.327	mg/kg dry	0.327	0.193	1	"	"	"	"	"
85-01-8 Phenanthrene	< 0.327	mg/kg dry	0.327	0.223	1	"	"	"	"	"
120-12-7 Anthracene	< 0.327	mg/kg dry	0.327	0.242	1	"	"	"	"	"
206-44-0 Fluoranthene	< 0.327	mg/kg dry	0.327	0.219	1	"	"	"	"	"
129-00-0 Pyrene	< 0.327	mg/kg dry	0.327	0.236	1	"	"	"	"	"

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

* Reportable Detection Limit

Sample Identification

B8-S2

SB37055-08

Client Project #

1234.1

Matrix

Soil

Collection Date/Time

05-Oct-11 17:03

Received

06-Oct-11

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

EPH Target PAH Analytes

Prepared by method SW846 3545A

56-55-3	Benzo (a) anthracene	< 0.327		mg/kg dry	0.327	0.237	1	MADEP EPH 5/2004 R	11-Oct-11	13-Oct-11	yg	1120847	
218-01-9	Chrysene	< 0.327		mg/kg dry	0.327	0.254	1	"	"	"	"	"	
205-99-2	Benzo (b) fluoranthene	< 0.327		mg/kg dry	0.327	0.291	1	"	"	"	"	"	
207-08-9	Benzo (k) fluoranthene	< 0.327		mg/kg dry	0.327	0.272	1	"	"	"	"	"	
50-32-8	Benzo (a) pyrene	< 0.327		mg/kg dry	0.327	0.220	1	"	"	"	"	"	
193-39-5	Indeno (1,2,3-cd) pyrene	< 0.327		mg/kg dry	0.327	0.290	1	"	"	"	"	"	
53-70-3	Dibenzo (a,h) anthracene	< 0.327		mg/kg dry	0.327	0.237	1	"	"	"	"	"	
191-24-2	Benzo (g,h,i) perylene	< 0.327		mg/kg dry	0.327	0.245	1	"	"	"	"	"	

Surrogate recoveries:

3386-33-2	1-Chlorooctadecane	46			40-140 %			"	"	"	"	"	
84-15-1	Ortho-Terphenyl	43			40-140 %			"	"	"	"	"	
321-60-8	2-Fluorobiphenyl	43			40-140 %			"	"	"	"	"	

Total Metals by EPA 6000/7000 Series Methods

7440-22-4	Silver	< 1.34		mg/kg dry	1.34	0.207	1	SW846 6010C	11-Oct-11	13-Oct-11	ARF	1120925	
7440-38-2	Arsenic	7.32		mg/kg dry	1.34	0.216	1	"	"	"	"	"	
7440-41-7	Beryllium	< 0.448		mg/kg dry	0.448	0.144	1	"	"	"	"	"	
7440-43-9	Cadmium	1.24		mg/kg dry	0.448	0.0495	1	"	"	"	"	"	
7440-47-3	Chromium	12.1		mg/kg dry	0.896	0.327	1	"	"	"	"	"	
7440-50-8	Copper	4,150	GS1	mg/kg dry	17.9	2.02	20	"	"	13-Oct-11	"	"	
7439-97-6	Mercury	< 0.0296		mg/kg dry	0.0296	0.0061	1	SW846 7471B	"	13-Oct-11	EDT	1120926	
7440-02-0	Nickel	7.44		mg/kg dry	0.896	0.0618	1	SW846 6010C	"	13-Oct-11	ARF	1120925	
7439-92-1	Lead	198		mg/kg dry	1.34	0.159	1	"	"	"	"	"	
7440-36-0	Antimony	< 4.48		mg/kg dry	4.48	0.197	1	"	"	"	"	"	
7782-49-2	Selenium	< 1.34		mg/kg dry	1.34	0.199	1	"	"	"	"	"	
7440-28-0	Thallium	< 2.69		mg/kg dry	2.69	0.221	1	"	"	"	"	"	
7440-66-6	Zinc	2,240	GS1	mg/kg dry	17.9	3.89	20	"	"	13-Oct-11	"	"	

General Chemistry Parameters

% Solids	97.9			%			1	SM2540 G Mod.	12-Oct-11	12-Oct-11	DT	1121043	
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Subcontracted Analyses

Subcontracted Analyses

Prepared by method ICP MS S PR

Analysis performed by Spectrum Analytical, Inc.-- RI Division

7440-50-8	Copper	4,300	B	mg/Kg	220	5.9	1000	SW846 6020A	17-Oct-11	18-Oct-11	MRI90	62283	
7440-66-6	Zinc	2,300	B	mg/Kg	220	8.1	1000	"	"	"	"	"	

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* Reportable Detection Limit

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Sample Identification

DUP

SB37055-09

Client Project #

1234.1

Matrix

Soil

Collection Date/Time

05-Oct-11 08:00

Received

06-Oct-11

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

VOC Extraction

Field extracted

N/A

1

VOC Soil Extraction 08-Oct-11 08-Oct-11 BD 1120828

VPH Aliphatic/Aromatic Carbon Ranges

VC10

Prepared by method VPH - EPA 5030B

Initial weight: 26.88 g

C5-C8 Aliphatic Hydrocarbons	< 0.441	mg/kg dry	0.441	0.0414	50	MADEP VPH 5/2004 Rev. 1.1	11-Oct-11	12-Oct-11	mp	1120943
C9-C12 Aliphatic Hydrocarbons	< 0.147	mg/kg dry	0.147	0.0214	50	"	"	"	"	"
C9-C10 Aromatic Hydrocarbons	< 0.147	mg/kg dry	0.147	0.00379	50	"	"	"	"	"
Unadjusted C5-C8 Aliphatic Hydrocarbons	< 0.441	mg/kg dry	0.441	0.0338	50	"	"	"	"	"
Unadjusted C9-C12 Aliphatic Hydrocarbons	< 0.147	mg/kg dry	0.147	0.0201	50	"	"	"	"	"

VPH Target Analytes

VC10

Prepared by method VPH - EPA 5030B

Initial weight: 26.88 g

71-43-2 Benzene	< 0.03	mg/kg dry	0.03	0.006	50	"	"	"	"	"
100-41-4 Ethylbenzene	< 0.03	mg/kg dry	0.03	0.007	50	"	"	"	"	"
1634-04-4 Methyl tert-butyl ether	< 0.03	mg/kg dry	0.03	0.005	50	"	"	"	"	"
91-20-3 Naphthalene	< 0.03	mg/kg dry	0.03	0.005	50	"	"	"	"	"
108-88-3 Toluene	< 0.03	mg/kg dry	0.03	0.006	50	"	"	"	"	"
179601-23-1 m,p-Xylene	< 0.06	mg/kg dry	0.06	0.02	50	"	"	"	"	"
95-47-6 o-Xylene	< 0.03	mg/kg dry	0.03	0.008	50	"	"	"	"	"

Surrogate recoveries:

615-59-8 2,5-Dibromotoluene (FID)	79		70-130 %			"	"	"	"	"
615-59-8 2,5-Dibromotoluene (PID)	74		70-130 %			"	"	"	"	"

Extractable Petroleum Hydrocarbons

EPH Aliphatic/Aromatic Ranges

Prepared by method SW846 3545A

C9-C18 Aliphatic Hydrocarbons	< 10.1	mg/kg dry	10.1	1.49	1	MADEP EPH 5/2004 R	11-Oct-11	13-Oct-11	ig	1120847
C19-C36 Aliphatic Hydrocarbons	< 10.1	mg/kg dry	10.1	4.96	1	"	"	"	"	"
C11-C22 Aromatic Hydrocarbons	< 10.1	mg/kg dry	10.1	3.67	1	"	"	"	"	"
Unadjusted C11-C22 Aromatic Hydrocarbons	< 10.1	mg/kg dry	10.1	3.67	1	"	"	"	"	"
Total Petroleum Hydrocarbons	< 10.1	mg/kg dry	10.1	10.1	1	"	"	"	"	"
Unadjusted Total Petroleum Hydrocarbons	< 10.1	mg/kg dry	10.1	10.1	1	"	"	"	"	"

EPH Target PAH Analytes

Prepared by method SW846 3545A

91-20-3 Naphthalene	< 0.338	mg/kg dry	0.338	0.177	1	"	"	"	"	"
91-57-6 2-Methylnaphthalene	< 0.338	mg/kg dry	0.338	0.177	1	"	"	"	"	"
208-96-8 Acenaphthylene	< 0.338	mg/kg dry	0.338	0.198	1	"	"	"	"	"
83-32-9 Acenaphthene	< 0.338	mg/kg dry	0.338	0.197	1	"	"	"	"	"
86-73-7 Fluorene	< 0.338	mg/kg dry	0.338	0.200	1	"	"	"	"	"
85-01-8 Phenanthrene	< 0.338	mg/kg dry	0.338	0.230	1	"	"	"	"	"
120-12-7 Anthracene	< 0.338	mg/kg dry	0.338	0.250	1	"	"	"	"	"
206-44-0 Fluoranthene	< 0.338	mg/kg dry	0.338	0.227	1	"	"	"	"	"
129-00-0 Pyrene	< 0.338	mg/kg dry	0.338	0.244	1	"	"	"	"	"

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* Reportable Detection Limit

Sample Identification

DUP

SB37055-09

Client Project #

1234.1

Matrix

Soil

Collection Date/Time

05-Oct-11 08:00

Received

06-Oct-11

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

EPH Target PAH Analytes

Prepared by method SW846 3545A

56-55-3	Benzo (a) anthracene	< 0.338		mg/kg dry	0.338	0.245	1	MADEP EPH 5/2004 R	11-Oct-11	13-Oct-11	yg	1120847	
218-01-9	Chrysene	< 0.338		mg/kg dry	0.338	0.263	1	"	"	"	"	"	
205-99-2	Benzo (b) fluoranthene	< 0.338		mg/kg dry	0.338	0.301	1	"	"	"	"	"	
207-08-9	Benzo (k) fluoranthene	< 0.338		mg/kg dry	0.338	0.282	1	"	"	"	"	"	
50-32-8	Benzo (a) pyrene	< 0.338		mg/kg dry	0.338	0.227	1	"	"	"	"	"	
193-39-5	Indeno (1,2,3-cd) pyrene	< 0.338		mg/kg dry	0.338	0.300	1	"	"	"	"	"	
53-70-3	Dibenzo (a,h) anthracene	< 0.338		mg/kg dry	0.338	0.245	1	"	"	"	"	"	
191-24-2	Benzo (g,h,i) perylene	< 0.338		mg/kg dry	0.338	0.253	1	"	"	"	"	"	

Surrogate recoveries:

3386-33-2	1-Chlorooctadecane	57			40-140 %			"	"	"	"	"	
84-15-1	Ortho-Terphenyl	59			40-140 %			"	"	"	"	"	
321-60-8	2-Fluorobiphenyl	54			40-140 %			"	"	"	"	"	

Total Metals by EPA 6000/7000 Series Methods

7440-22-4	Silver	< 1.37		mg/kg dry	1.37	0.211	1	SW846 6010C	11-Oct-11	13-Oct-11	ARF	1120925	
7440-38-2	Arsenic	2.72		mg/kg dry	1.37	0.220	1	"	"	"	"	"	
7440-41-7	Beryllium	< 0.456		mg/kg dry	0.456	0.146	1	"	"	"	"	"	
7440-43-9	Cadmium	< 0.456		mg/kg dry	0.456	0.0504	1	"	"	"	"	"	
7440-47-3	Chromium	14.2		mg/kg dry	0.912	0.333	1	"	"	"	"	"	
7440-50-8	Copper	10.1		mg/kg dry	0.912	0.103	1	"	"	"	"	"	
7439-97-6	Mercury	< 0.0280		mg/kg dry	0.0280	0.0057	1	SW846 7471B	"	13-Oct-11	EDT	1120926	
7440-02-0	Nickel	8.02		mg/kg dry	0.912	0.0629	1	SW846 6010C	"	13-Oct-11	ARF	1120925	
7439-92-1	Lead	3.87		mg/kg dry	1.37	0.162	1	"	"	"	"	"	
7440-36-0	Antimony	< 4.56		mg/kg dry	4.56	0.201	1	"	"	"	"	"	
7782-49-2	Selenium	< 1.37		mg/kg dry	1.37	0.202	1	"	"	"	"	"	
7440-28-0	Thallium	< 2.74		mg/kg dry	2.74	0.225	1	"	"	"	"	"	
7440-66-6	Zinc	26.2		mg/kg dry	0.912	0.198	1	"	"	"	"	"	

General Chemistry Parameters

% Solids		98.1		%			1	SM2540 G Mod.	12-Oct-11	12-Oct-11	DT	1121043	
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* Reportable Detection Limit

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Sample Identification

Blank

SB37055-10

Client Project #

1234.1

Matrix

Trip

Collection Date/Time

05-Oct-11 08:00

Received

06-Oct-11

<u>CAS No.</u>	<u>Analyte(s)</u>	<u>Result</u>	<u>Flag</u>	<u>Units</u>	<u>*RDL</u>	<u>MDL</u>	<u>Dilution</u>	<u>Method Ref.</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Analyst</u>	<u>Batch</u>	<u>Cert.</u>
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Volatile Organic CompoundsVPH Aliphatic/Aromatic Carbon RangesPrepared by method VPH - EPA 5030B

C5-C8 Aliphatic Hydrocarbons	< 0.750			mg/kg wet	0.750	0.0704	50	MADEP VPH 5/2004 Rev. 1.1	11-Oct-11	12-Oct-11	mp	1120943	
C9-C12 Aliphatic Hydrocarbons	< 0.250			mg/kg wet	0.250	0.0364	50	"	"	"	"	"	"
C9-C10 Aromatic Hydrocarbons	< 0.250			mg/kg wet	0.250	0.00645	50	"	"	"	"	"	"
Unadjusted C5-C8 Aliphatic Hydrocarbons	< 0.750			mg/kg wet	0.750	0.0575	50	"	"	"	"	"	"
Unadjusted C9-C12 Aliphatic Hydrocarbons	< 0.250			mg/kg wet	0.250	0.0342	50	"	"	"	"	"	"

VPH Target AnalytesPrepared by method VPH - EPA 5030B

71-43-2	Benzene	< 0.05		mg/kg wet	0.05	0.01	50	"	"	"	"	"	"
100-41-4	Ethylbenzene	< 0.05		mg/kg wet	0.05	0.01	50	"	"	"	"	"	"
1634-04-4	Methyl tert-butyl ether	< 0.05		mg/kg wet	0.05	0.008	50	"	"	"	"	"	"
91-20-3	Naphthalene	< 0.05		mg/kg wet	0.05	0.009	50	"	"	"	"	"	"
108-88-3	Toluene	< 0.05		mg/kg wet	0.05	0.01	50	"	"	"	"	"	"
179601-23-1	m,p-Xylene	< 0.1		mg/kg wet	0.1	0.03	50	"	"	"	"	"	"
95-47-6	o-Xylene	< 0.05		mg/kg wet	0.05	0.01	50	"	"	"	"	"	"

Surrogate recoveries:

615-59-8	2,5-Dibromotoluene (FID)	85				70-130 %		"	"	"	"	"	"
615-59-8	2,5-Dibromotoluene (PID)	80				70-130 %		"	"	"	"	"	"

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* Reportable Detection Limit

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Volatile Organic Compounds - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1120943 - VPH - EPA 5030B										
<u>Blank (1120943-BLK1)</u>					<u>Prepared & Analyzed: 11-Oct-11</u>					
C5-C8 Aliphatic Hydrocarbons	< 0.750		mg/kg wet	0.750						
C9-C12 Aliphatic Hydrocarbons	< 0.250		mg/kg wet	0.250						
C9-C10 Aromatic Hydrocarbons	< 0.250		mg/kg wet	0.250						
Unadjusted C5-C8 Aliphatic Hydrocarbons	< 0.750		mg/kg wet	0.750						
Unadjusted C9-C12 Aliphatic Hydrocarbons	< 0.250		mg/kg wet	0.250						
Benzene	< 0.05		mg/kg wet	0.05						
Ethylbenzene	< 0.05		mg/kg wet	0.05						
Methyl tert-butyl ether	< 0.05		mg/kg wet	0.05						
Naphthalene	< 0.05		mg/kg wet	0.05						
Toluene	< 0.05		mg/kg wet	0.05						
m,p-Xylene	< 0.1		mg/kg wet	0.1						
o-Xylene	< 0.05		mg/kg wet	0.05						
2-Methylpentane	< 0.05		mg/kg wet	0.05						
n-Nonane	< 0.1		mg/kg wet	0.1						
n-Pentane	< 0.1		mg/kg wet	0.1						
1,2,4-Trimethylbenzene	< 0.05		mg/kg wet	0.05						
2,2,4-Trimethylpentane	< 0.05		mg/kg wet	0.05						
n-Butylcyclohexane	< 0.05		mg/kg wet	0.05						
n-Decane	< 0.05		mg/kg wet	0.05						
<i>Surrogate: 2,5-Dibromotoluene (FID)</i>	45.9		mg/kg wet		50.0		92	70-130		
<i>Surrogate: 2,5-Dibromotoluene (PID)</i>	42.1		mg/kg wet		50.0		84	70-130		
<u>LCS (1120943-BS1)</u>					<u>Prepared & Analyzed: 11-Oct-11</u>					
C5-C8 Aliphatic Hydrocarbons	57.9		mg/kg wet		60.0		96	70-130		
C9-C12 Aliphatic Hydrocarbons	59.7		mg/kg wet		60.0		99	70-130		
C9-C10 Aromatic Hydrocarbons	18.8		mg/kg wet		20.0		94	70-130		
Unadjusted C5-C8 Aliphatic Hydrocarbons	186		mg/kg wet		200		93	70-130		
Unadjusted C9-C12 Aliphatic Hydrocarbons	78.4		mg/kg wet		80.0		98	70-130		
Benzene	19.4		mg/kg wet		20.0		97	70-130		
Ethylbenzene	18.2		mg/kg wet		20.0		91	70-130		
Methyl tert-butyl ether	18.9		mg/kg wet		20.0		94	70-130		
Naphthalene	17.1		mg/kg wet		20.0		85	70-130		
Toluene	18.4		mg/kg wet		20.0		92	70-130		
m,p-Xylene	35.3		mg/kg wet		40.0		88	70-130		
o-Xylene	17.7		mg/kg wet		20.0		88	70-130		
2-Methylpentane	20.4		mg/kg wet		20.0		102	70-130		
n-Nonane	18.1		mg/kg wet		20.0		90	70-130		
n-Pentane	18.0		mg/kg wet		20.0		90	70-130		
1,2,4-Trimethylbenzene	17.5		mg/kg wet		20.0		88	70-130		
2,2,4-Trimethylpentane	21.2		mg/kg wet		20.0		106	70-130		
n-Butylcyclohexane	19.6		mg/kg wet		20.0		98	70-130		
n-Decane	20.0		mg/kg wet		20.0		100	70-130		
<i>Surrogate: 2,5-Dibromotoluene (FID)</i>	47.3		mg/kg wet		50.0		95	70-130		
<i>Surrogate: 2,5-Dibromotoluene (PID)</i>	42.8		mg/kg wet		50.0		86	70-130		
<u>LCS Dup (1120943-BSD1)</u>					<u>Prepared & Analyzed: 11-Oct-11</u>					
C5-C8 Aliphatic Hydrocarbons	52.9		mg/kg wet		60.0		88	70-130	9	25
C9-C12 Aliphatic Hydrocarbons	56.7		mg/kg wet		60.0		95	70-130	5	25
C9-C10 Aromatic Hydrocarbons	18.5		mg/kg wet		20.0		92	70-130	2	25
Unadjusted C5-C8 Aliphatic Hydrocarbons	188		mg/kg wet		200		94	70-130	1	25
Unadjusted C9-C12 Aliphatic Hydrocarbons	75.2		mg/kg wet		80.0		94	70-130	4	25

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* Reportable Detection Limit

Volatile Organic Compounds - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1120943 - VPH - EPA 5030B										
<u>LCS Dup (1120943-BSD1)</u>					<u>Prepared & Analyzed: 11-Oct-11</u>					
Benzene	20.0		mg/kg wet		20.0		100	70-130	3	25
Ethylbenzene	19.4		mg/kg wet		20.0		97	70-130	6	25
Methyl tert-butyl ether	19.3		mg/kg wet		20.0		97	70-130	2	25
Naphthalene	17.9		mg/kg wet		20.0		89	70-130	4	25
Toluene	19.4		mg/kg wet		20.0		97	70-130	5	25
m,p-Xylene	38.0		mg/kg wet		40.0		95	70-130	7	25
o-Xylene	19.2		mg/kg wet		20.0		96	70-130	8	25
2-Methylpentane	20.7		mg/kg wet		20.0		103	70-130	2	25
n-Nonane	17.0		mg/kg wet		20.0		85	70-130	6	25
n-Pentane	18.4		mg/kg wet		20.0		92	70-130	2	25
1,2,4-Trimethylbenzene	19.0		mg/kg wet		20.0		95	70-130	8	25
2,2,4-Trimethylpentane	20.9		mg/kg wet		20.0		105	70-130	1	25
n-Butylcyclohexane	18.6		mg/kg wet		20.0		93	70-130	5	25
n-Decane	14.7	QR2	mg/kg wet		20.0		73	70-130	30	25
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Surrogate: 2,5-Dibromotoluene (FID)	47.3		mg/kg wet		50.0		95	70-130		
Surrogate: 2,5-Dibromotoluene (PID)	42.2		mg/kg wet		50.0		84	70-130		
<u>Duplicate (1120943-DUP1)</u>					<u>Source: SB37055-01</u>		<u>Prepared: 11-Oct-11 Analyzed: 12-Oct-11</u>			
C5-C8 Aliphatic Hydrocarbons	0.604	J	mg/kg dry	0.720		0.589			3	50
C9-C12 Aliphatic Hydrocarbons	0.140	J	mg/kg dry	0.240		0.139			0.5	50
C9-C10 Aromatic Hydrocarbons	0.0699	J	mg/kg dry	0.240		0.0650			7	50
Unadjusted C5-C8 Aliphatic Hydrocarbons	0.604	J	mg/kg dry	0.720		0.589			3	50
Unadjusted C9-C12 Aliphatic Hydrocarbons	0.210	J	mg/kg dry	0.240		0.204			3	50
Benzene	< 0.05		mg/kg dry	0.05		BRL				50
Ethylbenzene	< 0.05		mg/kg dry	0.05		BRL				50
Methyl tert-butyl ether	< 0.05		mg/kg dry	0.05		BRL				50
Naphthalene	< 0.05		mg/kg dry	0.05		BRL				50
Toluene	< 0.05		mg/kg dry	0.05		BRL				50
m,p-Xylene	< 0.1		mg/kg dry	0.1		BRL				50
o-Xylene	< 0.05		mg/kg dry	0.05		BRL				50
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Surrogate: 2,5-Dibromotoluene (FID)	40.5		mg/kg dry		50.0		81	70-130		
Surrogate: 2,5-Dibromotoluene (PID)	38.2		mg/kg dry		50.0		76	70-130		
<u>Matrix Spike (1120943-MS1)</u>					<u>Source: SB37055-01</u>		<u>Prepared: 11-Oct-11 Analyzed: 12-Oct-11</u>			
Benzene	24.6		mg/kg dry		20.0	BRL	123	70-130		
Ethylbenzene	15.4		mg/kg dry		20.0	BRL	77	70-130		
Methyl tert-butyl ether	24.1		mg/kg dry		20.0	BRL	121	70-130		
Naphthalene	15.4		mg/kg dry		20.0	BRL	77	70-130		
Toluene	16.6		mg/kg dry		20.0	BRL	83	70-130		
m,p-Xylene	30.8		mg/kg dry		40.0	BRL	77	70-130		
o-Xylene	15.7		mg/kg dry		20.0	BRL	79	70-130		
2-Methylpentane	20.2		mg/kg dry		20.0	BRL	101	70-130		
n-Nonane	12.9	QM7	mg/kg dry		20.0	BRL	65	70-130		
n-Pentane	18.4		mg/kg dry		20.0	BRL	92	70-130		
1,2,4-Trimethylbenzene	16.8		mg/kg dry		20.0	BRL	84	70-130		
2,2,4-Trimethylpentane	23.3		mg/kg dry		20.0	BRL	117	70-130		
n-Butylcyclohexane	15.0		mg/kg dry		20.0	BRL	75	70-130		
n-Decane	14.7		mg/kg dry		20.0	BRL	74	70-130		
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Surrogate: 2,5-Dibromotoluene (FID)	40.3		mg/kg dry		50.0		81	70-130		
Surrogate: 2,5-Dibromotoluene (PID)	37.7		mg/kg dry		50.0		75	70-130		

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* Reportable Detection Limit

Extractable Petroleum Hydrocarbons - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1120847 - SW846 3545A										
Blank (1120847-BLK1)					<u>Prepared: 11-Oct-11 Analyzed: 12-Oct-11</u>					
C9-C18 Aliphatic Hydrocarbons	< 5.00		mg/kg wet	5.00						
C19-C36 Aliphatic Hydrocarbons	< 5.00		mg/kg wet	5.00						
C11-C22 Aromatic Hydrocarbons	< 5.00		mg/kg wet	5.00						
Unadjusted C11-C22 Aromatic Hydrocarbons	< 5.00		mg/kg wet	5.00						
Total Petroleum Hydrocarbons	< 5.00		mg/kg wet	5.00						
Unadjusted Total Petroleum Hydrocarbons	< 5.00		mg/kg wet	5.00						
Naphthalene	< 0.166		mg/kg wet	0.166						
2-Methylnaphthalene	< 0.166		mg/kg wet	0.166						
Acenaphthylene	< 0.166		mg/kg wet	0.166						
Acenaphthene	< 0.166		mg/kg wet	0.166						
Fluorene	< 0.166		mg/kg wet	0.166						
Phenanthrene	< 0.166		mg/kg wet	0.166						
Anthracene	< 0.166		mg/kg wet	0.166						
Fluoranthene	< 0.166		mg/kg wet	0.166						
Pyrene	< 0.166		mg/kg wet	0.166						
Benzo (a) anthracene	< 0.166		mg/kg wet	0.166						
Chrysene	< 0.166		mg/kg wet	0.166						
Benzo (b) fluoranthene	< 0.166		mg/kg wet	0.166						
Benzo (k) fluoranthene	< 0.166		mg/kg wet	0.166						
Benzo (a) pyrene	< 0.166		mg/kg wet	0.166						
Indeno (1,2,3-cd) pyrene	< 0.166		mg/kg wet	0.166						
Dibenzo (a,h) anthracene	< 0.166		mg/kg wet	0.166						
Benzo (g,h,i) perylene	< 0.166		mg/kg wet	0.166						
n-Nonane (C9)	< 0.166		mg/kg wet	0.166						
n-Decane	< 0.166		mg/kg wet	0.166						
n-Dodecane	< 0.166		mg/kg wet	0.166						
n-Tetradecane	< 0.166		mg/kg wet	0.166						
n-Hexadecane	< 0.166		mg/kg wet	0.166						
n-Octadecane	< 0.166		mg/kg wet	0.166						
n-Nonadecane	< 0.166		mg/kg wet	0.166						
n-Eicosane	< 0.166		mg/kg wet	0.166						
n-Docosane	< 0.166		mg/kg wet	0.166						
n-Tetracosane	< 0.166		mg/kg wet	0.166						
n-Hexacosane	< 0.166		mg/kg wet	0.166						
n-Octacosane	< 0.166		mg/kg wet	0.166						
n-Triacontane	< 0.166		mg/kg wet	0.166						
n-Hexatriacontane	< 0.166		mg/kg wet	0.166						
Naphthalene (aliphatic fraction)	0.00		mg/kg wet							
2-Methylnaphthalene (aliphatic fraction)	0.00		mg/kg wet							
<i>Surrogate: 1-Chlorooctadecane</i>	<i>2.60</i>		mg/kg wet		<i>3.33</i>		<i>78</i>	<i>40-140</i>		
<i>Surrogate: Ortho-Terphenyl</i>	<i>1.62</i>		mg/kg wet		<i>3.33</i>		<i>49</i>	<i>40-140</i>		
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>1.67</i>		mg/kg wet		<i>2.67</i>		<i>63</i>	<i>40-140</i>		
LCS (1120847-BS1)					<u>Prepared: 11-Oct-11 Analyzed: 12-Oct-11</u>					
C9-C18 Aliphatic Hydrocarbons	30.6		mg/kg wet	5.00	40.0		76	40-140		
C19-C36 Aliphatic Hydrocarbons	50.5		mg/kg wet	5.00	53.3		95	40-140		
C11-C22 Aromatic Hydrocarbons	73.3		mg/kg wet	5.00	113		65	40-140		
Naphthalene	2.92		mg/kg wet	0.166	6.67		44	40-140		
2-Methylnaphthalene	3.28		mg/kg wet	0.166	6.67		49	40-140		
Acenaphthylene	3.73		mg/kg wet	0.166	6.67		56	40-140		
Acenaphthene	3.90		mg/kg wet	0.166	6.67		58	40-140		
Fluorene	4.23		mg/kg wet	0.166	6.67		63	40-140		

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* Reportable Detection Limit

Extractable Petroleum Hydrocarbons - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1120847 - SW846 3545A										
<u>LCS (1120847-BS1)</u>					<u>Prepared: 11-Oct-11 Analyzed: 12-Oct-11</u>					
Phenanthrene	4.48		mg/kg wet	0.166	6.67		67	40-140		
Anthracene	4.52		mg/kg wet	0.166	6.67		68	40-140		
Fluoranthene	4.63		mg/kg wet	0.166	6.67		70	40-140		
Pyrene	4.70		mg/kg wet	0.166	6.67		70	40-140		
Benzo (a) anthracene	5.04		mg/kg wet	0.166	6.67		76	40-140		
Chrysene	4.83		mg/kg wet	0.166	6.67		72	40-140		
Benzo (b) fluoranthene	5.19		mg/kg wet	0.166	6.67		78	40-140		
Benzo (k) fluoranthene	5.15		mg/kg wet	0.166	6.67		77	40-140		
Benzo (a) pyrene	4.89		mg/kg wet	0.166	6.67		73	40-140		
Indeno (1,2,3-cd) pyrene	5.60		mg/kg wet	0.166	6.67		84	40-140		
Dibenzo (a,h) anthracene	4.86		mg/kg wet	0.166	6.67		73	40-140		
Benzo (g,h,i) perylene	5.05		mg/kg wet	0.166	6.67		76	40-140		
n-Nonane (C9)	3.25		mg/kg wet	0.166	6.67		49	30-140		
n-Decane	3.87		mg/kg wet	0.166	6.67		58	40-140		
n-Dodecane	4.35		mg/kg wet	0.166	6.67		65	40-140		
n-Tetradecane	4.96		mg/kg wet	0.166	6.67		74	40-140		
n-Hexadecane	5.44		mg/kg wet	0.166	6.67		82	40-140		
n-Octadecane	5.68		mg/kg wet	0.166	6.67		85	40-140		
n-Nonadecane	5.80		mg/kg wet	0.166	6.67		87	40-140		
n-Eicosane	5.89		mg/kg wet	0.166	6.67		88	40-140		
n-Docosane	6.06		mg/kg wet	0.166	6.67		91	40-140		
n-Tetracosane	6.12		mg/kg wet	0.166	6.67		92	40-140		
n-Hexacosane	6.14		mg/kg wet	0.166	6.67		92	40-140		
n-Octacosane	6.29		mg/kg wet	0.166	6.67		94	40-140		
n-Triacontane	6.14		mg/kg wet	0.166	6.67		92	40-140		
n-Hexatriacontane	6.23		mg/kg wet	0.166	6.67		93	40-140		
Naphthalene (aliphatic fraction)	0.00000667		mg/kg wet		6.67		0.0001	0-200		
2-Methylnaphthalene (aliphatic fraction)	0.00000667		mg/kg wet		6.67		0.0001	0-200		
<i>Surrogate: 1-Chlorooctadecane</i>	3.10		mg/kg wet		3.33		93	40-140		
<i>Surrogate: Ortho-Terphenyl</i>	2.55		mg/kg wet		3.33		77	40-140		
<i>Surrogate: 2-Fluorobiphenyl</i>	1.61		mg/kg wet		2.67		60	40-140		
Naphthalene Breakthrough	0.00		%					0-5		
2-Methylnaphthalene Breakthrough	0.00		%					0-5		
<u>LCS (1120847-BS2)</u>					<u>Prepared & Analyzed: 11-Oct-11</u>					
C9-C18 Aliphatic Hydrocarbons	21.3		mg/kg wet	5.00	40.0		53	40-140		
C19-C36 Aliphatic Hydrocarbons	39.6		mg/kg wet	5.00	53.3		74	40-140		
C11-C22 Aromatic Hydrocarbons	65.3		mg/kg wet	5.00	113		58	40-140		
Naphthalene	3.11		mg/kg wet	0.166	6.67		47	40-140		
2-Methylnaphthalene	3.33		mg/kg wet	0.166	6.67		50	40-140		
Acenaphthylene	3.59		mg/kg wet	0.166	6.67		54	40-140		
Acenaphthene	3.69		mg/kg wet	0.166	6.67		55	40-140		
Fluorene	3.87		mg/kg wet	0.166	6.67		58	40-140		
Phenanthrene	3.94		mg/kg wet	0.166	6.67		59	40-140		
Anthracene	4.14		mg/kg wet	0.166	6.67		62	40-140		
Fluoranthene	3.91		mg/kg wet	0.166	6.67		59	40-140		
Pyrene	3.82		mg/kg wet	0.166	6.67		57	40-140		
Benzo (a) anthracene	3.74		mg/kg wet	0.166	6.67		56	40-140		
Chrysene	3.70		mg/kg wet	0.166	6.67		56	40-140		
Benzo (b) fluoranthene	4.28		mg/kg wet	0.166	6.67		64	40-140		
Benzo (k) fluoranthene	3.39		mg/kg wet	0.166	6.67		51	40-140		
Benzo (a) pyrene	4.09		mg/kg wet	0.166	6.67		61	40-140		

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* Reportable Detection Limit

Extractable Petroleum Hydrocarbons - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1120847 - SW846 3545A										
<u>LCS (1120847-BS2)</u>					<u>Prepared & Analyzed: 11-Oct-11</u>					
Indeno (1,2,3-cd) pyrene	3.84		mg/kg wet	0.166	6.67		58	40-140		
Dibenzo (a,h) anthracene	3.77		mg/kg wet	0.166	6.67		57	40-140		
Benzo (g,h,i) perylene	3.82		mg/kg wet	0.166	6.67		57	40-140		
n-Nonane (C9)	2.48		mg/kg wet	0.166	6.67		37	30-140		
n-Decane	2.98		mg/kg wet	0.166	6.67		45	40-140		
n-Dodecane	3.38		mg/kg wet	0.166	6.67		51	40-140		
n-Tetradecane	3.90		mg/kg wet	0.166	6.67		58	40-140		
n-Hexadecane	4.34		mg/kg wet	0.166	6.67		65	40-140		
n-Octadecane	4.62		mg/kg wet	0.166	6.67		69	40-140		
n-Nonadecane	4.74		mg/kg wet	0.166	6.67		71	40-140		
n-Eicosane	4.84		mg/kg wet	0.166	6.67		73	40-140		
n-Docosane	4.97		mg/kg wet	0.166	6.67		75	40-140		
n-Tetracosane	4.96		mg/kg wet	0.166	6.67		74	40-140		
n-Hexacosane	5.01		mg/kg wet	0.166	6.67		75	40-140		
n-Octacosane	5.14		mg/kg wet	0.166	6.67		77	40-140		
n-Triacontane	4.99		mg/kg wet	0.166	6.67		75	40-140		
n-Hexatriacontane	4.65		mg/kg wet	0.166	6.67		70	40-140		
Naphthalene (aliphatic fraction)	0.00		mg/kg wet		6.67			0-200		
2-Methylnaphthalene (aliphatic fraction)	0.00		mg/kg wet		6.67			0-200		
<i>Surrogate: 1-Chlorooctadecane</i>	2.28		mg/kg wet		3.33		68	40-140		
<i>Surrogate: Ortho-Terphenyl</i>	1.96		mg/kg wet		3.33		59	40-140		
<i>Surrogate: 2-Fluorobiphenyl</i>	1.81		mg/kg wet		2.67		68	40-140		
Naphthalene Breakthrough	0.00		%					0-5		
2-Methylnaphthalene Breakthrough	0.00		%					0-5		
<u>LCS Dup (1120847-BSD1)</u>					<u>Prepared: 11-Oct-11 Analyzed: 12-Oct-11</u>					
C9-C18 Aliphatic Hydrocarbons	24.0		mg/kg wet	5.00	40.0		60	40-140	24	25
C19-C36 Aliphatic Hydrocarbons	46.1		mg/kg wet	5.00	53.3		86	40-140	9	25
C11-C22 Aromatic Hydrocarbons	72.0		mg/kg wet	5.00	113		64	40-140	2	25
Naphthalene	2.96		mg/kg wet	0.166	6.67		44	40-140	1	25
2-Methylnaphthalene	3.28		mg/kg wet	0.166	6.67		49	40-140	0.02	25
Acenaphthylene	3.73		mg/kg wet	0.166	6.67		56	40-140	0	25
Acenaphthene	3.81		mg/kg wet	0.166	6.67		57	40-140	2	25
Fluorene	4.13		mg/kg wet	0.166	6.67		62	40-140	2	25
Phenanthrene	4.22		mg/kg wet	0.166	6.67		63	40-140	6	25
Anthracene	4.30		mg/kg wet	0.166	6.67		65	40-140	5	25
Fluoranthene	4.31		mg/kg wet	0.166	6.67		65	40-140	7	25
Pyrene	4.49		mg/kg wet	0.166	6.67		67	40-140	5	25
Benzo (a) anthracene	4.25		mg/kg wet	0.166	6.67		64	40-140	17	25
Chrysene	4.30		mg/kg wet	0.166	6.67		64	40-140	12	25
Benzo (b) fluoranthene	4.55		mg/kg wet	0.166	6.67		68	40-140	13	25
Benzo (k) fluoranthene	3.98	QR2	mg/kg wet	0.166	6.67		60	40-140	26	25
Benzo (a) pyrene	3.93		mg/kg wet	0.166	6.67		59	40-140	22	25
Indeno (1,2,3-cd) pyrene	4.40		mg/kg wet	0.166	6.67		66	40-140	24	25
Dibenzo (a,h) anthracene	3.83		mg/kg wet	0.166	6.67		57	40-140	24	25
Benzo (g,h,i) perylene	3.97		mg/kg wet	0.166	6.67		60	40-140	24	25
n-Nonane (C9)	2.23	QR2	mg/kg wet	0.166	6.67		33	30-140	37	25
n-Decane	2.96	QR2	mg/kg wet	0.166	6.67		44	40-140	27	25
n-Dodecane	3.60		mg/kg wet	0.166	6.67		54	40-140	19	25
n-Tetradecane	4.34		mg/kg wet	0.166	6.67		65	40-140	13	25
n-Hexadecane	4.99		mg/kg wet	0.166	6.67		75	40-140	9	25
n-Octadecane	5.36		mg/kg wet	0.166	6.67		80	40-140	6	25

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Extractable Petroleum Hydrocarbons - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1120847 - SW846 3545A										
<u>LCS Dup (1120847-BSD1)</u>					<u>Prepared: 11-Oct-11 Analyzed: 12-Oct-11</u>					
n-Nonadecane	5.50		mg/kg wet	0.166	6.67		83	40-140	5	25
n-Eicosane	5.63		mg/kg wet	0.166	6.67		84	40-140	5	25
n-Docosane	5.81		mg/kg wet	0.166	6.67		87	40-140	4	25
n-Tetracosane	5.85		mg/kg wet	0.166	6.67		88	40-140	4	25
n-Hexacosane	5.91		mg/kg wet	0.166	6.67		89	40-140	4	25
n-Octacosane	6.07		mg/kg wet	0.166	6.67		91	40-140	4	25
n-Triacontane	5.82		mg/kg wet	0.166	6.67		87	40-140	5	25
n-Hexatriacontane	3.66	QR2	mg/kg wet	0.166	6.67		55	40-140	52	25
Naphthalene (aliphatic fraction)	0.00		mg/kg wet		6.67			0-200		200
2-Methylnaphthalene (aliphatic fraction)	0.00		mg/kg wet		6.67			0-200		200
<i>Surrogate: 1-Chlorooctadecane</i>	2.49		mg/kg wet		3.33		75	40-140		
<i>Surrogate: Ortho-Terphenyl</i>	2.33		mg/kg wet		3.33		70	40-140		
<i>Surrogate: 2-Fluorobiphenyl</i>	1.67		mg/kg wet		2.67		63	40-140		
Naphthalene Breakthrough	0.00		%					0-5		
2-Methylnaphthalene Breakthrough	0.00		%					0-5		

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

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1120925 - SW846 3050B										
<u>Blank (1120925-BLK1)</u>					<u>Prepared: 11-Oct-11 Analyzed: 12-Oct-11</u>					
Nickel	< 0.883		mg/kg wet	0.883						
Lead	< 1.32		mg/kg wet	1.32						
Antimony	< 4.41		mg/kg wet	4.41						
Selenium	< 1.32		mg/kg wet	1.32						
Thallium	< 2.65		mg/kg wet	2.65						
Zinc	< 0.883		mg/kg wet	0.883						
Silver	< 1.32		mg/kg wet	1.32						
Arsenic	< 1.32		mg/kg wet	1.32						
Cadmium	< 0.441		mg/kg wet	0.441						
Chromium	< 0.883		mg/kg wet	0.883						
Copper	< 0.883		mg/kg wet	0.883						
Beryllium	< 0.441		mg/kg wet	0.441						
<u>Duplicate (1120925-DUP1)</u>					<u>Source: SB37055-04 Prepared: 11-Oct-11 Analyzed: 12-Oct-11</u>					
Nickel	5.25		mg/kg dry	0.911		5.50			5	20
Zinc	17.4		mg/kg dry	0.911		16.5			5	20
Thallium	1.84	J	mg/kg dry	2.73		1.76			5	20
Selenium	0.287	J,QR8	mg/kg dry	1.37		0.364			24	20
Antimony	1.06	J,QR8	mg/kg dry	4.55		0.826			25	20
Lead	4.29		mg/kg dry	1.37		4.56			6	20
Chromium	13.8		mg/kg dry	0.911		15.6			12	20
Cadmium	0.323	J	mg/kg dry	0.455		0.355			9	20
Beryllium	0.205	J	mg/kg dry	0.455		0.189			8	20
Arsenic	3.31		mg/kg dry	1.37		3.44			4	20
Silver	< 1.37		mg/kg dry	1.37		BRL				20
Copper	6.88		mg/kg dry	0.911		6.53			5	20
<u>Matrix Spike (1120925-MS1)</u>					<u>Source: SB37055-04 Prepared: 11-Oct-11 Analyzed: 12-Oct-11</u>					
Nickel	117		mg/kg dry	1.03	128	5.50	87	75-125		
Lead	114		mg/kg dry	1.54	128	4.56	85	75-125		
Zinc	137		mg/kg dry	1.03	128	16.5	94	75-125		
Thallium	114		mg/kg dry	3.08	128	1.76	87	75-125		
Selenium	109		mg/kg dry	1.54	128	0.364	84	75-125		
Antimony	86.5	QM8	mg/kg dry	5.14	128	0.826	67	75-125		
Silver	112		mg/kg dry	1.54	128	BRL	87	75-125		
Chromium	132		mg/kg dry	1.03	128	15.6	91	75-125		
Cadmium	114		mg/kg dry	0.514	128	0.355	89	75-125		
Beryllium	113		mg/kg dry	0.514	128	0.189	88	75-125		
Arsenic	109		mg/kg dry	1.54	128	3.44	82	75-125		
Copper	124		mg/kg dry	1.03	128	6.53	92	75-125		
<u>Matrix Spike Dup (1120925-MSD1)</u>					<u>Source: SB37055-04 Prepared: 11-Oct-11 Analyzed: 12-Oct-11</u>					
Nickel	101		mg/kg dry	0.898	112	5.50	85	75-125	15	20
Thallium	98.5		mg/kg dry	2.69	112	1.76	86	75-125	15	20
Selenium	94.2		mg/kg dry	1.35	112	0.364	84	75-125	14	20
Antimony	74.5	QM8	mg/kg dry	4.49	112	0.826	66	75-125	15	20
Lead	98.9		mg/kg dry	1.35	112	4.56	84	75-125	14	20
Zinc	117		mg/kg dry	0.898	112	16.5	89	75-125	16	20
Chromium	113		mg/kg dry	0.898	112	15.6	87	75-125	16	20
Cadmium	98.9		mg/kg dry	0.449	112	0.355	88	75-125	14	20
Beryllium	98.2		mg/kg dry	0.449	112	0.189	87	75-125	14	20
Arsenic	94.3		mg/kg dry	1.35	112	3.44	81	75-125	15	20
Silver	97.1		mg/kg dry	1.35	112	BRL	87	75-125	14	20
Copper	106		mg/kg dry	0.898	112	6.53	89	75-125	15	20

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

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1120925 - SW846 3050B										
<u>Post Spike (1120925-PS1)</u>				<u>Source: SB37055-04</u>		<u>Prepared: 11-Oct-11 Analyzed: 12-Oct-11</u>				
Zinc	134		mg/kg dry	0.923	115	16.5	102	80-120		
Thallium	117		mg/kg dry	2.77	115	1.76	100	80-120		
Nickel	119		mg/kg dry	0.923	115	5.50	99	80-120		
Selenium	112		mg/kg dry	1.38	115	0.364	97	80-120		
Antimony	112		mg/kg dry	4.61	115	0.826	96	80-120		
Lead	116		mg/kg dry	1.38	115	4.56	97	80-120		
Chromium	131		mg/kg dry	0.923	115	15.6	100	80-120		
Cadmium	117		mg/kg dry	0.461	115	0.355	101	80-120		
Beryllium	116		mg/kg dry	0.461	115	0.189	100	80-120		
Silver	107		mg/kg dry	1.38	115	BRL	93	80-120		
Arsenic	112		mg/kg dry	1.38	115	3.44	94	80-120		
Copper	124		mg/kg dry	0.923	115	6.53	102	80-120		
<u>Reference (1120925-SRM1)</u>						<u>Prepared: 11-Oct-11 Analyzed: 12-Oct-11</u>				
Lead	72.6		mg/kg wet	1.50	70.3		103	77.4-122.6		
Zinc	164		mg/kg wet	1.00	141		116	78.5-121.5		
Thallium	131		mg/kg wet	3.00	119		111	75.3-124.2		
Antimony	42.5		mg/kg wet	5.00	61.6		69	0-224.2		
Nickel	66.0		mg/kg wet	1.00	62.1		106	79.6-119.8		
Selenium	111		mg/kg wet	1.50	104		107	76.7-122.8		
Copper	46.3		mg/kg wet	1.00	42.5		109	77.5-122		
Chromium	53.9		mg/kg wet	1.00	49.1		110	76.7-123		
Cadmium	63.0		mg/kg wet	0.500	59.5		106	80.7-119		
Arsenic	66.5		mg/kg wet	1.50	63.6		104	78-122		
Silver	30.2		mg/kg wet	1.50	27.5		110	35.5-133.8		
Beryllium	51.8		mg/kg wet	0.500	48.8		106	80.1-120		
<u>Reference (1120925-SRM2)</u>						<u>Prepared: 11-Oct-11 Analyzed: 12-Oct-11</u>				
Selenium	104		mg/kg wet	1.50	103		102	76.7-122.8		
Zinc	156		mg/kg wet	1.00	140		112	78.5-121.5		
Thallium	123		mg/kg wet	3.00	117		105	75.3-124.2		
Nickel	63.1		mg/kg wet	1.00	61.4		103	79.6-119.8		
Lead	67.9		mg/kg wet	1.50	69.5		98	77.4-122.6		
Antimony	40.5		mg/kg wet	5.00	60.9		66	0-224.2		
Silver	28.8		mg/kg wet	1.50	27.2		106	35.5-133.8		
Beryllium	49.2		mg/kg wet	0.500	48.2		102	80.1-120		
Copper	43.6		mg/kg wet	1.00	42.0		104	77.5-122		
Chromium	50.0		mg/kg wet	1.00	48.5		103	76.7-123		
Arsenic	62.7		mg/kg wet	1.50	62.9		100	78-122		
Cadmium	60.3		mg/kg wet	0.500	58.9		102	80.7-119		
Batch 1120926 - EPA200/SW7000 Series										
<u>Blank (1120926-BLK1)</u>						<u>Prepared: 11-Oct-11 Analyzed: 13-Oct-11</u>				
Mercury	< 0.0274		mg/kg wet	0.0274						
<u>Duplicate (1120926-DUP1)</u>				<u>Source: SB37055-04</u>		<u>Prepared: 11-Oct-11 Analyzed: 13-Oct-11</u>				
Mercury	< 0.0292		mg/kg dry	0.0292		BRL				20
<u>Matrix Spike (1120926-MS1)</u>				<u>Source: SB37055-04</u>		<u>Prepared: 11-Oct-11 Analyzed: 13-Oct-11</u>				
Mercury	0.452		mg/kg dry	0.152	0.422	BRL	107	75-125		
<u>Matrix Spike Dup (1120926-MSD1)</u>				<u>Source: SB37055-04</u>		<u>Prepared: 11-Oct-11 Analyzed: 13-Oct-11</u>				
Mercury	0.386		mg/kg dry	0.138	0.382	BRL	101	75-125	16	20
<u>Post Spike (1120926-PS1)</u>				<u>Source: SB37055-04</u>		<u>Prepared: 11-Oct-11 Analyzed: 13-Oct-11</u>				
Mercury	0.446		mg/kg dry	0.144	0.399	BRL	112	80-120		
<u>Reference (1120926-SRM1)</u>						<u>Prepared: 11-Oct-11 Analyzed: 13-Oct-11</u>				
Mercury	4.35		mg/kg wet	0.300	4.04		108	71.7-128.3		

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General Chemistry Parameters - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1121043 - General Preparation										
<u>Duplicate (1121043-DUP1)</u>				<u>Source: SB37055-02</u>		<u>Prepared & Analyzed: 12-Oct-11</u>				
% Solids	93.8		%			93.7			0.1	20

Extractable Petroleum Hydrocarbons - CCV Evaluation Report

Analyte(s)	Average RF	CCRF	% D	Limit
Batch S109330				
<u>Calibration Check (S109330-CCV1)</u>				
C9-C18 Aliphatic Hydrocarbons	1.077597E+08	7.973975E+07	-21.5	25
C19-C36 Aliphatic Hydrocarbons	1.129792E+08	8.18439E+07	-13.5	25
C11-C22 Aromatic Hydrocarbons	24.56243	20.99765	-4.1	25
Naphthalene	8.003419	7.176643	-10.3	25
2-Methylnaphthalene	5.351536	4.764823	-11.0	25
Acenaphthylene	7.765333	6.98487	-10.1	25
Acenaphthene	4.869087	4.392385	-9.8	25
Fluorene	5.655684	5.200103	-8.1	25
Phenanthrene	7.874853	7.006547	-11.0	25
Anthracene	6.981425	6.928225	-0.8	25
Fluoranthene	8.318135	7.579768	-8.9	25
Pyrene	8.513716	7.803271	-8.3	25
Benzo (a) anthracene	7.3365	6.858956	-6.5	25
Chrysene	7.586051	6.905383	-9.0	25
Benzo (b) fluoranthene	6.69292	6.358684	-5.0	25
Benzo (k) fluoranthene	7.424765	7.030787	-5.3	25
Benzo (a) pyrene	6.284834	6.008495	-4.4	25
Indeno (1,2,3-cd) pyrene	6.995628	6.620439	-5.4	25
Dibenzo (a,h) anthracene	6.210598	6.12871	-10.1	25
Benzo (g,h,i) perylene	6.4595	6.256916	-3.1	25
n-Decane	102864.8	77543.78	-24.6	25
n-Dodecane	103161.7	77738.91	-24.6	25
n-Hexadecane	100979	77390.98	-23.4	25
n-Nonane (C9)	103134.8	76930.34	-25.4	30
n-Octadecane	98980.42	76363.39	-22.8	25
n-Tetradecane	101806.9	77808.08	-23.6	25
n-Eicosane	95375.55	74967.59	-21.4	25
n-Nonadecane	97472.38	75723.62	-22.3	25
n-Docosane	93276.75	75108.77	-19.5	25
n-Tetracosane	91785.2	73950.58	-19.4	25
n-Octacosane	88486.73	73674.54	-16.7	25
n-Hexacosane	91457.1	74387.61	-18.7	25
n-Triacontane	90872.17	73630.29	-19.0	25
n-Hexatriacontane	88235.92	71581.57	-18.9	25
<u>Calibration Check (S109330-CCV2)</u>				
C9-C18 Aliphatic Hydrocarbons	1.077597E+08	8.012103E+07	-21.2	25
C19-C36 Aliphatic Hydrocarbons	1.129792E+08	7.986404E+07	-15.9	25
C11-C22 Aromatic Hydrocarbons	24.56243	22.79302	4.7	25
Naphthalene	8.003419	8.136767	1.7	25
2-Methylnaphthalene	5.351536	5.12529	-4.2	25
Acenaphthylene	7.765333	7.375727	-5.0	25
Acenaphthene	4.869087	4.58082	-5.9	25
Fluorene	5.655684	5.263486	-6.9	25
Phenanthrene	7.874853	7.135412	-9.4	25
Anthracene	6.981425	6.834699	-2.1	25
Fluoranthene	8.318135	7.774255	-6.5	25
Pyrene	8.513716	7.95937	-6.5	25
Benzo (a) anthracene	7.3365	7.205957	-1.8	25
Chrysene	7.586051	7.087686	-6.6	25
Benzo (b) fluoranthene	6.69292	7.28888	8.9	25
Benzo (k) fluoranthene	7.424765	6.468712	-12.9	25

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* Reportable Detection Limit

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Extractable Petroleum Hydrocarbons - CCV Evaluation Report

Analyte(s)	Average RF	CCRF	% D	Limit
Batch S109330				
<u>Calibration Check (S109330-CCV2)</u>				
Benzo (a) pyrene	6.284834	6.217361	-1.1	25
Indeno (1,2,3-cd) pyrene	6.995628	6.816197	-2.6	25
Dibenzo (a,h) anthracene	6.210598	6.203181	-9.1	25
Benzo (g,h,i) perylene	6.4595	6.293235	-2.6	25
n-Decane	102864.8	78190.61	-24.0	25
n-Dodecane	103161.7	78262.08	-24.1	25
n-Hexadecane	100979	78011.36	-22.7	25
n-Octadecane	98980.42	76601.92	-22.6	25
n-Nonane (C9)	103134.8	77648.29	-24.7	30
n-Tetradecane	101806.9	78499.76	-22.9	25
n-Eicosane	95375.55	74883.31	-21.5	25
n-Docosane	93276.75	74563.62	-20.1	25
n-Nonadecane	97472.38	76006.09	-22.0	25
n-Octacosane	88486.73	73325.76	-17.1	25
n-Tetracosane	91785.2	73306.29	-20.1	25
n-Hexacosane	91457.1	73859.92	-19.2	25
n-Triacontane	90872.17	73537.12	-19.1	25
n-Hexatriacontane	88235.92	72133.39	-18.2	25
Batch S109368				
<u>Calibration Check (S109368-CCV1)</u>				
C9-C18 Aliphatic Hydrocarbons	1.077597E+08	8.012103E+07	-21.2	25
C19-C36 Aliphatic Hydrocarbons	1.129792E+08	7.986404E+07	-15.9	25
C11-C22 Aromatic Hydrocarbons	24.56243	22.79302	4.7	25
Naphthalene	8.003419	8.136767	1.7	25
2-Methylnaphthalene	5.351536	5.12529	-4.2	25
Acenaphthylene	7.765333	7.375727	-5.0	25
Acenaphthene	4.869087	4.58082	-5.9	25
Fluorene	5.655684	5.263486	-6.9	25
Phenanthrene	7.874853	7.135412	-9.4	25
Anthracene	6.981425	6.834699	-2.1	25
Fluoranthene	8.318135	7.774255	-6.5	25
Pyrene	8.513716	7.95937	-6.5	25
Benzo (a) anthracene	7.3365	7.205957	-1.8	25
Chrysene	7.586051	7.087686	-6.6	25
Benzo (b) fluoranthene	6.69292	7.28888	8.9	25
Benzo (k) fluoranthene	7.424765	6.468712	-12.9	25
Benzo (a) pyrene	6.284834	6.217361	-1.1	25
Indeno (1,2,3-cd) pyrene	6.995628	6.816197	-2.6	25
Dibenzo (a,h) anthracene	6.210598	6.203181	-9.1	25
Benzo (g,h,i) perylene	6.4595	6.293235	-2.6	25
n-Decane	102864.8	78190.61	-24.0	25
n-Dodecane	103161.7	78262.08	-24.1	25
n-Hexadecane	100979	78011.36	-22.7	25
n-Nonane (C9)	103134.8	77648.29	-24.7	30
n-Octadecane	98980.42	76601.92	-22.6	25
n-Tetradecane	101806.9	78499.76	-22.9	25
n-Eicosane	95375.55	74883.31	-21.5	25
n-Nonadecane	97472.38	76006.09	-22.0	25
n-Docosane	93276.75	74563.62	-20.1	25
n-Tetracosane	91785.2	73306.29	-20.1	25
n-Octacosane	88486.73	73325.76	-17.1	25

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* Reportable Detection Limit

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Extractable Petroleum Hydrocarbons - CCV Evaluation Report

Analyte(s)	Average RF	CCRF	% D	Limit
Batch S109368				
<u>Calibration Check (S109368-CCV1)</u>				
n-Hexacosane	91457.1	73859.92	-19.2	25
n-Triacontane	90872.17	73537.12	-19.1	25
n-Hexatriacontane	88235.92	72133.39	-18.2	25
<u>Calibration Check (S109368-CCV2)</u>				
C9-C18 Aliphatic Hydrocarbons	1.077597E+08	8.525297E+07	-15.7	25
C19-C36 Aliphatic Hydrocarbons	1.129792E+08	8.45498E+07	-10.4	25
C11-C22 Aromatic Hydrocarbons	24.56243	24.55021	12.9	25
Naphthalene	8.003419	8.224755	2.8	25
2-Methylnaphthalene	5.351536	5.30378	-0.9	25
Acenaphthylene	7.765333	7.674039	-1.2	25
Acenaphthene	4.869087	4.800467	-1.4	25
Fluorene	5.655684	5.649145	-0.1	25
Phenanthrene	7.874853	7.601114	-3.5	25
Anthracene	6.981425	7.18563	2.9	25
Fluoranthene	8.318135	8.049741	-3.2	25
Pyrene	8.513716	8.30105	-2.5	25
Benzo (a) anthracene	7.3365	7.336559	0.0008	25
Chrysene	7.586051	7.202376	-5.1	25
Benzo (b) fluoranthene	6.69292	7.714459	15.3	25
Benzo (k) fluoranthene	7.424765	7.083347	-4.6	25
Benzo (a) pyrene	6.284834	6.782893	7.9	25
Indeno (1,2,3-cd) pyrene	6.995628	7.307191	4.5	25
Dibenzo (a,h) anthracene	6.210598	7.287218	5.6	25
Benzo (g,h,i) perylene	6.4595	7.338967	13.6	25
n-Decane	102864.8	82115.5	-20.2	25
n-Dodecane	103161.7	81902.07	-20.6	25
n-Hexadecane	100979	81380.99	-19.4	25
n-Octadecane	98980.42	79936.92	-19.2	25
n-Nonane (C9)	103134.8	81637.8	-20.8	30
n-Tetradecane	101806.9	81950.36	-19.5	25
n-Eicosane	95375.55	78478.07	-17.7	25
n-Docosane	93276.75	78466.9	-15.9	25
n-Nonadecane	97472.38	79402.29	-18.5	25
n-Octacosane	88486.73	77157.38	-12.8	25
n-Tetracosane	91785.2	77324.04	-15.8	25
n-Hexacosane	91457.1	77867.03	-14.9	25
n-Triacontane	90872.17	77103.42	-15.2	25
n-Hexatriacontane	88235.92	75087.66	-14.9	25

Volatile Organic Compounds - CCV Evaluation Report

Analyte(s)	Average RF	CCRF	% D	Limit
Batch S109258				
<u>Calibration Check (S109258-CCV1)</u>				
Benzene	156193.6	150047.6	-3.9	25
Ethylbenzene	73221.19	77521.7	5.9	25
Methyl tert-butyl ether	93026.18	81593.16	-12.3	25
Naphthalene	73930.95	71151.08	-3.8	25
Toluene	104529.6	102766	-1.7	25
m,p-Xylene	81483.58	85386.91	4.8	25
o-Xylene	69127.04	70469.26	1.9	25
2-Methylpentane	45567.46	53978.28	18.5	25
n-Nonane	27809.25	32277.54	16.1	30
n-Pentane	42116.88	47826.7	13.6	25
1,2,4-Trimethylbenzene	68262.81	70553.88	3.4	25
2,2,4-Trimethylpentane	42940.56	49980.86	16.4	25
n-Butylcyclohexane	26064.71	31688.42	21.6	25
n-Decane	21769.87	26224.8	20.5	25
<u>Calibration Check (S109258-CCV2)</u>				
Benzene	156193.6	142849	-8.5	25
Ethylbenzene	73221.19	62768.54	-14.3	25
Methyl tert-butyl ether	93026.18	91443.06	-1.7	25
Naphthalene	73930.95	60967.08	-17.5	25
Toluene	104529.6	88156.8	-15.7	25
m,p-Xylene	81483.58	68802.6	-15.6	25
o-Xylene	69127.04	58062.5	-16.0	25
2-Methylpentane	45567.46	47395.7	4.0	25
n-Nonane	27809.25	22715.2	-18.3	30
n-Pentane	42116.88	40396.74	-4.1	25
1,2,4-Trimethylbenzene	68262.81	57078.68	-16.4	25
2,2,4-Trimethylpentane	42940.56	44209.6	3.0	25
n-Butylcyclohexane	26064.71	21040.4	-19.3	25
n-Decane	21769.87	16555.22	-24.0	25

Notes and Definitions

B	Compound was also detected in the associated method blank
GS1	Sample dilution required for high concentration of target analytes to be within the instrument calibration range.
J	Reading was less than the PQL but greater than the MDL or Estimated concentration for Tentatively Identified Compound
QM7	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
QM8	The spike recovery exceeded the QC control limits for the MS and/or MSD. The batch was accepted based upon acceptable PS and /or LCS recovery.
QR2	The RPD result exceeded the QC control limits; however, both percent recoveries were acceptable. Sample results for the QC batch were accepted based on percent recoveries and completeness of QC data.
QR8	Analyses are not controlled on RPD values from sample concentrations that are less than 5 times the reporting level. The batch is accepted based upon the difference between the sample and duplicate is less than or equal to the reporting limit.
VC10	The VOC preserved soil sample is not within the 1:1 weight to volume ratio as recommended by SW846 methods 5030 and 5035 but may be within the 1:1 volume to volume ratio. This variance may affect the final reporting limit.
dry	Sample results reported on a dry weight basis
NR	Not Reported
RPD	Relative Percent Difference
J	Detected but below the Reporting Limit; therefore, result is an estimated concentration (CLP J-Flag).

A Matrix Spike and Matrix Spike Duplicate (MS/MSD) for MADEP EPH CAM may not have been analyzed with the samples in this work order. According to the method these spikes are performed only when requested by the client. If requested the spike recoveries are included in the batch QC data.

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

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

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

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

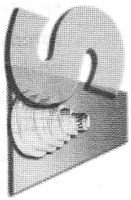
Method Detection Limit (MDL): The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero and is determined from analysis of a sample in a given matrix type containing the analyte.

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

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

Continuing Calibration Verification: The calibration relationship established during the initial calibration must be verified at periodic intervals. Concentrations, intervals, and criteria are method specific.

Validated by:
June O'Connor
Nicole Leja
Rebecca Merz



SPECTRUM ANALYTICAL, INC.
Featuring
HANIBAL TECHNOLOGY

CHAIN OF CUSTODY RECORD

Page 1 of 1

Special Handling:

- Standard TAT - 7 to 10 business days
- Rush TAT - Date Needed: 10-13-11
- All TATs subject to laboratory approval.
- Min. 24-hour notification needed for rushes.
- Samples disposed of after 60 days unless otherwise instructed.

SP 31655M

Report To: CDW Consultants

40 Spenn Street
Farmington, MA 01101

Invoice To: Serie

P.O. No.: _____ RQN: _____

Project No.: 1234.1

Site Name: Concord Carlisle High School
Location: Concord State: MA

Sampler(s): Mike Legere

Telephone #: 508-875-2657
Project Mgr.: Brian Miller

1=Na₂S₂O₃ 2=HCl 3=H₂SO₄ 4=HNO₃ 5=NaOH 6=Ascorbic Acid 7=CH₃OH
8=NaHSO₄ 9=Deionized Water 10= _____ 11= _____

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

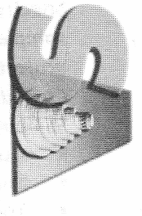
G=Grab C=Composite

Lab Id:	Sample Id:	Date:	Time:	Type	Matrix	Containers:				Analyses:	Temp °C
						# of VOA Vials	# of Amber Glass	# of Clear Glass	# of Plastic		
316550A	R1-S3	10-5-11	8:39 AM	G	SO	2	1	1	1	EPH, PP13 metals	✓
	R2-S2		9:14 AM			1	1	1	1	VPH	✓
	R3-S2		11:15 AM			1	1	1	1		
	R4-S3		10:55 AM			1	1	1	1		
	R5-S2		1:10 PM			1	1	1	1		
	R6-S2		1:52 PM			1	1	1	1		
	R7-S3		3:23 PM			1	1	1	1		
	R8-S2		5:03 PM			1	1	1	1		
	R9		8:00 AM			1	1	1	1		
	blank		8:00 AM		SO	1	1	1	1		
Requisitioned by: <u>Michael A. Legere</u>											
Received by: <u>Brian Miller</u>											
Date: <u>10/6/11</u>						Time: <u>12:25</u>					
Date: <u>10/6/11</u>						Time: <u>18:05</u>					
Temp °C: <u>02</u>											

Ambient Ice Refrigerated Fridge temp _____ °C Freezer temp _____ °C

EDD Format _____

E-mail to bmiller@cdwconsultants.com



HANBIL TECHNOLOGY

CHAIN OF CUSTODY RECORD

Page 1 of 1

SP 37655M

Special Handling:

- Standard TAT - 7 to 10 business days
- Rush TAT - Date Needed: 10-13-11
- All TATs subject to laboratory approval.
- Min. 24-hour notification needed for rushes.
- Samples disposed of after 60 days unless otherwise instructed.

Report To: CDW Consultants

40 Speen Street
Framingham, MA 01201

Invoice To: Sone

P.O. No.:

RON:

Project No.: 1234.1

Site Name: Concord Carlisle High School
Location: Concord State: MA

Sampler(s): Mike Cagne

Telephone #: 508-875-2652

Project Mgr.:

List preservative code below:

MA DEP MCP CAM Report: Yes No
CT DPH RCP Report: Yes No

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

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

Containers:

Analyses:

QA/QC Reporting Notes:
* additional changes may apply

G=Grab C=Composite

Lab Id:	Sample Id:	Date:	Time:	Type	Matrix	# of VOA Vials	# of Amber Glass	# of Clear Glass	# of Plastic	Analyses:	Temp °C
3765501	R1-S3	10-5-11	8:39 AM	G	SO	2	1	1	1	EPH, PPIB metals	2.6
	R2-S2		9:44 AM	G	SO	1	1	1	1	VPH	2.6
	R3-S2		11:15 AM	G	SO	1	1	1	1	Cu, Zn 6020	2.6
	R4-S3		10:55 AM	G	SO	1	1	1	1		2.6
	R5-S2		1:10 PM	G	SO	1	1	1	1		2.6
	R6-S2		1:52 PM	G	SO	1	1	1	1		2.6
	R7-S3		3:23 PM	G	SO	1	1	1	1		2.6
	R8-S2		5:03 PM	G	SO	1	1	1	1		2.6
	R9-Dup		8:00 AM	G	SO	1	1	1	1		2.6
	R10-blank		8:00 PM	G	SO	1	1	1	1		2.6

Relinquished by:

Received by:

Date:

Time:

Temp °C

Michael A. Cagne

Bob Cagne

10/6/11

11:25

2.6

bl Miller@cdwconsultants.com

E-mail to *bl Miller@cdwconsultants.com*

Ambient Ice Refrigerated Fridge temp _____ °C Freezer temp _____ °C