

**REMOVAL PROGRAM  
PRELIMINARY ASSESSMENT/  
SITE INVESTIGATION REPORT  
FOR THE  
TOMBARELLO SITE  
LAWRENCE, ESSEX COUNTY, MASSACHUSETTS  
12 OCTOBER 2010 THROUGH 21 OCTOBER 2010**

Prepared For:

U.S. Environmental Protection Agency  
Region I  
Emergency Planning and Response Branch  
5 Post Office Square, Suite 100  
Boston, Massachusetts 02109-3912

CONTRACT NO. EP-W-05-042

TDD NO. 01-10-07-0007

TASK NO. 0652

DC NO. R-6856

Submitted By:

Weston Solutions, Inc.  
Region I  
Superfund Technical Assessment and Response Team (START)  
3 Riverside Drive  
Andover, MA 01810

July 2011

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## I. Preliminary Assessment/Site Investigation Forms

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**EPA REGION I  
REMOVAL PRELIMINARY ASSESSMENT**

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**Site Name and Location**

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**Name:** Tombarello Site                      **Location:** 207 Marston Street  
**Town:** Lawrence                              **County:** Essex                              **State:** Massachusetts

**Site Status:**     NPL                       NON-NPL                       RCRA                       TSCA  
                          ACTIVE                       ABANDONED                       OTHER

**Attached USGS Map of Location**     **Site I.D. No.:** 01FQ

**Latitude:** 42° 43' 10.9" North                      **Longitude:** 71° 08' 29.4" West

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**Referral**

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**Citizen**     **City/Town**     **State**                       **Preremedial**     **RCRA**  
 **Other:**

**Name of referring party:** Steve Johnson, Massachusetts    **Telephone:** (978) 694-3200  
Department of Environmental Protection (MassDEP)  
**Address:** 205B Lowell Street, Wilmington, MA

**Contacts Identified**

1) Val Thompson, MassDEP    **Telephone:** (978) 694-3348  
2) Joann Fagen, MassDEP    **Telephone:** (978) 694-3390  
3) Ed Huminick, CIF Inc/First Lawrence Financial, LLC    **Telephone:** (603) 512-2295

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**Source of Information**

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**Verbal:**

**Reports:**    W. Z. Baumgartner and Associates, Inc. (WZB). 1998. *Environmental Site Assessment - John C. Tombarello & Sons, Inc.* August.

New England Disposal Technologies (NEDT). 1998. *Response Action Outcome Statement.* July 20.

Higgins Environmental Associates, Inc. 1999. *Immediate Response Action (IRA) Completion Report.* 21 April.

## REMOVAL PRELIMINARY ASSESSMENT

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### Source of Information (Concluded)

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Haley and Aldrich, Inc. (H&A). 2001. *Immediate Response Action (IRA) Completion Report for the American Recycling of Mass., Inc Property - 207 Marston Street, Lawrence, MA, RTN 3-18126*. 15 May.

Weston Solutions, Inc. 2004. *Phase II Comprehensive Site Assessment Report*. September.

Weston Solutions, Inc. 2005. *Letter to Ms. Kimberly Tisa of the U.S. Environmental Protection Agency, Re: Supplemental PCB Characterization Results, Former Tombarello & Sons Property*, 8 June.

Weston Solutions, Inc. 2007. *Immediate Response Action Completion Report, Former John C. Tombarello & Sons Property, 207 Marston Street, Lawrence, Massachusetts Release Tracking Number 3-18126*. April.

Shaw Environmental Services (Shaw). 2007. *Letter to Ms. Valerie Thompson, Massachusetts Department of Environmental Protection, RE: Site Evaluation Summary Report, Tombarello and Sons Site at 207 Marston Street, Lawrence, Massachusetts, SARSS IV Task Assignment, Document Project No. RTN 3-18126*. 12 November.

U.S. Environmental Protection Agency. 2010. *Request for a Removal Action at the Former Tombarello & Sons Property Site - Action Memorandum*. 7 July.

( ) **Other:**

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### Potential Responsible Parties

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<b>Owner:</b> John Tombarello	<b>Telephone:</b> ( )
<b>Address:</b>	
<b>Operator:</b>	<b>Telephone:</b> ( )
<b>Address:</b>	

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### Site Access

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<b>Authorizing Person:</b> Ed Huminick		
<b>Date:</b> 27 May 2008	<input checked="" type="checkbox"/> <b>Obtained</b>	<input type="checkbox"/> <b>Verbal</b>
<b>Telephone:</b> (603) 512-2295	<input type="checkbox"/> <b>Not Obtained</b>	<input checked="" type="checkbox"/> <b>Written</b>

## REMOVAL PRELIMINARY ASSESSMENT

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### Historical Preservation

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( ) **Site is Historically Significant or Eligible for Historic Preservation**

#### Contacts Identified

**1) State Historical Preservation Officer (SHPO)**

**Name:** Ms. Judith B. McDonough

**Telephone:**(617) 727-8470

**2) Tribal Historical Preservation Officer (THPO)**

**Name:**

**Telephone:**( )

**Comments:**

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### Physical Site Characterization

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**Background Information:** The Tombarello Site (the site) comprises an approximately 14-acre parcel of land located at 207 Marston Street (former Tombarello property), and six abutting residential properties located at 19, 31, 33, 41, 51, and 53 Hoffman Avenue (Ave.) in Lawrence, Essex County, Massachusetts (MA). The former Tombarello property is identified on the City of Lawrence Tax Assessor's Map Number (No.) 33, as Lot Nos. 17 and 18; and the six residential properties are identified on Map No. 33 as Lot Nos. 14 (19 Hoffman Ave.), 11 (31 Hoffman Ave.), 10-1/10-2 (33/41 Hoffman Ave.), 9 (51 Hoffman Ave.), and 8 (53 Hoffman Ave.). The site is located in a mixed industrial/residential area, and is bordered to the north by residential properties and Hoffman Avenue, to the west by Marston Street and the Parthum Middle School, to the south by the Sons of Italy Lodge and an athletic field, to the southeast by a paper recycling transfer station operated by Waste Management, and to the east by Interstate 495. The Merrimack River is also located approximately 400 feet east of the site boundary. The geographic coordinates of the site, as measured from its approximate center, are 42° 43' 10.9" north latitude and 71° 08' 29.4" west longitude. Currently, the site is an abandoned scrap metal facility, containing buildings, former building foundations, and scrap metal/debris scattered throughout the property.

The site comprises two tracts of land purchased by John C. Tombarello in 1941 and 1967. The tract of land purchased in 1941 became the northern portion of the site, where the scrap metal recycling facility was operated. The southern tract was purchased in 1967 from the City of Lawrence. The southern tract was formerly used by the City as a landfill; and prior to 1935, it was the site of a soap manufacturer.

The site was owned and operated by John C. Tombarello & Sons, Inc. (Tombarello and Sons) as a scrap metal recycling facility from approximately 1941 until December 1998, when the property was sold to American Recycling, Inc. The facility accepted a wide variety of scrap material including crushed automobiles, storage tanks, machinery, and computer parts. One of the recycling methods employed at the site was a stripping process involving cyanide to recover gold and other precious metals from computers and other electronics.

## REMOVAL PRELIMINARY ASSESSMENT

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### Physical Site Characterization (Continued)

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On 11 December 1998, George Tombarello sold the property to American Recycling. The on-site business continued to operate under the name Tombarello and Sons, until American Recycling went out of business and abandoned the facility.

**Description of Substances Possibly Present, Known or Alleged:** On 19 May 1998, a release of oil occurred while the recycling facility staff was dismantling a scrap heat exchanger. New England Disposal Technologies (NEDT) responded to the site to mitigate the spill. Free product from the heat exchanger and from the ground surface was pumped into a vacuum truck. On 21 May 1998, the impacted area was excavated and the soil stockpiled on site. NEDT collected six soil samples from the floor of the excavation area and three samples from the stockpiled soil. The stockpile samples were analyzed for volatile organic compounds (VOCs), metals, total petroleum hydrocarbons (TPHs), and polychlorinated biphenyls (PCBs). Analytical results of the soil samples indicated the presence of the following substances at concentrations above Massachusetts Contingency Plan Reportable Concentrations (MCP RC) S-1 for Soil (maximum concentrations in parentheses): tetrachloroethene [1.8 parts per million (ppm)]; cadmium (162 ppm); lead (961 ppm); TPH (6,900 ppm); and PCBs (13.1 ppm).

NEDT determined that this level of contamination was not a result of the oil spill, and instead represented background conditions at the site. Tombarello and Sons were informed by NEDT that as a result of the contamination found at the site and its proximity to a school and athletic field, a condition of Imminent Hazard may exist. However, Tombarello and Sons concluded that fencing and berms surrounding the site adequately restricted access to the site and, therefore, no Imminent Hazard condition existed.

In August 1998, WZB completed an Environmental Site Assessment on behalf of American Recycling. This report was prepared for real estate purposes before American Recycling purchased the site from Tombarello and Sons. WZB collected groundwater, surface soil, and subsurface soil samples at the site for TPH, PCB, and total and dissolved metals analyses. Analytical results of the soil samples indicated the presence of the following substances at concentrations above the MCP RC S-1 for Soil (maximum concentrations in parentheses): benzo(a)anthracene (58.6 ppm); benzo(a)pyrene (32.2 ppm); benzo(b)fluoranthene (39.5 ppm); benzo(k)fluoranthene (22.6 ppm); chrysene (60.4 ppm); indeno(1,2,3-cd)pyrene (7.63 ppm); phenanthrene (143 ppm); lead (3,470 ppm); PCBs (59.27 ppm); and TPH (2,740 ppm). Groundwater samples were analyzed for metals. Results of the groundwater samples indicated the presence of the following substances at concentrations above MCP RC GW-1 for Groundwater (maximum concentrations in parentheses): total arsenic [0.143 milligrams per Liter (mg/L)]; total chromium (0.477 mg/L); and total lead (1.56 mg/L). All dissolved metals results were below the detection limit.

Based on the results of the NEDT and WZB reports, the Massachusetts Department of Environmental Protection (MassDEP) determined that a level of hazardous material contamination existed at the site; and due to the proximity to residences and a school, an Imminent Hazard condition may have also existed. During an inspection of the site by MassDEP in February 1999,

## REMOVAL PRELIMINARY ASSESSMENT

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### Physical Site Characterization (Continued)

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MassDEP also noted a number of violations, including improper storage of excavated soil, and unmarked and leaking 55-gallon drums. MassDEP submitted a Notice of Responsibility (NOR) to both American Recycling and Tombarello and Sons, requiring them to further investigate the site and to conduct any necessary response actions.

American Recycling and Tombarello and Sons contracted Higgins Environmental Associates (HEA) to perform an evaluation of the site and the associated response action. As part of the response action, conducted between April and July 1999, the stockpiled soil on site was properly transported off site and disposed of; a fence was installed to improve site security; groundwater monitoring wells were installed; and soil and groundwater samples were collected. Analytical results of the surface soil samples indicated the presence of the following substances at concentrations above MCP RC S-1 for Soil (maximum concentrations in parentheses): benzo(a)anthracene (72 ppm); benzo(a)pyrene (44 ppm); benzo(b)fluoranthene (61 ppm); benzo(k)fluoranthene (53 ppm); chrysene (84 ppm); indeno(1,2,3-cd)pyrene (42 ppm); naphthalene (5 ppm); methyl tertiary butyl ether (0.48 ppm); trichlorofluoromethane (2.7 ppm); lead (980 ppm); PCBs (92 ppm); and TPH (9,090 ppm). Results of the groundwater samples indicated no substances at concentrations above MCP RC GW-2 for Groundwater.

In September 2001, Haley and Aldrich (H&A) conducted sampling at the site on behalf of American Recycling. A total of 35 soil samples were collected from the surface, as well as from test pits at depths to 15 feet below ground surface (bgs), and analyzed for PCBs only. The maximum concentration of PCBs detected in the surface soil samples was 66 ppm, while the maximum concentration of PCBs detected in the test pit samples was 78 ppm.

In 2003, Weston Solutions, Inc. prepared an MCP Phase II Comprehensive Site Assessment (CSA) and a Phase III Remedial Action Plan on behalf of First Lawrence Financial, LLC (FLF). At that time, FLF was acting as an agent of American Recycling. As part the Phase II CSA, Weston collected surface, subsurface, sediment, and groundwater samples between February and September 2003. Samples were submitted for analysis for extractable petroleum hydrocarbons (EPH), metals, and PCBs. Analytical results of the soil samples indicated the presence of the following substances at concentrations above MCP RC S-1 for Soil (maximum concentrations in parentheses): EPH (7,300 ppm); arsenic (69.4 ppm); barium (1,480 ppm); cadmium (716 ppm); lead (2,700 ppm); and PCBs (13,000 ppm).

In 2005, at the request of the EPA Toxic Substances Control Act (TSCA) Enforcement Program, Weston collected samples at the site to assess potential data gaps identified by EPA. As part of the 2005 sampling event, Weston evaluated the on-site buildings, concrete pads, and scrap metal piles; and collected soil samples along the northern site boundary adjacent to residential properties along Hoffman Ave. A maximum PCB concentration of 7 ppm was detected in a soil sample along the site boundary.

In 2006, FLF began removing scrap metal piles from the site. The City of Lawrence, MassDEP, and EPA TSCA Enforcement Program became concerned that dust generated by the on-site activities

## REMOVAL PRELIMINARY ASSESSMENT

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### Physical Site Characterization (Concluded)

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might contain PCBs and therefore could negatively impact the nearby residential area along Hoffman Ave. As a result, Weston, on behalf of FLF, conducted an Immediate Response Action (IRA). The IRA consisted of collecting 17 surface soil samples along the approximately 700-foot-long northern property boundary fence line. Samples were submitted for metals and PCBs analyses. Analytical results of the soil samples indicated the presence of the following substances at concentrations above MCP RC S-1 for Soil (maximum concentrations in parentheses): barium (1,300 ppm); cadmium (17 ppm); chromium (57.7 ppm); lead (1,730 ppm); and PCBs (6.3 ppm).

In 2007, MassDEP contracted Shaw Environmental, Inc. (Shaw) to conduct soil sampling to determine the extent of contamination at the residences along Hoffman Ave. A total of 144 samples were collected to 1 foot bgs at nine residential properties along Hoffman Ave. Samples were submitted for metals and PCBs analyses. Analytical results of the soil samples indicated the presence of the following substances at concentrations above MCP R CS-1 for Soil (maximum concentrations in parentheses): arsenic (65 ppm); barium (2,500 ppm); cadmium (56 ppm); chromium (130 ppm); lead (2,500 ppm); and PCBs (22 ppm).

On 2 April 2008, based on previous sampling results at the residences along Hoffman Ave., MassDEP requested assistance from the EPA Removal Program to perform removal activities at the residences. On 7 July 2010, EPA issued an Action Memorandum for a removal action at the nine previously sampled residential properties abutting the former Tombarello property.

During the week of 30 August 2010, START and EPA conducted surface and subsurface soil sampling at the residential properties abutting the site to the north. Samples were collected for metals, PAHs, and PCBs analyses at 31, 33, 41, 51, and 53 Hoffman Ave. to a depth of 3 feet bgs. Surface soil samples for hexavalent chromium were collected at 19 Hoffman Ave. Analytical results of the soil samples indicated the presence of the following substances at concentrations above MCP Method 1 S-1/GW-2 standards for Soil (maximum concentrations in parentheses): arsenic (59 ppm); barium (3,100 ppm); cadmium (13 ppm); chromium (150 ppm); lead (7,000 ppm); PCBs (15.1 ppm); benzo(a)anthracene [38,000 parts per billion (ppb)]; benzo(a)pyrene (53,000 ppb); benzo(b)fluoranthene (45,000 ppb); dibenzo(a,h)anthracene (5,700 ppb); and indeno(1,2,3-cd)pyrene (30,000 ppb).

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### Existing Analytical Data

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**( ) Real-Time Monitoring Data:**

**(X) Sampling Data:** W. Z. Baumgartner and Associates, Inc. (WZB). 1998. *Environmental Site Assessment - John C. Tombarello & Sons, Inc.* August.

New England Disposal Technologies (NEDT). 1998. *Response Action Outcome Statement.* July 20.

Higgins Environmental Associates, Inc. 1999. *Immediate Response Action (IRA) Completion Report.* 21 April.

## REMOVAL PRELIMINARY ASSESSMENT

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### Existing Analytical Data (Concluded)

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Haley and Aldrich, Inc. (H&A). 2001. *Immediate Response Action (IRA) Completion Report for the American Recycling of Mass., Inc Property - 207 Marston Street, Lawrence, MA, RTN 3-18126*. 15 May.

Weston Solutions, Inc. 2004. *Phase II Comprehensive Site Assessment Report*. September.

Weston Solutions, Inc. 2005. *Letter to Ms. Kimberly Tisa of the U.S. Environmental Protection Agency, Re: Supplemental PCB Characterization Results, Former Tombarello & Sons Property*, 8 June.

Weston Solutions, Inc. 2007. *Immediate Response Action Completion Report, Former John C. Tombarello & Sons Property, 207 Marston Street, Lawrence, Massachusetts Release Tracking Number 3-18126*. April.

Shaw Environmental, Inc. (Shaw). 2007. *Letter to Ms. Valerie Thompson, Massachusetts Department of Environmental Protection Site Evaluation Summary Report Tombarello and Sons Site at 207 Marston Street, Lawrence, Massachusetts SARSS IV Task Assignment Document Project No. RTN 3-18126*. 12 November.

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### Potential Threat

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Description of potential hazards to environment and/or population-identify any of the criteria for a Removal Action (from NCP) that may be met by the site under 40 CFR 300.415 [b] [2].

- i. Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances, pollutants or contaminants.
- ii. Actual or potential contamination of drinking water supplies or sensitive ecosystems.
- iii. Hazardous substances or pollutants or contaminants in drums, barrels, tanks, or other bulk storage containers, that may pose a threat of release.
- iv. High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface, that may migrate.
- v. Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released.
- vi. Threat of fire or explosion.

## REMOVAL PRELIMINARY ASSESSMENT

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### Potential Threat (Concluded)

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- vii. The availability of other appropriate federal or state response mechanisms to respond to the release.
- viii. Other situations or factors that may pose threats to public health or welfare or the environment.

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### Prior Response Activities

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PRP                       STATE                       FEDERAL                       OTHER

**Brief Description:** In 1998, the Potentially Responsible Party (PRP) hired a contractor to clean up an oil spill which occurred at the site. Since then a number of sampling events have been conducted at the site by MassDEP and the PRP to characterize potential soil contamination at the site and adjacent residences.

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### Priority for Site Investigation

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High                       Medium                      Low                       None

Comments:

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### Report Generation

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**Originator:** Robert Sharp                      **Date:** 7 July 2011  
**Affiliation:** Weston Solutions (START)                      **Telephone:** (978) 552-2114  
**TDD No.:** 01-10-07-0007                      **Task No.:** 0652



## REMOVAL SITE INVESTIGATION

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### Agencies/Personnel Performing Inspection

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	<u>Names</u>	<u>Program</u>
<b>(X) EPA:</b>	Michael Barry	U.S. Environmental Protection Agency (EPA) Region I, Emergency Planning and Response Branch (EPRB), On-Scene Coordinator (OSC)
	Eric Vanderboom	EPA OSC
<b>(X) EPA Contractor:</b>	Robert Sharp	Weston Solutions, Inc. (WESTON), Superfund Technical Assessment and Response Team III (START)
	Eric Ackerman	START
	Noah Kutsch	START
	Greg Parrish	START

**( ) State:**

**Current Owner Based on Field Interview:** No viable owner; bank notes held for First Lawrence Financial, LLC, by CIF, Inc.

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### Physical Site Characteristics

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<b>Parameter</b>	<b>Quantities/Extent</b>
<b>(X) Cylinders:</b>	Various sizes and types of cylinders were observed throughout site.
<b>(X) Drums:</b>	Several empty drums and drums of oil were observed throughout the site.
<b>( ) Lagoons:</b>	
<b>( ) Tanks:</b>	
<b>( ) Above:</b>	
<b>( ) Below:</b>	
<b>( ) Asbestos:</b>	
<b>(X) Piles:</b>	Several soil piles of varying dimensions are located in the eastern portion of the site.
<b>(X) Stained Soil:</b>	Areas of stained soil were observed throughout the site.
<b>( ) Sheens:</b>	
<b>(X) Stressed Vegetation:</b>	Areas of stressed vegetation were observed throughout the site.
<b>( ) Landfill:</b>	
<b>(X) Population in Vicinity:</b>	The site is located in a residential area, and there are residential properties abutting the northern boundary of the former Tombarello property.
<b>( ) Wells:</b>	
<b>( ) Drinking:</b>	
<b>( ) Monitoring:</b>	
<b>( ) Other:</b>	

## REMOVAL SITE INVESTIGATION

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### Physical Site Observations

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As part of the 2010 Removal Program Preliminary Assessment/Site Investigation (PA/SI), EPA and START personnel conducted a reconnaissance of the entire site. The majority of the Tombarello property was vegetated with grass, brush, and small trees; and a dirt access road ran west to east through the center of the property. The most prominent features were an unoccupied house and three buildings in the western portion of the property, several concrete pads and former building foundations, and approximately nine soil piles of various sizes. Debris, such as drum carcasses, scrap metal, and tires, were observed at locations throughout the site. No readings above background levels were recorded on the air monitoring instruments during the reconnaissance.

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### Field Sampling and Analysis

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Matrix/Analytical Parameter	Field Instrumentation				
	CGI/O <sub>2</sub>	RAD	PID	FID	Other
Background Readings:	0% / 20.9%	15µR/hr	0.0 units	-----	-----
Air:	0% / 20.9%	15µR/hr	0.0 units	-----	-----
Soil:	0% / 20.9%	15µR/hr	0.0 units	-----	-----

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### Field Quality Control Procedures

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**(X) SOP Followed**

**( ) Deviation From SOP**

**Comments:** START followed the protocol outlined in the document entitled, *Sampling and Analysis Plan for the Tombarello Site, Lawrence, Essex County, Massachusetts*, dated October 2010.

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### Description of Sampling Conducted

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On 12 through 14 October 2010, and 20 through 21 October 2010, START conducted sampling activities as part of the EPA Removal Program PA/SI, which included the collection of 159 composite surface soil samples at a depth from 0 to 3 inches below ground surface (bgs), and 38 grab soil pile samples. The soil samples were collected based on a 50-foot grid established throughout the site. All of the samples were submitted to the EPA Office of Environmental Measurement and Evaluation (OEME) laboratory located in North Chelmsford, MA for polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), and metals analyses. Additional soil sampling activities conducted at the six residential properties immediately north of the former Tombarello property are described in separate individual residential property PA/SI reports prepared by START.

## REMOVAL SITE INVESTIGATION

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### Analyses

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Analytical Parameter	Media	Laboratory
<input type="checkbox"/> VOC	<input type="checkbox"/> AIR	<input checked="" type="checkbox"/> NERL
<input checked="" type="checkbox"/> PCB	<input type="checkbox"/> WATER	<input type="checkbox"/> CLP
<input type="checkbox"/> PESTICIDE	<input checked="" type="checkbox"/> SOIL	<input type="checkbox"/> PRIVATE
<input checked="" type="checkbox"/> METALS	<input type="checkbox"/> SOURCE	<input type="checkbox"/> DAS
<input type="checkbox"/> CYANIDE	<input type="checkbox"/> SEDIMENT	<input type="checkbox"/> SOW
<input checked="" type="checkbox"/> SVOC	<input type="checkbox"/> SOIL GAS	<input type="checkbox"/> FIELD
<input type="checkbox"/> TOXICITY		
<input type="checkbox"/> DIOXIN		
<input type="checkbox"/> ASBESTOS		
<input type="checkbox"/> OTHER		

Analytical results: See Appendix B – Summary Table

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### Receptors

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#### Comments

- Drinking Water:**       **Private:**  
 **Groundwater:**       **Municipal:**
- Unrestricted Access:**
- Population in Proximity:**      There are residential properties abutting the site to the north; a public school across Marston Street to the west; and possible trespassers and future site workers.
- Sensitive Ecosystem:**
- Other:**

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### Additional Procedures for Site Determination

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- Biological Evaluation**       **ATSDR**

To be determined by the On Scene Coordinator.

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### Site Determination

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Depending on further information, criteria that may be met by the site include 40 CFR 300.415 [b] [2], parts:

- i. Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances, pollutants or contaminants.
- ii. Actual or potential contamination of drinking water supplies or sensitive ecosystems.

## REMOVAL SITE INVESTIGATION

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### Site Determination (Concluded)

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- iii. Hazardous substances or pollutants or contaminants in drums, barrels, tanks, or other bulk storage containers, that may pose a threat of release.
- iv. High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface, that may migrate.
- v. Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released.
- vi. Threat of fire or explosion.
- vii. The availability of other appropriate federal or state response mechanisms to respond to the release.
- viii. Other situations or factors that may pose threats to public health or welfare or the environment.

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### Report Generation

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<b>Originator:</b>	Robert Sharp	<b>Date:</b>	7 July 2011
<b>Affiliation:</b>	Weston Solutions (START)	<b>Telephone:</b>	(978) 552-2114
<b>TDD No.:</b>	01-10-07-0007	<b>Task No.:</b>	0652

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## II. Narrative Chronology

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## **Narrative Chronology**

### **Site Description**

The Tombarello Site (the site) comprises an approximately 14-acre parcel of land located at 207 Marston Street (former Tombarello property), and six abutting residential properties located at 19, 31, 33, 41, 51, and 53 Hoffman Avenue (Ave.) in Lawrence, Essex County, Massachusetts (MA) (see Appendix A, Figure 1) [1]. The former Tombarello property is identified on the City of Lawrence Tax Assessor's Map Number (No.) 33, as Lot Nos. 17 and 18; and the six residential properties are identified on Map No. 33 as Lot Nos. 14 (19 Hoffman Ave.), 11 (31 Hoffman Ave.), 10-1/10-2 (33/41 Hoffman Ave.), 9 (51 Hoffman Ave.), and 8 (53 Hoffman Ave.) [2]. The site is located in a mixed industrial/residential area, and is bordered to the north by residential properties and Hoffman Avenue, to the west by Marston Street and the Parthum Middle School, to the south by the Sons of Italy Lodge and an athletic field, to the southeast by a paper recycling transfer station operated by Waste Management, and to the east by Interstate 495. The Merrimack River is also located approximately 400 feet east of the site boundary. The geographic coordinates of the site, as measured from its approximate center, are 42° 43' 10.9" north latitude and 71° 08' 29.4" west longitude. Currently, the former Tombarello property contains abandoned scrap metal facility buildings, former building foundations, and scrap metal/debris scattered throughout the property (see Appendix A, Figure 2) [3].

It is suspected that former scrap metal recycling and related activities performed at the site are responsible for the presence of contamination. Previous sampling has shown concentrations of semivolatile organic compounds (SVOCs), polychlorinated biphenyls (PCBs), and metals in the soil at the site and adjacent residential properties. Per the request of the Environmental Protection Agency (EPA) On-Scene Coordinator (OSC), Weston Solutions, Inc. (WESTON) Superfund Technical Assessment and Response Team III (START) conducted a site reconnaissance, and collected soil samples for polycyclic aromatic hydrocarbons (PAHs), PCBs, and metals analyses.

### **Site History**

The site comprises two tracts of land purchased by John C. Tombarello in 1941 and 1967. The tract of land purchased in 1941 became the northern portion of the site where the scrap metal recycling facility was operated. The southern tract was purchased in 1967 from the City of Lawrence. The southern tract was formerly used by the City as a landfill; and prior to 1935, it was the site of a soap manufacturer [4].

The site was owned and operated by John C. Tombarello & Sons, Inc. (Tombarello and Sons) as a scrap metal recycling facility from approximately 1941 until December 1998 when the property was sold to American Recycling, Inc. The facility accepted a wide variety of scrap material including crushed automobiles, storage tanks, machinery, and computer parts. One of the recycling methods employed at the site was a stripping process involving cyanide to recover gold and other precious metals from computers and other electronics [5].

On 19 May 1998, a release of oil occurred while the recycling facility staff was dismantling a scrap heat exchanger. New England Disposal Technologies (NEDT) responded to the site to

mitigate the spill. Free product from the heat exchanger and from the ground surface was pumped into a vacuum truck. On 21 May 1998, the impacted area was excavated and the soil stockpiled on site. NEDT collected six soil samples from the floor of the excavation area and three samples from the stockpiled soil. The stockpile samples were analyzed for volatile organic compounds (VOCs), metals, total petroleum hydrocarbons (TPHs), and PCBs. Analytical results of the soil samples indicated the presence of the following substances at concentrations above Massachusetts Contingency Plan Reportable Concentrations (MCP RC) S-1 for Soil (maximum concentrations in parentheses): tetrachloroethene [1.8 parts per million (ppm)]; cadmium (162 ppm); lead (961 ppm); TPH (6,900 ppm); and PCBs (13.1 ppm) [5].

NEDT determined that this level of contamination was not a result of the oil spill, but instead represented background conditions at the site. Tombarello and Sons were informed by NEDT that as a result of the contamination found at the site and its proximity to a school and athletic field, a condition of Imminent Hazard may exist. However, Tombarello and Sons concluded that fencing and berms surrounding the site adequately restricted access to the site, and therefore, no Imminent Hazard condition existed [5].

In August 1998, W.Z. Baumgartner & Associates, Inc. (WZB) completed an Environmental Site Assessment on behalf of American Recycling. This report was prepared for real estate purposes before American Recycling purchased the site from Tombarello and Sons. WZB collected groundwater, surface soil, and subsurface soil samples at the site for TPH, PCB, and total and dissolved metals analyses. Analytical results of the soil samples indicated the presence of the following substances at concentrations above the MCP RC S-1 for Soil (maximum concentrations in parentheses): benzo(a)anthracene (58.6 ppm); benzo(a)pyrene (32.2 ppm); benzo(b)fluoranthene (39.5 ppm); benzo(k)fluoranthene (22.6 ppm); chrysene (60.4 ppm); indeno(1,2,3-cd)pyrene (7.63 ppm); phenanthrene (143 ppm); lead (3,470 ppm); PCBs (59.27 ppm); and TPH (2,740 ppm). Groundwater samples were analyzed for metals. Results of the groundwater samples indicated the presence of the following substances at concentrations above MCP RC GW-1 for Groundwater (maximum concentrations in parentheses): total arsenic [0.143 milligrams per Liter (mg/L)]; total chromium (0.477 mg/L); and total lead (1.56 mg/L). All dissolved metals results were below the detection limit [4].

On 11 December 1998, George Tombarello sold the property to American Recycling. The on-site business continued to operate under the name Tombarello and Sons [9].

Based on the results of the NEDT and WZB reports, the Massachusetts Department of Environmental Protection (MassDEP) determined that a level of hazardous material contamination existed at the site; and due to the site's proximity to residences and a school, an Imminent Hazard condition may have also existed. During an inspection of the site by MassDEP in February 1999, MassDEP also noted a number of violations, including improper storage of excavated soil, and unmarked and leaking 55-gallon drums. MassDEP submitted a Notice of Responsibility (NOR) to both American Recycling and Tombarello and Sons, requiring them to further investigate the site and to conduct any necessary response actions [6].

American Recycling, and Tombarello and Sons contracted Higgins Environmental Associates (HEA) to perform an evaluation of the site and the associated response action. As part of the response action, conducted between April and July 1999, the stockpiled soil on site was properly

transported off site and disposed of; a fence was installed to improve site security; groundwater monitoring wells were installed; and soil and groundwater samples were collected. Analytical results of the surface soil samples indicated the presence of the following substances at concentrations above MCP RC S-1 for Soil (maximum concentrations in parentheses): benzo(a)anthracene (72 ppm); benzo(a)pyrene (44 ppm); benzo(b)fluoranthene (61 ppm); benzo(k)fluoranthene (53 ppm); chrysene (84 ppm); indeno(1,2,3-cd)pyrene (42 ppm); naphthalene (5 ppm); methyl tertiary butyl ether (0.48 ppm); trichlorofluoromethane (2.7 ppm); lead (980 ppm); PCBs (92 ppm); and TPH (9,090 ppm). Results of the groundwater samples indicated no substances at concentrations above MCP RC GW-2 for Groundwater [7].

In September 2001, Haley and Aldrich (H&A) conducted sampling at the site on behalf of American Recycling. A total of 35 samples were collected from the surface, as well as from test pits at depths to 15 feet below ground surface (bgs), and analyzed for PCBs only. The maximum concentration of PCBs detected in the surface soil samples was 66 ppm, while the maximum concentration of PCBs detected in the test pit samples was 78 ppm [9].

In 2003, Weston Solutions, Inc. prepared a MCP Phase II Comprehensive Site Assessment (CSA) and a Phase III Remedial Action Plan on behalf of First Lawrence Financial, LLC (FLF). At that time, FLF was acting as an agent of American Recycling. As part the Phase II CSA, Weston collected surface, subsurface, sediment, and groundwater samples between February and September 2003. Samples were submitted for analysis for extractable petroleum hydrocarbons (EPH), metals, and PCBs. Analytical results of the soil samples indicated the presence of the following substances at concentrations above MCP RC S-1 for Soil (maximum concentrations in parentheses): EPH (7,300 ppm); arsenic (69.4 ppm); barium (1,480 ppm); cadmium (716 ppm); lead (2,700 ppm); and PCBs (13,000 ppm) [9].

In 2005, at the request of the EPA Toxic Substances Control Act (TSCA) Enforcement Program, Weston collected samples at the site to assess potential data gaps identified by EPA. As part of the 2005 sampling event, Weston evaluated the on-site buildings, concrete pads, and scrap metal piles; and collected soil samples along the northern site boundary adjacent to residential properties along Hoffman Ave. A maximum PCB concentration of 7 ppm was detected in a soil sample along the site boundary [10].

In 2006, FLF began removing scrap metal piles from the site. The City of Lawrence, MassDEP, and the EPA TSCA Enforcement Program became concerned that dust generated by the on-site activities could contain PCBs, and therefore negatively impact the nearby residential area along Hoffman Ave. As a result, Weston, on behalf of FLF, conducted an Immediate Response Action (IRA). The IRA consisted of collecting 17 surface soil samples along the approximately 700-foot-long northern property boundary fence line. Samples were submitted for metals and PCBs analyses. Analytical results of the soil samples indicated the presence of the following substances at concentrations above MCP RCS-1 for Soil (maximum concentrations in parentheses): barium (1,300 ppm); cadmium (17 ppm); chromium (57.7 ppm); lead (1,730 ppm); and PCBs (6.3 ppm) [11].

In 2007, MassDEP contracted Shaw Environmental, Inc. (Shaw) to conduct soil sampling to determine the extent of contamination at the residences along Hoffman Ave. A total of 144 samples were collected to 1 foot bgs at nine residential properties along Hoffman Ave. Samples

were submitted for metals and PCBs analyses. Analytical results of the soil samples indicated the presence of the following substances at concentrations above MCP RCS-1 for Soil (maximum concentrations in parentheses): arsenic (65 ppm); barium (2,500 ppm); cadmium (56 ppm); chromium (130 ppm); lead (2,500 ppm); and PCBs (22 ppm) [12].

On 2 April 2008, based on previous sampling results at the residences along Hoffman Ave., MassDEP requested assistance from the EPA Removal Program to perform removal activities at the residences. On 7 July 2010, EPA issued an Action Memorandum for a removal action at the nine previously sampled residential properties abutting the former Tombarello property [13].

During the week of 30 August 2010, START and EPA conducted surface and subsurface soil sampling at the residential properties abutting the site to the north. Samples were collected for metals, PAHs, and PCBs analyses at 31, 33, 41, 51, and 53 Hoffman Ave. to a depth of 3 feet bgs. In addition, surface soil samples for hexavalent chromium analysis were collected at 19 Hoffman Ave. Analytical results of the soil samples indicated the presence of the following substances at concentrations above MCP Method 1 S-1/GW-2 standards for Soil (maximum concentrations in parentheses): arsenic (59 ppm); barium (3,100 ppm); cadmium (13 ppm); chromium (150 ppm); lead (7,000 ppm); PCBs (15.1 ppm); benzo(a)anthracene [38,000 parts per billion (ppb)]; benzo(a)pyrene (53,000 ppb); benzo(b)fluoranthene (45,000 ppb); dibenzo(a,h)anthracene (5,700 ppb); and indeno(1,2,3-cd)pyrene (30,000 ppb) [14-19].

### **Site Activities**

Based on a request from MassDEP, EPA OSC Michael Barry requested that START collect surface soil samples as part of an EPA Removal Program Preliminary Assessment/Site Investigation (PA/SI), to assist in determining the extent of contamination at the site. Prior to conducting site sampling activities, START personnel signed the site-specific health and safety plan (HASP). The site-specific HASP was prepared as a separate document, entitled *Weston Solutions, Inc., Region I START Site Health and Safety Plan (HASP) for the Tombarello Site, Lawrence, Massachusetts*, dated October 2010 [20]. Sampling activities were conducted in accordance with the site-specific Sampling and Analysis Plan (SAP), which was prepared by START as a separate document, entitled *Sampling and Analysis Plan for the Tombarello Site, Lawrence, Essex County, Massachusetts*, dated October 2010 [21].

On 12 October 2010, OSCs Barry and Eric Vanderboom, and START members Robert Sharp, Noah Kutsch, and Greg Parrish mobilized to the site. START members established a support zone and calibrated air monitoring instruments, including a MultiRae Plus [lower explosive limit (LEL), oxygen (O<sub>2</sub>), hydrogen sulfide (H<sub>2</sub>S), carbon monoxide (CO), and VOC] meter and a Ludlum Model 19A radiation meter, and documented background levels. Background levels were recorded in the site-specific HASP as follows: LEL = 0%, O<sub>2</sub> = 20.9%, H<sub>2</sub>S = 0.0 ppm, CO = 0.0 ppm, VOC = 0.0 units, and radiation = 10-12 microRoentgens per hour (μR/hr). START member Sharp conducted a safety and operations meeting, and on-site personnel reviewed and signed the site-specific HASP [22].

EPA and START personnel conducted a reconnaissance of the entire site. The majority of the Tombarello property was vegetated with grass, brush, and small trees; and a dirt access road ran west to east through the center of the property. The most prominent features on the Tombarello

property were an unoccupied house and three buildings in the western portion of the site, several concrete pads and former building foundations, and approximately nine soil piles of varying size. Debris such as drum carcasses, scrap metal, and tires were observed at various locations throughout the site. No readings above background levels were recorded on the air monitoring instruments during the reconnaissance [22].

Once the reconnaissance was completed, START members established a sampling grid across the entire site. The grid consisted of intersecting transects, spaced 50 feet apart, 16 of which were oriented east/west, and 25 of which were oriented north/south. The north/south transects were labeled alphabetically, in ascending order from west to east, as lines “A” through “Y”. The east/west transects were labeled numerically, in ascending order from north to south, as lines “00” through “15”. Grids were labeled with the designations of the intersecting transects (*e.g.* A-00, A-05, A-15, *etc.*). A four-point composite surface soil sample would be collected within each grid square. In grid squares where less than 50 percent of the ground was accessible, because of buildings, concrete pads, *etc.*, samples would not be collected [22].

On 12 October 2010, once the sampling grid had been established, surface soil samples were collected from 20 locations in the southwestern portion of the site. Soil descriptions are summarized in Appendix B, Table 1. All sample locations were recorded with a Global Positioning System (GPS) and are shown in Appendix A Figures 3 and 4. EPA and START demobilized from the site for the day [22].

On 13 October 2010, OSCs Barry and Vanderboom, and START members Sharp, Kutsch, and Parrish mobilized to the site to continue sampling activities. START personnel generated a chain-of-custody (COC) record using the EPA SCRIBE sample database software to document the samples collected from 12 October 2010 from the time of collection through transportation and analysis (see Appendix D, Chain-of-Custody Record). A total of 21 soil samples, including one field duplicate, were submitted to the EPA Office of Environmental Measurement and Evaluation (OEME) laboratory. All 21 soil samples were submitted for SVOC, PCB, and metals analyses. Samples were delivered to the laboratory by OSC Vanderboom [22].

OSCs Barry and Vanderboom and START member Sharp conducted a site walk and discussed the rationale for sampling the soil stockpiles on the site. The OSCs determined that grab samples would be collected from the soil piles. The number of grab samples collected from each pile would be determined by the amount of the soil pile contained in each grid square. For example, if a soil pile covered half of a grid square, then two grab samples would be collected; and if the soil pile covered an entire grid square, four grab samples would be collected. Each soil pile grab sample would be designated as follows: with the letter of the grid from which it was collected, along with a unique number (*e.g.* S-07-01, S-07-02, X-11-01, *etc.*).

Surface soil samples were collected from 59 locations, and soil pile samples were collected from two locations. EPA and START demobilized from the site for the day [22].

On 14 October 2010, OSCs Barry and Vanderboom, and START members Sharp, Kutsch, and Parrish mobilized to the site to continue sampling activities. Surface soil samples were collected from 20 locations. START personnel generated a COC record using the EPA SCRIBE sample database software to document the samples collected from 13 and 14 October 2010 from the time

of collection through transportation and analysis. A total of 85 soil samples, including four field duplicates, were submitted to the EPA OEME laboratory. All samples were submitted for SVOC, PCB, and metals analyses. Samples were delivered to the laboratory by OSC Vanderboom. EPA and START demobilized from the site for the day [22].

On 20 October 2010, OSCs Barry and Vanderboom, and START members Sharp, Parrish, and Eric Ackerman mobilized to the site to continue sampling activities. Surface soil samples were collected from 48 locations, and soil pile samples were collected from 13 locations. EPA and START demobilized from the site for the day [22].

On 21 October 2010, OSCs Barry and Vanderboom, and START members Sharp and Parrish mobilized to the site to complete sampling activities. Surface soil samples were collected from four locations, and soil pile samples were collected from 21 locations. START personnel generated a COC record using the EPA SCRIBE sample database software to document the samples collected from 20 and 21 October 2010 from the time of collection through transportation and analysis. (In exception to the nomenclature described earlier, the sample labeled U-11-02 was actually collected from Grid T-11.) A total of 91 soil samples, including five field duplicates, were submitted to the EPA OEME laboratory. All samples were submitted for SVOC, PCB, and metals analyses. Samples were delivered to the laboratory by OSC Vanderboom. EPA and START demobilized from the site for the day [22].

From October to December 2010, START received all analytical data results from the EPA OEME laboratory. Tables summarizing these results are included in Appendix B, Table 2. Original laboratory analytical reports have been included in Appendix E, Analytical Data [23-55].

### **Analytical Data Summaries**

#### **PCB Soil Analysis**

A total of 197 surface soil and soil pile samples were submitted to the EPA OEME laboratory for PCB analysis. The following three Aroclors were detected at concentrations above detection limits [maximum concentrations, reported in milligrams per Kilogram (mg/Kg), and sample locations are in parentheses]: Aroclor-1248 (30 mg/Kg in V-13); Aroclor-1254 (26 mg/Kg in U-10-01); and Aroclor-1260 (57 mg/Kg in P-13). In addition, each of these three Aroclors were detected at concentrations exceeding the MCP Method 1 S-3/GW-3 standards for Soil. All PCB soil laboratory analytical data are summarized in Appendix B, Table 2 [23-55].

#### **Metals Soil Analysis**

A total of 197 surface soil and soil pile samples were submitted to the EPA OEME laboratory for metals analysis. The following four metals were detected at concentrations above detection limits (maximum concentrations, in mg/Kg, and sample locations are in parentheses): arsenic (266 mg/Kg in S-04-01); cadmium (58 mg/Kg in S-07-01); chromium (1,265 mg/Kg in S-09); and lead (5,830 mg/Kg in R-12). In addition, all four metals were detected at concentrations exceeding the MCP Method 1 S-3/GW-3 standards for Soil, and two metals (arsenic and lead)

were detected at concentrations exceeding the MCP Upper Concentration Limits (UCL) for soils. All metals in soil laboratory analytical data are summarized in Appendix B, Table 2 [23-55].

### **PAH Soil Analysis**

A total of 197 surface soil and soil pile samples were submitted to the EPA OEME laboratory for PAH analysis. The following 16 PAHs were detected at concentrations above detection limits [maximum concentrations, in micrograms per Kilogram ( $\mu\text{g}/\text{Kg}$ ), and sample locations are in parentheses]: acenaphthene (47,000  $\mu\text{g}/\text{Kg}$  in U-13); acenaphthylene (2,800  $\mu\text{g}/\text{Kg}$  in Q-12); anthracene (80,000  $\mu\text{g}/\text{Kg}$  in U-13); benzo(a)anthracene (120,000  $\mu\text{g}/\text{Kg}$  in U-13); benzo(a)pyrene (90,000  $\mu\text{g}/\text{Kg}$  in U-13); benzo(b)fluoranthene (89,000  $\mu\text{g}/\text{Kg}$  in U-13); benzo(g,h,i)perylene (52,000  $\mu\text{g}/\text{Kg}$  in U-13); benzo(k)fluoranthene (77,000  $\mu\text{g}/\text{Kg}$  in D-06); chrysene (110,000  $\mu\text{g}/\text{Kg}$  in U-13); dibenzo(a,h)anthracene (15,000  $\mu\text{g}/\text{Kg}$  in O-04); fluoranthene (260,000  $\mu\text{g}/\text{Kg}$  in U-13); fluorene (44,000  $\mu\text{g}/\text{Kg}$  in U-13); indeno(1,2,3-cd)pyrene (48,000  $\mu\text{g}/\text{Kg}$  in D-06); naphthalene (25,000  $\mu\text{g}/\text{Kg}$  in U-13); phenanthrene (260,000  $\mu\text{g}/\text{Kg}$  in U-13); and pyrene (210,000  $\mu\text{g}/\text{Kg}$  in U-13). In addition, one PAH [benzo(a)pyrene] was detected at concentrations exceeding the MCP Method 1 S-3/GW-3 standards for Soil. All PAHs in soil laboratory analytical data are summarized in Appendix B, Table 2 [23-55].

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### III. Appendices

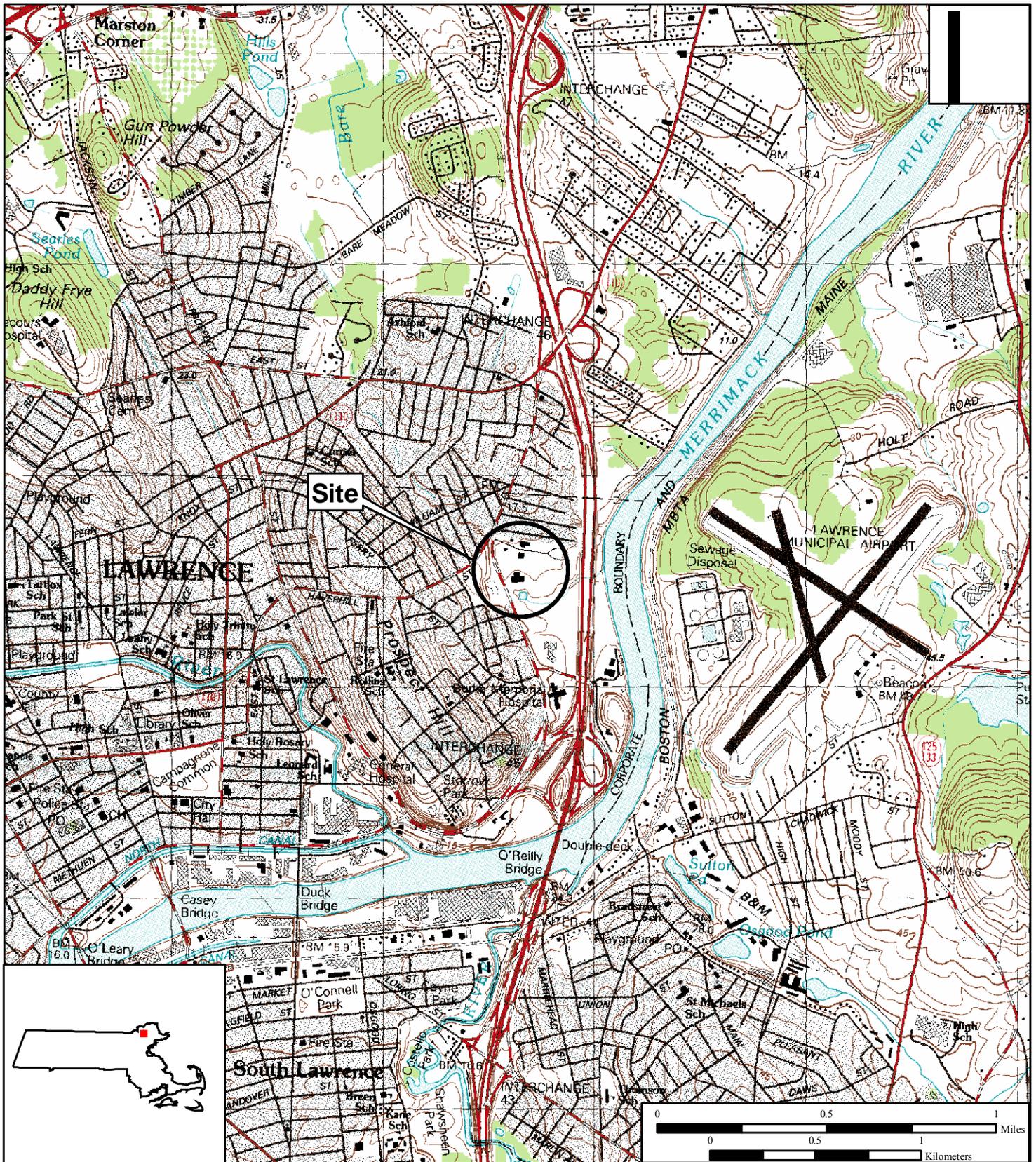
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## Appendix A

### Figures

Figure 1	Site Location Map
Figure 2	Site Map
Figure 3	Sample Location Map
Figure 4	Soil Pile Sample Location Map

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**Figure 1**

**Site Location Map**

**Tombarello Site  
207 Marston Street  
Lawrence, Massachusetts**

**EPA Region I  
Superfund Technical Assessment and  
Response Team (START) III  
Contract No. EP-W-05-042**

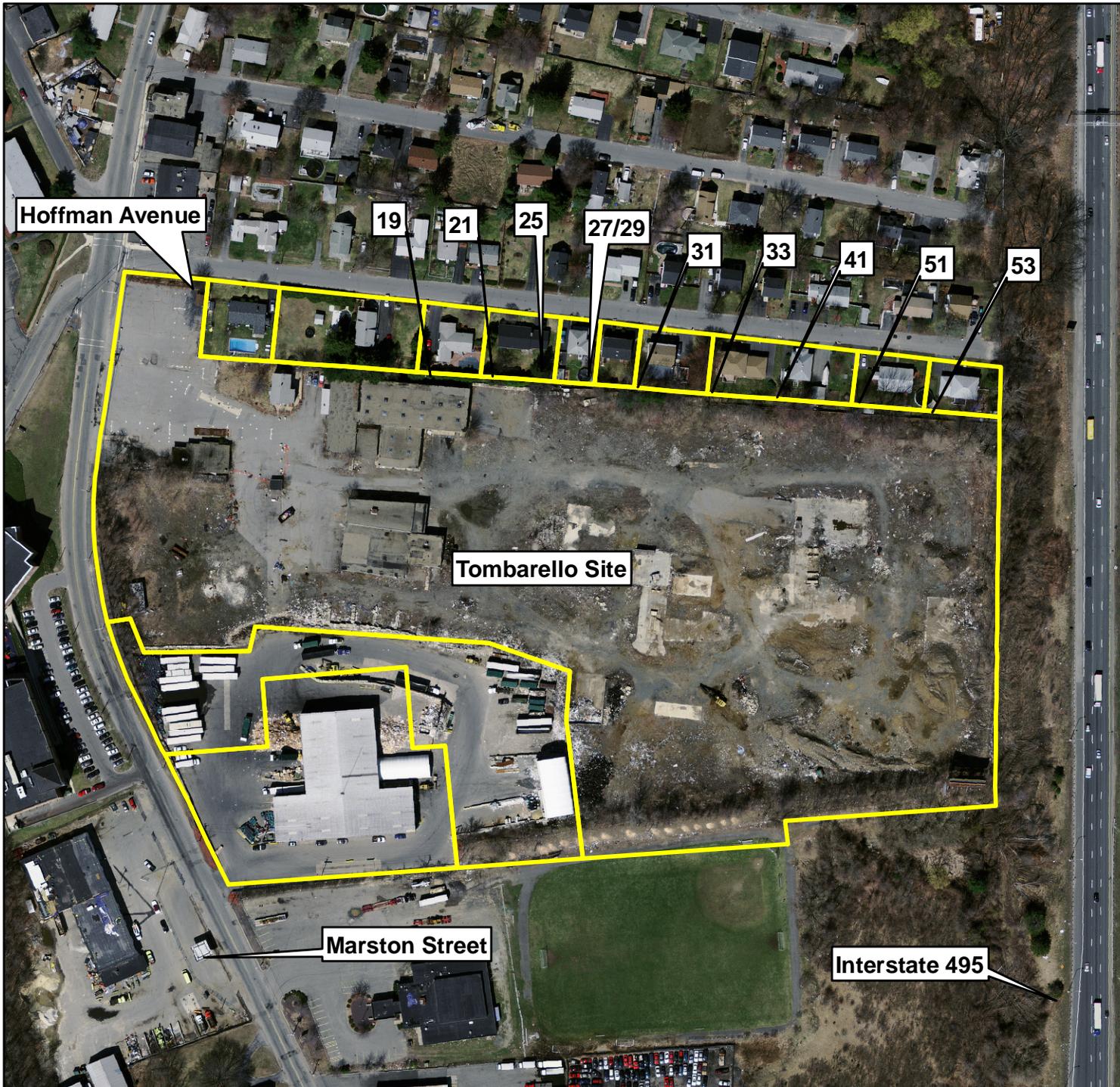
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**Created by:** Robert Sharp  
**Created on:** 11 August 2010  
**Modified by:** Robert Sharp  
**Modified on:** 6 October 2010

**Data Sources:**

Topos: MicroPath/USGS  
Quadrangle Name: South Groveland  
All other data: START



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**Figure 2**

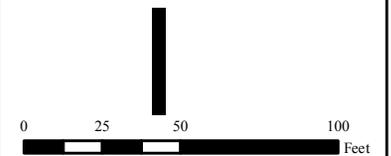
**Site Diagram**

**Tombarello Site  
207 Marston Street  
Lawrence, Massachusetts**

**EPA Region I  
Superfund Technical Assessment and  
Response Team (START) III  
Contract No. EP-W-05-042**  
**TDD Number:** 10-07-0007  
**Created by:** Robert Sharp  
**Created on:** 11 August 2010  
**Modified by:** Robert Sharp  
**Modified on:** 25 October 2010

**LEGEND**

 Property Boundaries



**Data Sources:**  
 Imagery: Mass GIS  
 All other data: START



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**Figure 3**  
**Sample Location Map**  
**Tombarello Site**  
**207 Marston Street**  
**Lawrence, Massachusetts**

**EPA Region I**  
**Superfund Technical Assessment and**  
**Response Team (START) III**  
**Contract No. EP-W-05-042**

TDD Number: 10-07-0007  
 Created by: Robert Sharp  
 Created on: 11 August 2010  
 Modified by: Robert Sharp  
 Modified on: 13 December 2010

**LEGEND**

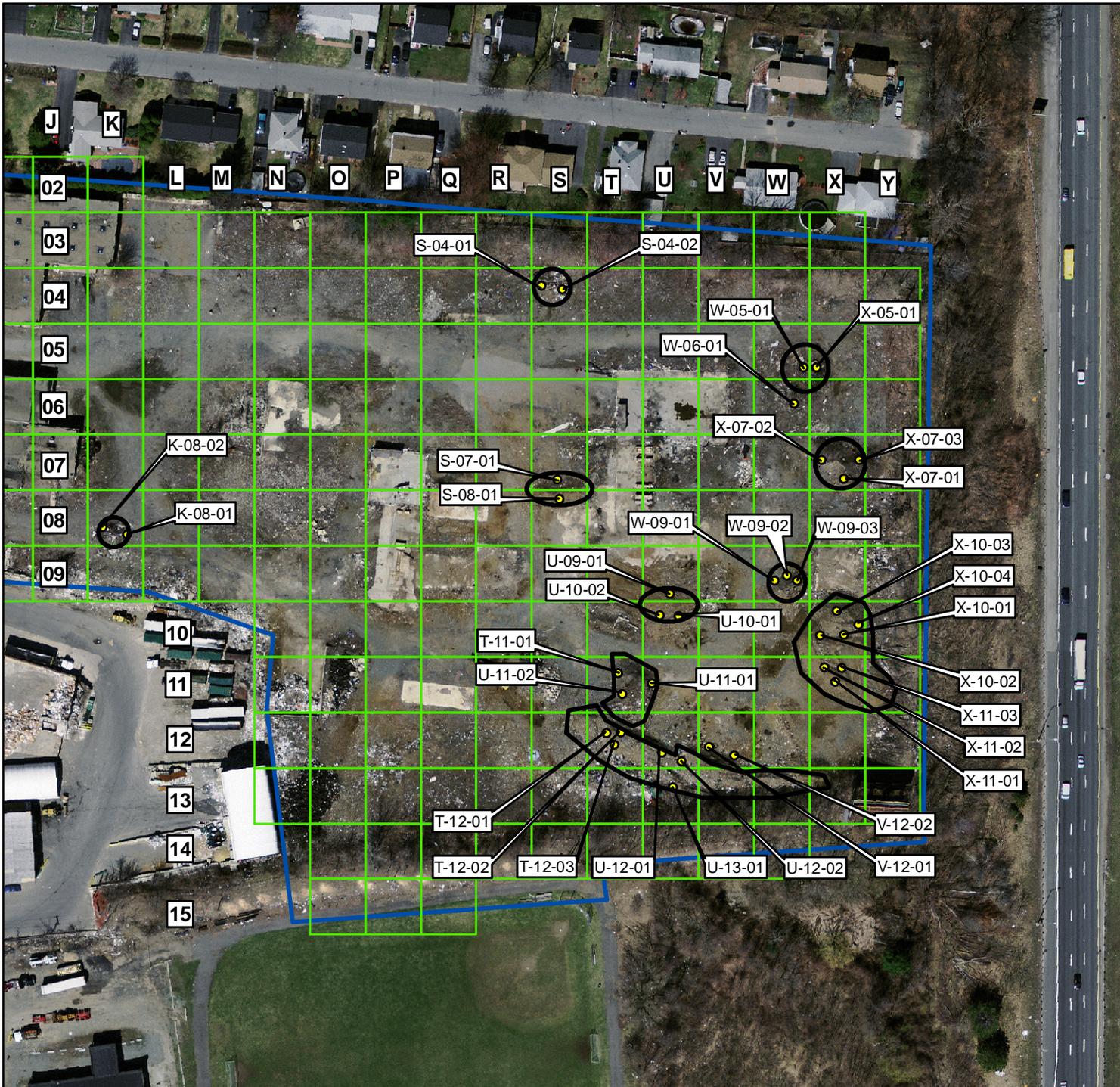
- Grids Sampled
- Grids Not Sampled
- Soil Piles
- Property Boundary

  
 0 25 50 100 150 200 250 300 Feet

**Data Sources:**  
 Imagery: Mass GIS  
 All other data: START



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**Figure 4**  
**Soil Pile**  
**Sample Location Map**  
**Tombarello Site**  
**207 Marston Street**  
**Lawrence, Massachusetts**

EPA Region I  
 Superfund Technical Assessment and  
 Response Team (START) III  
 Contract No. EP-W-05-042

TDD Number: 10-07-0007  
 Created by: Robert Sharp  
 Created on: 11 August 2010  
 Modified by: Robert Sharp  
 Modified on: 13 December 2010

**LEGEND**

- Pile Samples
- Soil Piles
- Property Boundary

  
 0 25 50 100 150 200 Feet

**Data Sources:**  
 Imagery: Mass GIS  
 All other data: START



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## Appendix B

### Summary Tables

Table 1	Surface Soil Sample Descriptions
Table 2	Summary of Metals, Polychlorinated Biphenyls (PCBs), and Polycyclic Aromatic Hydrocarbons (PAHs) in Soil Analysis

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TABLE 1

**SURFACE SOIL SAMPLE DESCRIPTIONS  
TOMBARELLO SITE  
LAWRENCE, MASSACHUSETTS**

Sample Location	Sample Depth (inches)	Collection Date	Sample Type	Sample Description	Comments
A-05	0-3	12-Oct-10	Composite	Dark brown, fine SAND and SILT, trace fine-to-coarse gravel, trace debris (metal, glass), trace organics	
A-06	0-3	12-Oct-10	Composite	Light-to-dark brown, fine-to-medium SAND, trace fine gravel, trace organics	
A-07	0-3	12-Oct-10	Composite	Dark gray-to-brown, SILT, little fine sand, trace fine gravel, trace organics	
B-04	0-3	13-Oct-10	Composite	Dark brown, SILT, little fine sand, trace medium sand, trace organics	
B-05	0-3	12-Oct-10	Composite	Dark brown, fine SAND and SILT, trace fine-to-coarse gravel, trace organics	
B-06	0-3	12-Oct-10	Composite	Dark brown, fine SAND and fine-to-coarse GRAVEL, trace silt, trace debris (glass), trace organics	
B-07	0-3	12-Oct-10	Composite	Dark brown, fine SAND and SILT, trace fine gravel, trace debris (glass, plastic), trace organics	
B-08	0-3	12-Oct-10	Composite	Brown-to-gray brown, fine SAND, little silt, trace fine-to-coarse gravel, trace debris (metal, glass, porcelain)	
B-09	0-3	12-Oct-10	Composite	Dark brown, fine-to-medium SAND and SILT, trace fine-to-coarse gravel, trace debris (metal, glass), trace organics	
C-05	0-3	12-Oct-10	Composite	Dark brown, fine SAND, little silt, trace fine-to-coarse gravel, trace organics	
C-06	0-3	12-Oct-10	Composite	Dark brown, fine SAND, little silt, trace fine-to-coarse gravel, trace debris (glass)	
C-07	0-3	12-Oct-10	Composite	Dark brown, fine SAND, some silt, trace fine-to-coarse gravel, trace debris (glass) trace organics	
C-08	0-3	12-Oct-10	Composite	Dark brown, fine SAND and SILT, trace fine-to-coarse gravel, trace debris (metal, glass, porcelain), trace organics	
C-09	0-3	12-Oct-10	Composite	Dark brown, fine-to-medium SAND, little fine-to-coarse gravel, trace silt	
D-05	0-3	12-Oct-10	Composite	Dark brown, fine SAND, some silt, trace fine gravel, trace organics	
D-06	0-3	12-Oct-10	Composite	Dark brown, fine-to-medium SAND, trace silt, trace fine-to-coarse gravel, trace debris (glass)	
D-07	0-3	12-Oct-10	Composite	Dark brown, fine-to-medium SAND, some fine-to-coarse gravel, trace silt, trace debris (glass, plastic), trace organics	
D-08	0-3	12-Oct-10	Composite	Dark brown, fine SAND, little silt, trace fine gravel, trace organics	
D-09	0-3	12-Oct-10	Composite	Dark brown, fine SAND, trace fine gravel, trace silt, trace coarse sand, trace organics	
E-02	0-3	13-Oct-10	Composite	Medium brown, SILT, some fine sand, trace fine gravel, trace organics	
E-05	0-3	13-Oct-10	Composite	Medium brown, fine SAND, some silt, trace fine-to-coarse gravel, trace debris (metal, glass, plastic), trace organics	
E-07	0-3	12-Oct-10	Composite	Dark brown, fine-to-medium SAND, some fine-to-coarse gravel, trace silt, trace debris (glass, porcelain), trace organics	
E-08	0-3	12-Oct-10	Composite	Dark brown, fine SAND and SILT, trace fine-to-coarse gravel	
F-08	0-3	13-Oct-10	Composite	Dark brown, fine-to-coarse SAND, some fine-to-coarse gravel, trace organics	
G-08	0-3	13-Oct-10	Composite	Dark brown, fine-to-coarse SAND and SILT, trace fine-to-coarse gravel, trace debris (plastic), trace organics	
H-08	0-3	13-Oct-10	Composite	Brown, fine-to-coarse SAND and SILT, trace fine-to-coarse gravel, trace organics	
H-09	0-3	13-Oct-10	Composite	Dark brown, fine-to-medium SAND, little silt, trace fine-to-coarse gravel, trace organics	
I-08	0-3	13-Oct-10	Composite	Brown, fine-to-coarse SAND and SILT, some fine-to-coarse gravel, trace organics	
I-09	0-3	13-Oct-10	Composite	Dark brown, fine-to-medium SAND, little debris (metal, plastic), trace organics	
J-04	0-3	13-Oct-10	Composite	Medium brown, fine SAND, little fine-to-coarse gravel, trace silt, trace debris (metal, glass, plastic), trace organics	
J-05	0-3	13-Oct-10	Composite	Medium brown, fine SAND, some coarse gravel, trace silt	
J-08	0-3	13-Oct-10	Composite	Brown, fine-to-coarse SAND, some fine-to-coarse gravel, trace organics	
J-09	0-3	13-Oct-10	Composite	Dark brown, fine-to-medium SAND, trace fine-to-coarse gravel, trace debris (plastic, cement), trace organics	

TABLE 1

**SURFACE SOIL SAMPLE DESCRIPTIONS  
TOMBARELLO SITE  
LAWRENCE, MASSACHUSETTS**

Sample Location	Sample Depth (inches)	Collection Date	Sample Type	Sample Description	Comments
K-04	0-3	13-Oct-10	Composite	Light-to-medium brown, fine SAND, little silt, trace fine-to-coarse gravel, trace debris (metal), trace organics	
K-05	0-3	13-Oct-10	Composite	Medium brown, fine SAND, little silt, little coarse gravel, trace organics	
K-06	0-3	13-Oct-10	Composite	Medium brown, fine SAND, some fine-to-coarse gravel, little silt, trace debris (metal), trace organics	
K-07	0-3	13-Oct-10	Composite	Medium brown, fine SAND, some silt, little fine-to-coarse gravel, trace debris (metal), trace organics	
K-08	0-3	13-Oct-10	Composite	Brown, fine-to-coarse SAND and SILT, trace fine-to-coarse gravel, trace organics	
K-08-01	0-3	13-Oct-10	Grab	Medium brown, SILT, some fine sand, little fine-to-coarse gravel, trace debris (metal, glass, plastic), trace organics	
K-08-02	0-3	13-Oct-10	Grab	Medium brown, fine SAND and SILT, little fine-to-coarse gravel, little debris (metal, plastic), trace organics	
K-09	0-3	13-Oct-10	Composite	Dark brown, fine-to-coarse SAND, trace debris (glass, plastic, rubber), trace organics	
L-04	0-3	14-Oct-10	Composite	Brown, fine-to-coarse SAND and SILT, trace fine-to-coarse gravel, trace debris (metal, plastic)	
L-05	0-3	14-Oct-10	Composite	Brown, fine-to-coarse SAND and SILT, trace fine-to-coarse gravel, trace debris (glass, plastic)	
L-06	0-3	14-Oct-10	Composite	Dark brown, fine-to-medium SAND, some silt, trace fine-to-coarse gravel, trace organics	
L-07	0-3	14-Oct-10	Composite	Dark brown, fine-to-medium SAND, little silt, trace fine-to-coarse gravel, trace debris (metal), trace organics	
L-08	0-3	13-Oct-10	Composite	Brown, fine-to-coarse SAND and SILT, some fine-to-coarse gravel, trace debris (plastic), trace organics	
L-09	0-3	13-Oct-10	Composite	Dark brown, fine-to-medium SAND, little silt, trace debris (metal, glass, plastic), trace organics	
M-03	0-3	14-Oct-10	Composite	Dark brown, fine-to-coarse SAND and SILT, trace fine-to-coarse gravel, trace debris (glass, metal, plastic), trace organics	
M-04	0-3	14-Oct-10	Composite	Brown, fine-to-coarse SAND and SILT, trace fine-to-coarse gravel, trace debris (glass, metal, plastic), trace organics	
M-05	0-3	14-Oct-10	Composite	Brown, fine-to-coarse SAND and SILT, trace fine-to-coarse gravel, trace debris (glass, plastic)	
M-06	0-3	14-Oct-10	Composite	Brown, fine-to-coarse SAND and SILT, trace fine-to-coarse gravel, trace debris (glass, metal, brick), trace organics	
M-07	0-3	14-Oct-10	Composite	Dark brown, fine-to-medium SAND, little debris (metal, plastic), trace silt, trace organics	
M-08	0-3	13-Oct-10	Composite	Brown, fine-to-coarse SAND and SILT, some fine-to-coarse gravel, trace debris (metal, glass, plastic), trace organics	
M-09	0-3	13-Oct-10	Composite	Dark brown, fine SAND, trace fine-to-coarse gravel, trace debris (glass, plastic), trace organics	
N-03	0-3	14-Oct-10	Composite	Brown, fine-to-coarse SAND and SILT, trace fine-to-coarse gravel, trace debris (metal, plastic), trace organics	
N-04	0-3	14-Oct-10	Composite	Brown, fine-to-coarse SAND and SILT, trace fine-to-coarse gravel, trace debris (metal, plastic), trace organics	
N-05	0-3	14-Oct-10	Composite	Brown, fine-to-coarse SAND and SILT, trace fine-to-coarse gravel, trace debris (glass, metal, plastic), trace organics	
N-07	0-3	14-Oct-10	Composite	Dark brown, fine-to-medium SAND, some debris (metal, glass, plastic, porcelain), little silt	
N-08	0-3	13-Oct-10	Composite	Brown, fine-to-coarse SAND and SILT, some fine-to-coarse gravel, little debris (metal, glass, plastic)	
N-09	0-3	13-Oct-10	Composite	Dark brown, fine-to-medium SAND, little fine-to-coarse gravel, trace organics	
N-10	0-3	13-Oct-10	Composite	Dark brown, fine-to-medium SAND and SILT, trace fine-to-coarse gravel	
N-11	0-3	13-Oct-10	Composite	Dark brown, fine-to-medium SAND, little debris (metal, plastic, rubber), trace silt	
N-12	0-3	21-Oct-10	Composite	Dark brown, SILT and fine SAND, some fine-to-coarse gravel, trace debris (metal, plastic, rubber), trace organics	
O-03	0-3	14-Oct-10	Composite	Brown, fine-to-coarse SAND and SILT, trace fine-to-coarse gravel, trace debris (metal, plastic, brick), trace organics	
O-04	0-3	14-Oct-10	Composite	Brown, fine-to-coarse SAND and SILT, trace fine-to-coarse gravel, trace debris (glass, metal, plastic), trace organics	
O-05	0-3	14-Oct-10	Composite	Brown-to-dark brown, fine-to-medium SAND, little fine-to-coarse gravel, little silt	

TABLE 1

**SURFACE SOIL SAMPLE DESCRIPTIONS  
TOMBARELLO SITE  
LAWRENCE, MASSACHUSETTS**

Sample Location	Sample Depth (inches)	Collection Date	Sample Type	Sample Description	Comments
O-06	0-3	14-Oct-10	Composite	Light-to-dark brown, fine-to-medium SAND, little fine-to-coarse gravel, trace debris (metal, plastic)	
O-07	0-3	14-Oct-10	Composite	Brown-to-dark brown, fine-to-medium SAND, some debris (metal, plastic, rubber, asphalt), trace silt, trace organics	
O-08	0-3	13-Oct-10	Composite	Brown, fine-to-coarse SAND and SILT, little fine-to-coarse gravel, trace debris (metal, glass, plastic, asphalt), trace organics	
O-09	0-3	13-Oct-10	Composite	Brown-to-dark brown, fine-to-medium SAND, trace fine-to-coarse gravel, trace organics	
O-10	0-3	13-Oct-10	Composite	Dark brown, fine SAND, little fine-to-coarse gravel, trace organics	
O-11	0-3	13-Oct-10	Composite	Dark brown, fine-to-coarse SAND, trace fine-to-coarse gravel, trace debris (metal, rubber)	
O-12	0-3	13-Oct-10	Composite	Dark brown, fine-to-medium SAND, little fine-to-coarse gravel, trace debris (metal, plastic), trace organics	
O-13	0-3	13-Oct-10	Composite	Dark brown, fine-to-medium SAND, some silt, trace fine-to-coarse gravel, trace debris (metal, plastic)	
P-03	0-3	20-Oct-10	Composite	Dark brown, fine-to-medium SAND, little fine-to-coarse gravel, trace debris (metal, plastic), trace organics	
P-04	0-3	20-Oct-10	Composite	Dark brown, fine SAND and SILT, little fine-to-medium gravel, trace organics	
P-05	0-3	14-Oct-10	Composite	Light-to-dark brown, fine-to-coarse SAND, some fine-to-coarse gravel, little silt	
P-06	0-3	14-Oct-10	Composite	Dark brown, fine-to-medium SAND, little fine-to-coarse gravel, trace silt, trace organics	
P-10	0-3	13-Oct-10	Composite	Dark brown, fine-to-coarse SAND, little fine gravel, little silt	
P-11	0-3	13-Oct-10	Composite	Dark brown, fine-to-medium SAND, little silt, trace fine-to-coarse gravel, trace debris (metal, plastic)	
P-12	0-3	13-Oct-10	Composite	Dark brown, fine-to-medium SAND and SILT, trace debris (metal, glass, plastic)	
P-13	0-3	13-Oct-10	Composite	Dark brown, fine SAND, little gravel, little silt, trace organics	
Q-03	0-3	20-Oct-10	Composite	Dark brown, fine SAND and SILT, some fine-to-coarse gravel, trace debris (metal, plastic), trace organics	
Q-04	0-3	20-Oct-10	Composite	Dark brown-to-olive, fine SAND and SILT, some clay, little fine-to-medium gravel, trace organics	
Q-05	0-3	20-Oct-10	Composite	Brown-to-dark brown, fine-to-coarse SAND, some silt, trace fine-to-coarse gravel, trace organics	
Q-06	0-3	20-Oct-10	Composite	Brown, fine-to-coarse SAND and SILT, some fine-to-coarse gravel, trace debris (metal, brick), trace organics	
Q-10	0-3	13-Oct-10	Composite	Dark brown, fine-to-medium SAND, little fine gravel, little silt	
Q-12	0-3	13-Oct-10	Composite	Dark brown, fine-to-medium SAND, little silt, trace fine-to-coarse gravel	
Q-13	0-3	13-Oct-10	Composite	Dark brown, fine SAND, little silt, trace debris (metal, plastic)	
R-03	0-3	20-Oct-10	Composite	Dark brown-to-black, fine-to-medium SAND, some silt, little fine-to-coarse gravel, trace debris (metal, plastic, asphalt)	
R-04	0-3	20-Oct-10	Composite	Dark brown, fine SAND and SILT, some clay, little fine-to-medium gravel, trace organics	
R-05	0-3	20-Oct-10	Composite	Dark brown, fine-to-medium SAND and SILT, little fine-to-coarse gravel	
R-06	0-3	20-Oct-10	Composite	Brown, coarse SAND and SILT, little fine-to-coarse gravel, trace debris (glass, brick), trace organics	
R-07	0-3	20-Oct-10	Composite	Brown, fine-to-coarse SAND and SILT, little fine-to-coarse gravel, trace debris (glass, metal), trace organics	
R-08	0-3	13-Oct-10	Composite	Brown, fine-to-coarse SAND and SILT, little fine-to-coarse gravel, trace debris (glass, plastic), trace organics	
R-10	0-3	13-Oct-10	Composite	Light brown, fine-to-coarse SAND and SILT, some fine-to-coarse gravel, trace debris (plastic), trace organics	
R-11	0-3	13-Oct-10	Composite	Dark brown, fine-to-medium SAND, little silt, trace fine-to-coarse gravel	
R-12	0-3	13-Oct-10	Composite	Dark brown, fine-to-medium SAND, little silt, little fine-to-coarse gravel	
R-13	0-3	21-Oct-10	Composite	Dark brown, SILT, some fine SAND, some fine-to-coarse gravel, trace debris (metal, plastic), trace organics	

TABLE 1

**SURFACE SOIL SAMPLE DESCRIPTIONS  
TOMBARELLO SITE  
LAWRENCE, MASSACHUSETTS**

Sample Location	Sample Depth (inches)	Collection Date	Sample Type	Sample Description	Comments
S-03	0-3	20-Oct-10	Composite	Dark brown-to-black, fine-to-medium SAND and SILT, little fine-to-coarse gravel, trace debris (metal, asphalt)	
S-04	0-3	20-Oct-10	Composite	Dark brown, fine SAND and SILT, little medium gravel, trace organics	
S-04-01	0-3	20-Oct-10	Grab	Medium brown, fine-to-medium SAND, some silt, trace fine-to-coarse gravel, trace debris (glass, metal, plastic, rubber)	
S-04-02	0-3	20-Oct-10	Grab	Medium brown, fine SAND, little silt, trace fine-to coarse gravel, trace debris (glass, metal, plastic, foam), trace organics	
S-05	0-3	20-Oct-10	Composite	Brown-to-dark brown, fine-to-medium SAND, some silt, little fine-to-coarse gravel, trace organics	
S-06	0-3	20-Oct-10	Composite	Brown, coarse SAND, little coarse gravel, trace debris (glass, brick), trace organics	
S-07	0-3	20-Oct-10	Composite	Light brown-to-brown, fine-to-medium SAND, little fine-to-coarse gravel, trace debris (glass, metal, brick), trace organics	
S-07-01	0-3	20-Oct-10	Grab	Brown, fine SAND, some silt, trace medium-to-coarse gravel, trace debris (glass, metal, brick), trace organics	
S-08	0-3	13-Oct-10	Composite	Brown, fine-to-medium SAND and SILT, trace fine-to-coarse gravel, trace debris (metal), trace organics	
S-08-01	0-3	20-Oct-10	Grab	Brown, fine SAND, little medium-to-coarse sand, little silt, trace fine-to-coarse gravel, trace debris (plastic)	
S-09	0-3	13-Oct-10	Composite	Light brown, fine-to-coarse SAND and SILT, little fine-to-coarse gravel, trace debris (metal), trace organics	
S-10	0-3	13-Oct-10	Composite	Brown, fine-to-coarse SAND and SILT, little fine-to-coarse gravel, trace organics	
S-11	0-3	20-Oct-10	Composite	Dark brown, fine SAND and SILT, little fine-to-coarse gravel	
S-12	0-3	20-Oct-10	Composite	Dark brown, fine SAND and SILT, little fine-to-coarse gravel	
S-13	0-3	21-Oct-10	Composite	Dark brown, SILT and fine SAND, some fine-to-coarse gravel, trace debris (metal, plastic, foam), trace organics	
T-03	0-3	20-Oct-10	Composite	Light-to-dark brown, fine-to-coarse SAND, little silt, little fine-to-coarse gravel, trace debris (metal, plastic), trace organics	
T-04	0-3	20-Oct-10	Composite	Brown-to-gray, fine SAND and SILT, little fine-to-medium gravel, trace organics	
T-05	0-3	20-Oct-10	Composite	Dark brown, fine SAND and SILT, some fine-to-coarse gravel, trace debris (metal, plastic, fiberglass), trace organics	
T-09	0-3	13-Oct-10	Composite	Brown, fine-to-coarse SAND and SILT, little clay, trace fine-to-coarse gravel, trace organics	
T-10	0-3	13-Oct-10	Composite	Brown, fine-to-coarse SAND, trace fine-to-coarse gravel, trace debris (glass, plastic), trace organics	
T-11	0-3	20-Oct-10	Composite	Dark brown, fine-to-medium SAND and SILT, little fine-to-coarse gravel, trace debris (metal, plastic), trace organics	
T-11-01	0-3	21-Oct-10	Grab	Dark brown, fine SAND and SILT, some fine-to-coarse gravel, trace debris (metal, plastic), trace organics	
T-12	0-3	20-Oct-10	Composite	Dark brown, fine-to-medium SAND and SILT, trace debris (glass, metal, plastic)	
T-12-01	0-3	21-Oct-10	Grab	Brown, fine SAND, little silt, trace medium sand, trace fine-to-coarse gravel, trace debris (glass, metal, plastic, brick)	
T-12-02	0-3	21-Oct-10	Grab	Brown, fine SAND, little silt, little debris (glass, metal, plastic, brick, concrete), trace fine-to-coarse gravel, trace organics	
T-12-03	0-3	21-Oct-10	Grab	Brown, fine SAND, little silt, trace medium sand, trace fine-to-coarse gravel, trace debris (glass, metal, plastic)	
T-13	0-3	21-Oct-10	Composite	Dark brown, SILT, little fine sand, little fine gravel, trace debris (metal, plastic), trace organics	
U-03	0-3	20-Oct-10	Composite	Dark brown, SILT, some fine sand, little fine-to-coarse gravel, trace debris (metal, plastic), trace organics	
U-04	0-3	20-Oct-10	Composite	Brown, fine SAND and SILT, some fine-to-coarse gravel, trace organics	
U-05	0-3	20-Oct-10	Composite	Dark brown, fine-to-medium SAND and SILT, little fine-to-coarse gravel, trace debris (metal, plastic), trace organics	
U-07	0-3	20-Oct-10	Composite	Dark brown, fine-to-coarse SAND and SILT, some fine-to-coarse gravel, trace debris (glass, metal), trace organics	
U-09	0-3	13-Oct-10	Composite	Brown, fine-to-coarse SAND and SILT, trace fine-to-coarse gravel, trace debris (metal, glass, plastic), trace organics	
U-09-01	0-3	20-Oct-10	Grab	Medium brown, fine SAND, little silt, trace medium sand, trace fine-to-coarse gravel, trace debris (glass, metal, plastic)	

TABLE 1

**SURFACE SOIL SAMPLE DESCRIPTIONS  
TOMBARELLO SITE  
LAWRENCE, MASSACHUSETTS**

Sample Location	Sample Depth (inches)	Collection Date	Sample Type	Sample Description	Comments
U-10	0-3	13-Oct-10	Composite	Brown, fine-to-coarse SAND and SILT, trace fine-to-coarse gravel, trace debris (glass, plastic), trace organics	
U-10-01	0-3	20-Oct-10	Grab	Medium brown, fine SAND, little silt, trace medium sand, trace fine-to-coarse gravel, trace debris (metal, plastic)	
U-10-02	0-3	20-Oct-10	Grab	Medium brown, fine SAND, little silt, trace medium-to-coarse sand, trace fine gravel, trace debris (glass, metal, plastic)	
U-11	0-3	20-Oct-10	Composite	Dark brown, fine SAND, some silt, trace fine-to-coarse gravel	
U-11-01	0-3	21-Oct-10	Grab	Dark brown, fine SAND and SILT, little fine-to-coarse gravel, trace debris (metal, plastic), trace organics	
U-11-02	0-3	21-Oct-10	Grab	Dark brown, fine SAND and SILT, some fine-to-coarse gravel, trace debris (metal, plastic, concrete), trace organics	
U-12	0-3	20-Oct-10	Composite	Brown-to-dark brown, fine SAND and SILT, trace fine-to-coarse gravel	
U-12-01	0-3	21-Oct-10	Grab	Brown, fine SAND, little silt, trace medium sand, trace fine-to-coarse gravel, trace debris (glass, metal, plastic, brick)	
U-12-02	0-3	21-Oct-10	Grab	Brown, fine-to-medium SAND, little silt, trace fine to-coarse gravel, trace debris (glass, metal, plastic, brick), trace organics	
U-13	0-3	20-Oct-10	Composite	Dark brown, fine SAND and SILT, trace fine gravel, trace organics	
U-13-01	0-3	21-Oct-10	Grab	Brown, fine-to-medium SAND, little silt, trace fine-to-coarse gravel, trace debris (glass, metal, plastic), trace organics	
V-04	0-3	20-Oct-10	Composite	Brown, SILT and SAND, little fine-to-coarse gravel, trace debris (metal, brick), trace organics	
V-05	0-3	20-Oct-10	Composite	Light-to-dark brown, fine SAND and SILT, little fine-to-coarse gravel, trace debris (metal), trace organics	
V-07	0-3	20-Oct-10	Composite	Dark brown, fine SAND and SILT, little fine-to-coarse gravel, trace debris (glass), trace organics	
V-08	0-3	13-Oct-10	Composite	Brown, fine-to-coarse SAND and SILT, trace fine-to-coarse gravel, trace debris (glass, plastic), trace organics	
V-09	0-3	13-Oct-10	Composite	Brown, fine-to-coarse SAND and SILT, trace fine-to-coarse gravel, trace debris (metal, plastic), trace organics	
V-10	0-3	13-Oct-10	Composite	Light brown, fine-to-coarse SAND and SILT, little fine-to-coarse gravel, trace organics	
V-11	0-3	20-Oct-10	Composite	Dark brown, fine-to-medium SAND and SILT, little fine-to-coarse gravel, trace organics	
V-12	0-3	20-Oct-10	Composite	Dark brown, fine-to-medium SAND and SILT, little fine gravel, trace debris (glass, metal, plastic, slag)	
V-12-01	0-3	21-Oct-10	Grab	Brown, fine-to-medium SAND, little silt, trace fine gravel, trace debris (metal, glass), trace organics	
V-12-02	0-3	21-Oct-10	Grab	Brown, fine-to-medium SAND, little silt, little fine gravel, trace debris (metal), trace organics	
V-13	0-3	20-Oct-10	Composite	Dark brown, fine SAND and SILT, trace debris (metal), trace organics	
W-04	0-3	20-Oct-10	Composite	Dark brown, fine-to-medium SAND and SILT, little coarse gravel, trace debris (glass), trace organics	
W-05	0-3	20-Oct-10	Composite	Brown-to-dark brown, fine SAND and SILT, trace fine-to-coarse gravel, trace debris (metal, plastic, concrete), trace organics	
W-05-01	0-3	20-Oct-10	Grab	Medium brown, fine SAND, little silt, trace medium-to-coarse SAND, trace fine-to-coarse gravel, trace debris (glass, metal)	
W-06	0-3	20-Oct-10	Composite	Brown, medium SAND and SILT, little coarse gravel, trace debris (glass, metal, brick), trace organics	
W-06-01	0-3	20-Oct-10	Grab	Medium brown, fine SAND, little silt, little coarse gravel, trace medium sand, trace debris (glass, metal, plastic, foam)	
W-07	0-3	20-Oct-10	Composite	Dark gray-to-brown, fine-to-coarse SAND and SILT, little fine-to-coarse gravel, trace debris (glass, metal, brick, asphalt)	
W-08	0-3	13-Oct-10	Composite	Brown, fine-to-coarse SAND and SILT, little fine-to-coarse gravel, trace organics	
W-09	0-3	13-Oct-10	Composite	Brown, fine-to-coarse SAND and SILT, little fine-to-coarse gravel, trace organics	
W-09-01	0-3	21-Oct-10	Grab	Dark brown, fine SAND and SILT, some debris (metal, plastic), trace silt	
W-09-02	0-3	21-Oct-10	Grab	Dark brown, fine SAND and SILT, little debris (metal), trace organics	
W-09-03	0-3	21-Oct-10	Grab	Dark brown, fine SAND and SILT, some debris (metal), trace organics	

TABLE 1

**SURFACE SOIL SAMPLE DESCRIPTIONS  
TOMBARELLO SITE  
LAWRENCE, MASSACHUSETTS**

Sample Location	Sample Depth (inches)	Collection Date	Sample Type	Sample Description	Comments
W-10	0-3	13-Oct-10	Composite	Brown, SILT, some clay, little fine sand, trace fine-to-coarse gravel, trace organics	
W-11	0-3	20-Oct-10	Composite	Brown-to-dark brown, fine SAND and SILT, little fine-to-coarse gravel	
W-12	0-3	20-Oct-10	Composite	Dark brown, fine-to-medium SAND and SILT, some fine gravel, trace debris (glass, metal, plastic)	
X-04	0-3	20-Oct-10	Composite	Dark brown, fine-to-medium SAND and SILT, little coarse gravel, trace debris (glass), trace organics	
X-05	0-3	20-Oct-10	Composite	Brown-to-dark brown, SILT and fine SAND, trace fine-to-coarse gravel, trace debris (metal), trace organics	
X-05-01	0-3	20-Oct-10	Grab	Brown, fine SAND, little silt, trace medium sand, trace coarse gravel, trace debris (glass), trace organics	
X-06	0-3	20-Oct-10	Composite	Brown, medium SAND and SILT, little coarse gravel, trace debris (glass, brick), trace organics	
X-07	0-3	20-Oct-10	Composite	Dark brown, fine-to-medium SAND and SILT, little fine-to-coarse gravel, trace debris (metal, slag)	
X-07-01	0-3	20-Oct-10	Grab	Medium brown, fine-to-medium SAND, little silt, trace fine-to-coarse gravel, trace debris (glass, metal, plastic), trace organics	
X-07-02	0-3	20-Oct-10	Grab	Medium brown, fine-to-medium SAND, trace fine-to-coarse gravel, trace silt, trace debris (glass, metal, plastic, brick)	
X-07-03	0-3	20-Oct-10	Grab	Medium brown, fine-to-medium SAND, trace fine-to-coarse gravel, trace silt, trace debris (glass, metal, plastic, brick)	
X-08	0-3	13-Oct-10	Composite	Dark brown, fine-to-coarse SAND and SILT, trace fine-to-coarse gravel, trace debris (glass), trace organics	
X-10	0-3	13-Oct-10	Composite	Brown, fine-to-coarse SAND and SILT, trace fine-to-coarse gravel, trace debris (metal, plastic), trace organics	
X-10-01	0-3	21-Oct-10	Grab	Dark brown, fine SAND, some silt, trace fine-to-coarse gravel, trace organics	
X-10-02	0-3	21-Oct-10	Grab	Dark brown, fine SAND and SILT, little fine-to-coarse gravel, trace debris (metal, plastic), trace organics	
X-10-03	0-3	21-Oct-10	Grab	Dark brown, fine SAND and SILT, little fine-to-coarse gravel, trace organics	
X-10-04	0-3	21-Oct-10	Grab	Dark brown, fine SAND and SILT, some fine-to-coarse gravel, trace debris (metal, plastic), trace organics	
X-11	0-3	20-Oct-10	Composite	Brown-to-dark brown, fine-to-medium SAND and SILT, trace fine-to-coarse gravel, trace debris (metal), trace organics	
X-11-01	0-3	21-Oct-10	Grab	Brown-to-dark brown, fine SAND, some silt, little fine-to-coarse gravel	
X-11-02	0-3	21-Oct-10	Grab	Dark brown, fine SAND and SILT, trace fine gravel, trace organics	
X-11-03	0-3	21-Oct-10	Grab	Dark brown, SILT and fine SAND, trace debris (metal), trace organics	
X-12	0-3	20-Oct-10	Composite	Dark brown, fine SAND and SILT, little fine-to-coarse gravel, trace debris (glass, metal, plastic)	
Z-00	0-3	12-Oct-10	Composite	Dark brown, fine SAND, little silt, trace fine-to-coarse gravel, trace debris (glass)	Duplicate of C-06
Z-01	0-3	13-Oct-10	Composite	Dark brown, fine-to-medium SAND, little debris (metal, plastic), trace organics	Duplicate of I-09
Z-02	0-3	13-Oct-10	Composite	Dark brown, fine-to-coarse SAND, some fine-to-coarse gravel, trace organics	Duplicate of F-08
Z-03	0-3	13-Oct-10	Composite	Medium brown, fine SAND, little fine-to-coarse gravel, trace silt, trace debris (metal, glass, plastic), trace organics	Duplicate of J-04
Z-04	0-3	14-Oct-10	Composite	Dark brown, fine-to-medium SAND, some silt, trace fine-to-coarse gravel, trace organics	Duplicate of L-06
Z-05	0-3	20-Oct-10	Composite	Dark brown, fine SAND and SILT, little fine-to-medium gravel, trace organics	Duplicate of P-04
Z-06	0-3	20-Oct-10	Composite	Dark brown, fine-to-medium SAND, little fine-to-coarse gravel, trace debris (metal, plastic), trace organics	Duplicate of P-03
Z-07	0-3	20-Oct-10	Grab	Medium brown, fine SAND, little silt, trace medium sand, trace fine-to-coarse gravel, trace debris (metal, plastic)	Duplicate of U-10-01
Z-08	0-3	21-Oct-10	Composite	Dark brown, SILT, little fine sand, little fine gravel, trace debris (metal, plastic), trace organics	Duplicate of T-13
Z-09	0-3	21-Oct-10	Grab	Brown, fine SAND, little silt, trace medium sand, trace fine-to-coarse gravel, trace debris (glass, metal, plastic, brick)	Duplicate of T-12-01

TABLE 2

SUMMARY OF METALS, POLYCHLORINATED BIPHENYLS (PCBs),  
AND POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) IN SOIL ANALYSIS  
TOMBARELLO SITE  
LAWRENCE, MASSACHUSETTS

ANALYTES	SAMPLE NUMBER		R01-100830MB-0321	R01-100830MB-0326	R01-100830MB-0331	R01-100830MB-0370	R01-100830MB-0320	R01-100830MB-0325	R01-100830MB-0330	R01-100830MB-0335	R01-100830MB-0338	R01-100830MB-0319
	SAMPLE LOCATION		A-05	A-06	A-07	B-04	B-05	B-06	B-07	B-08	B-09	C-05
	LABORATORY NUMBER		AB11502	AB11507	AB11512	AB11566	AB11501	AB11506	AB11511	AB11516	AB11598	AB11500
	S-3 & GW-3	UCL										
<b>METALS</b>	<b>mg/Kg</b>	<b>mg/Kg</b>										
Arsenic	20	200	50	ND	95	ND	ND	64	94	ND	ND	ND
Cadmium	30	300	ND									
Chromium*	200	2,000	94	ND	80	82	40	66	ND	65	135	140
Lead	300	3,000	560	250	1,200	280	720	1,200	3,200	770	1,129	1,400
<b>PCBs</b>	<b>mg/Kg</b>	<b>mg/Kg</b>										
Aroclor-1242	3	100	ND									
Aroclor-1248	3	100	ND	ND	ND	ND	24	ND	ND	ND	ND	ND
Aroclor-1254	3	100	ND	2	ND							
Aroclor-1260	3	100	19	0.91	2.1	ND	ND	9.8	4	2.3	3.5	3.5
Aroclor-1262	3	100	ND									
Aroclor-1268	3	100	ND									
Total PCBs	3	100	19	0.91	2.1	ND	24	9.8	4	4.3	4.3	3.5
<b>PAHs</b>	<b>ug/Kg</b>	<b>ug/Kg</b>										
Acenaphthene	5,000,000	10,000,000	ND	80	1,200	ND	420	1,100	1,200	410	3,500	490
Acenaphthylene	10,000	10,000,000	ND									
Anthracene	5,000,000	10,000,000	640	270	3,400	ND	1,500	3,900	4,100	1,600	11,000	1,800
Benzo(a)anthracene	300,000	3,000,000	2,000	930	8,400	4,100	4,400	15,000	16,000	7,200	28,000	6,000
Benzo(a)pyrene	30,000	300,000	2,000	890	7,400	4,900	4,300	15,000	15,000	7,400	26,000	5,600
Benzo(b)fluoranthene	300,000	3,000,000	1,900	950	6,500	6,300	4,700	16,000	16,000	7,800	20,000	5,600
Benzo(g,h,i)perylene	5,000,000	10,000,000	1,400	690	5,300	4,200	3,600	13,000	11,000	5,800	18,000	4,000
Benzo(k)fluoranthene	3,000,000	10,000,000	1,700	690	6,600	5,100	3,100	12,000	12,000	5,500	21,000	4,100
Chrysene	3,000,000	10,000,000	2,100	940	8,200	6,500	4,600	15,000	17,000	7,200	28,000	5,800
Dibenz(a,h)anthracene	30,000	300,000	330	ND	1,100	ND	ND	2,400	ND	1,100	ND	ND
Fluoranthene	5,000,000	10,000,000	4,700	2,200	20,000	10,000	9,900	35,000	36,000	15,000	61,000	14,000
Fluorene	5,000,000	10,000,000	ND	97	1,300	ND	440	1,100	1,200	480	3,500	530
Indeno(1,2,3-cd)pyrene	300,000	3,000,000	1,300	620	4,800	3,700	3,200	11,000	10,000	5,300	16,000	3,500
Naphthalene	3,000,000	10,000,000	ND	ND	580	ND	300	ND	800	ND	ND	ND
Phenanthrene	3,000,000	10,000,000	2,900	1,200	15,000	5,000	6,300	18,000	22,000	6,600	45,000	7,200
Pyrene	5,000,000	10,000,000	3,400	1,600	15,000	8,700	7,200	26,000	26,000	12,000	52,000	10,000

NOTES:

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ND = Value is Non-Detected.  
\* = Value for total chromium listed.  
Bolded and light gray shaded values exceed MCP S-3 Soil & GW-3 Criteria.  
Bolded and dark gray shaded values exceed both MCP S-3 Soil & GW-3 and MCP UCL.  
MCP = Massachusetts Contingency Plan.  
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TABLE 2

SUMMARY OF METALS, POLYCHLORINATED BIPHENYLS (PCBs),  
AND POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) IN SOIL ANALYSIS  
TOMBARELLO SITE  
LAWRENCE, MASSACHUSETTS

ANALYTES	SAMPLE NUMBER		R01-100830MB-0323	R01-100830MB-0329	R01-100830MB-0334	R01-100830MB-0337	R01-100830MB-0318	R01-100830MB-0322	R01-100830MB-0328	R01-100830MB-0333	R01-100830MB-0336	R01-100830MB-0374
	SAMPLE LOCATION		C-06	C-07	C-08	C-09	D-05	D-06	D-07	D-08	D-09	E-02
	LABORATORY NUMBER		AB11504	AB11510	AB11515	AB11518	AB11499	AB11503	AB11509	AB11514	AB11517	AB11570
	S-3 & GW-3	UCL										
<b>METALS</b>	<b>mg/Kg</b>	<b>mg/Kg</b>										
Arsenic	20	200	ND	25	33	ND						
Cadmium	30	300	ND	ND	20	ND						
Chromium*	200	2,000	43	36	79	58	58	54	92	ND	36	52
Lead	300	3,000	630	920	1,100	500	160	270	980	230	300	180
<b>PCBs</b>	<b>mg/Kg</b>	<b>mg/Kg</b>										
Aroclor-1242	3	100	ND									
Aroclor-1248	3	100	ND									
Aroclor-1254	3	100	ND									
Aroclor-1260	3	100	3.9	4.5	9.2	1.4	2.1	3.9	4	0.9	1.5	2.2
Aroclor-1262	3	100	ND									
Aroclor-1268	3	100	ND									
Total PCBs	3	100	3.9	4.5	9.2	1.4	2.1	3.9	4	0.9	1.5	2.2
<b>PAHs</b>	<b>ug/Kg</b>	<b>ug/Kg</b>										
Acenaphthene	5,000,000	10,000,000	ND	980	2,700	490	ND	6,500	920	890	580	200
Acenaphthylene	10,000	10,000,000	ND	570	920	350	ND	ND	ND	510	510	120
Anthracene	5,000,000	10,000,000	2,500	3,000	8,400	1,500	660	25,000	3,500	2,400	2,800	630
Benzo(a)anthracene	300,000	3,000,000	13,000	15,000	31,000	7,900	2,500	89,000	13,000	11,000	12,000	2,200
Benzo(a)pyrene	30,000	300,000	13,000	16,000	31,000	8,900	2,700	75,000	13,000	12,000	12,000	2,100
Benzo(b)fluoranthene	300,000	3,000,000	12,000	15,000	30,000	9,300	2,600	88,000	14,000	12,000	13,000	2,300
Benzo(g,h,i)perylene	5,000,000	10,000,000	9,000	14,000	23,000	7,600	2,100	50,000	12,000	11,000	9,200	1,500
Benzo(k)fluoranthene	3,000,000	10,000,000	10,000	15,000	25,000	6,500	2,000	77,000	10,000	9,700	9,300	1,600
Chrysene	3,000,000	10,000,000	12,000	16,000	32,000	8,500	2,600	97,000	13,000	12,000	11,000	2,300
Dibenz(a,h)anthracene	30,000	300,000	1,800	ND	ND	ND	370	ND	2,400	2,200	ND	320
Fluoranthene	5,000,000	10,000,000	25,000	32,000	72,000	18,000	5,600	230,000	29,000	25,000	25,000	4,600
Fluorene	5,000,000	10,000,000	ND	920	2,600	450	ND	8,400	930	740	710	200
Indeno(1,2,3-cd)pyrene	300,000	3,000,000	8,000	13,000	21,000	6,900	1,700	48,000	10,000	9,300	8,300	1,300
Naphthalene	3,000,000	10,000,000	ND	ND	1,300	ND	ND	3,800	ND	ND	270	94
Phenanthrene	3,000,000	10,000,000	8,800	15,000	41,000	7,300	2,700	150,000	15,000	12,000	9,600	2,900
Pyrene	5,000,000	10,000,000	19,000	24,000	55,000	14,000	4,400	160,000	22,000	19,000	20,000	3,900

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TABLE 2

SUMMARY OF METALS, POLYCHLORINATED BIPHENYLS (PCBs),  
AND POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) IN SOIL ANALYSIS  
TOMBARELLO SITE  
LAWRENCE, MASSACHUSETTS

ANALYTES	SAMPLE NUMBER		R01-100830MB-0375	R01-100830MB-0327	R01-100830MB-0332	R01-100830MB-0342	R01-100830MB-0344	R01-100830MB-0345	R01-100830MB-0360	R01-100830MB-0346	R01-100830MB-0355	R01-100830MB-0377
	SAMPLE LOCATION		E-05	E-07	E-08	F-08	G-08	H-08	H-09	I-08	I-09	J-04
	LABORATORY NUMBER		AB11571	AB11508	AB11513	AB11538	AB11540	AB11541	AB11556	AB11542	AB11551	AB11573
	S-3 & GW-3	UCL										
<b>METALS</b>	<b>mg/Kg</b>	<b>mg/Kg</b>										
Arsenic	20	200	47	ND	ND	ND	42	ND	ND	45	ND	ND
Cadmium	30	300	ND	40	ND	ND						
Chromium*	200	2,000	75	ND	45	ND	80	29	ND	88	ND	72
Lead	300	3,000	680	340	270	420	530	300	290	890	610	370
<b>PCBs</b>	<b>mg/Kg</b>	<b>mg/Kg</b>										
Aroclor-1242	3	100	ND									
Aroclor-1248	3	100	ND									
Aroclor-1254	3	100	0.9	ND								
Aroclor-1260	3	100	1.1	2.4	1.5	3.4	3.2	2	1.7	4.7	5.6	12
Aroclor-1262	3	100	ND									
Aroclor-1268	3	100	ND									
Total PCBs	3	100	2	2.4	1.5	3.4	3.2	2	1.7	4.7	5.6	12
<b>PAHs</b>	<b>ug/Kg</b>	<b>ug/Kg</b>										
Acenaphthene	5,000,000	10,000,000	710	660	1,700	ND	ND	ND	ND	ND	ND	460
Acenaphthylene	10,000	10,000,000	510	720	1,200	ND	ND	ND	ND	ND	ND	860
Anthracene	5,000,000	10,000,000	2,000	2,600	6,600	8,900	ND	ND	680	ND	680	2,500
Benzo(a)anthracene	300,000	3,000,000	5,000	11,000	30,000	32,000	5,600	1,800	2,800	4,800	2,800	11,000
Benzo(a)pyrene	30,000	300,000	5,300	11,000	32,000	33,000	6,500	2,000	3,000	4,300	3,100	14,000
Benzo(b)fluoranthene	300,000	3,000,000	4,800	11,000	29,000	31,000	5,100	1,700	2,900	4,300	2,500	15,000
Benzo(g,h,i)perylene	5,000,000	10,000,000	6,000	8,900	23,000	22,000	6,300	2,200	2,800	4,200	2,900	13,000
Benzo(k)fluoranthene	3,000,000	10,000,000	5,300	11,000	24,000	26,000	6,900	1,800	3,000	4,300	3,300	11,000
Chrysene	3,000,000	10,000,000	5,100	11,000	29,000	29,000	5,400	1,700	2,700	4,600	2,900	12,000
Dibenz(a,h)anthracene	30,000	300,000	ND	2,000	ND	ND	ND	ND	ND	ND	560	2,000
Fluoranthene	5,000,000	10,000,000	10,000	25,000	66,000	58,000	9,900	3,200	5,100	8,500	5,600	21,000
Fluorene	5,000,000	10,000,000	730	620	1,800	ND	ND	ND	ND	ND	ND	550
Indeno(1,2,3-cd)pyrene	300,000	3,000,000	5,100	8,000	21,000	20,000	5,000	1,800	2,400	3,300	2,300	12,000
Naphthalene	3,000,000	10,000,000	ND	ND	760	ND	ND	ND	ND	ND	ND	380
Phenanthrene	3,000,000	10,000,000	7,700	12,000	26,000	28,000	5,000	1,600	2,900	4,500	3,200	8,000
Pyrene	5,000,000	10,000,000	9,700	19,000	51,000	47,000	9,200	3,000	4,900	7,600	5,100	21,000

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TABLE 2

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AND POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) IN SOIL ANALYSIS  
TOMBARELLO SITE  
LAWRENCE, MASSACHUSETTS

ANALYTES	SAMPLE NUMBER		R01-100830MB-0376	R01-100830MB-0347	R01-100830MB-0356	R01-100830MB-0379	R01-100830MB-0380	R01-100830MB-0381	R01-100830MB-0382	R01-100830MB-0348	R01-100830MB-0371	R01-100830MB-0372
	SAMPLE LOCATION		J-05	J-08	J-09	K-04	K-05	K-06	K-07	K-08	K-08-01	K-08-02
	LABORATORY NUMBER		AB11572	AB11543	AB11552	AB11575	AB11576	AB11577	AB11578	AB11544	AB11567	AB11568
	S-3 & GW-3	UCL										
<b>METALS</b>	<b>mg/Kg</b>	<b>mg/Kg</b>										
Arsenic	20	200	ND	71	ND	ND	ND	48	41	ND	ND	ND
Cadmium	30	300	ND	14	ND	11						
Chromium*	200	2,000	83	98	53	64	52	200	55	69	55	71
Lead	300	3,000	330	930	850	660	400	520	629	690	660	630
<b>PCBs</b>	<b>mg/Kg</b>	<b>mg/Kg</b>										
Aroclor-1242	3	100	ND									
Aroclor-1248	3	100	ND									
Aroclor-1254	3	100	ND	ND	ND	15	ND	ND	2.6	ND	ND	ND
Aroclor-1260	3	100	1.5	5.2	17	12	2.5	4.1	9.8	15	15	3.4
Aroclor-1262	3	100	ND									
Aroclor-1268	3	100	ND									
Total PCBs	3	100	1.5	5.2	17	27	2.5	4.1	12.4	15	15	3.4
<b>PAHs</b>	<b>ug/Kg</b>	<b>ug/Kg</b>										
Acenaphthene	5,000,000	10,000,000	ND	650	ND							
Acenaphthylene	10,000	10,000,000	270	ND	ND	ND	310	ND	ND	ND	ND	ND
Anthracene	5,000,000	10,000,000	380	ND	4,900	ND	560	1,300	ND	820	2,700	580
Benzo(a)anthracene	300,000	3,000,000	1,900	1,700	17,000	6,800	2,400	5,300	4,700	3,100	10,000	1,900
Benzo(a)pyrene	30,000	300,000	2,400	1,900	16,000	6,300	2,900	6,500	ND	3,500	11,000	2,400
Benzo(b)fluoranthene	300,000	3,000,000	3,500	1,800	14,000	5,700	3,300	6,600	5,700	3,100	11,000	2,100
Benzo(g,h,i)perylene	5,000,000	10,000,000	2,900	2,400	11,000	4,900	3,700	7,100	6,000	3,800	9,200	2,500
Benzo(k)fluoranthene	3,000,000	10,000,000	2,300	2,400	16,000	6,400	3,100	6,800	4,200	3,300	10,000	2,000
Chrysene	3,000,000	10,000,000	2,100	1,800	17,000	6,600	2,500	5,500	5,000	3,300	10,000	2,000
Dibenz(a,h)anthracene	30,000	300,000	380	ND	ND	ND	ND	900	ND	750	1,600	ND
Fluoranthene	5,000,000	10,000,000	3,300	3,200	35,000	14,000	4,400	9,400	9,500	6,000	19,000	3,800
Fluorene	5,000,000	10,000,000	ND	780	ND							
Indeno(1,2,3-cd)pyrene	300,000	3,000,000	2,200	1,900	9,600	4,600	3,000	6,000	4,700	3,000	7,900	2,100
Naphthalene	3,000,000	10,000,000	ND									
Phenanthrene	3,000,000	10,000,000	1,300	1,400	23,000	8,400	1,800	4,000	5,100	3,200	9,200	1,900
Pyrene	5,000,000	10,000,000	3,200	2,800	30,000	12,000	4,000	8,900	7,700	5,500	17,000	3,600

NOTES:

Samples analyzed by EPA Office of Environmental Measurement and Evaluation Laboratory.  
PAH results are reported in micrograms per Kilogram (µg/Kg).  
Metals and PCB results are reported in milligrams per Kilogram (mg/Kg).  
ND = Value is Non-Detected.  
\* = Value for total chromium listed.  
Bolded and light gray shaded values exceed MCP S-3 Soil & GW-3 Criteria.  
Bolded and dark gray shaded values exceed both MCP S-3 Soil & GW-3 and MCP UCL.  
MCP = Massachusetts Contingency Plan.  
UCL = Upper Concentration Limit.

TABLE 2

SUMMARY OF METALS, POLYCHLORINATED BIPHENYLS (PCBs),  
AND POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) IN SOIL ANALYSIS  
TOMBARELLO SITE  
LAWRENCE, MASSACHUSETTS

ANALYTES	SAMPLE NUMBER		R01-100830MB-0373	R01-100830MB-0430	R01-100830MB-0426	R01-100830MB-0416	R01-100830MB-0418	R01-100830MB-0349	R01-100830MB-0358	R01-100830MB-0428	R01-100830MB-0427	R01-100830MB-0423
	SAMPLE LOCATION		K-09	L-04	L-05	L-06	L-07	L-08	L-09	M-03	M-04	M-05
	LABORATORY NUMBER		AB11569	AB11629	AB11625	AB11615	AB11617	AB11545	AB11554	AB11627	AB11626	AB11622
	S-3 & GW-3	UCL										
<b>METALS</b>	<b>mg/Kg</b>	<b>mg/Kg</b>										
Arsenic	20	200	55	ND	ND	87	57	58	45	53	ND	ND
Cadmium	30	300	ND	ND	ND	ND	ND	14	16	ND	16	ND
Chromium*	200	2,000	ND	188	77	114	90	61	47	101	119	76
Lead	300	3,000	450	2,256	305	820	548	610	670	771	1,896	403
<b>PCBs</b>	<b>mg/Kg</b>	<b>mg/Kg</b>										
Aroclor-1242	3	100	ND									
Aroclor-1248	3	100	ND	0.92	ND							
Aroclor-1254	3	100	ND	2.5	1.5	ND	ND	ND	ND	11	9.9	2
Aroclor-1260	3	100	2.2	3.5	2.2	16	25	40	7.7	15	5.9	3.5
Aroclor-1262	3	100	ND									
Aroclor-1268	3	100	ND									
Total PCBs	3	100	2.2	6.92	3.7	16	25	40	7.7	26	15.8	5.5
<b>PAHs</b>	<b>ug/Kg</b>	<b>ug/Kg</b>										
Acenaphthene	5,000,000	10,000,000	ND	1,100	ND	ND						
Acenaphthylene	10,000	10,000,000	ND									
Anthracene	5,000,000	10,000,000	ND	1,100	ND	1,400	1,900	ND	ND	5,000	ND	ND
Benzo(a)anthracene	300,000	3,000,000	7,800	5,100	2,900	5,500	6,800	7,300	7,200	17,000	1,800	10,000
Benzo(a)pyrene	30,000	300,000	8,100	5,800	3,900	6,300	7,300	8,200	7,600	19,000	2,600	11,000
Benzo(b)fluoranthene	300,000	3,000,000	7,400	6,600	3,900	6,800	6,900	6,900	8,100	16,000	2,100	9,700
Benzo(g,h,i)perylene	5,000,000	10,000,000	6,100	7,500	6,100	7,100	8,300	7,500	6,100	17,000	3,200	10,000
Benzo(k)fluoranthene	3,000,000	10,000,000	8,700	5,200	3,400	5,800	6,600	8,400	7,700	15,000	2,400	9,200
Chrysene	3,000,000	10,000,000	8,400	5,200	3,100	5,900	7,000	7,600	7,400	16,000	1,900	9,700
Dibenz(a,h)anthracene	30,000	300,000	ND	1,900	ND	2,400	2,800	2,500	ND	6,200	ND	ND
Fluoranthene	5,000,000	10,000,000	17,000	9,500	5,500	11,000	14,000	15,000	15,000	34,000	3,100	19,000
Fluorene	5,000,000	10,000,000	ND	1,200	ND	ND						
Indeno(1,2,3-cd)pyrene	300,000	3,000,000	5,200	6,100	4,400	6,000	6,600	6,500	5,500	13,000	2,700	8,100
Naphthalene	3,000,000	10,000,000	ND									
Phenanthrene	3,000,000	10,000,000	11,000	3,700	2,400	6,100	7,600	6,500	8,300	15,000	1,200	9,500
Pyrene	5,000,000	10,000,000	14,000	8,400	5,000	9,500	12,000	13,000	13,000	28,000	2,900	15,000

NOTES:

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ND = Value is Non-Detected.  
\* = Value for total chromium listed.  
Bolded and light gray shaded values exceed MCP S-3 Soil & GW-3 Criteria.  
Bolded and dark gray shaded values exceed both MCP S-3 Soil & GW-3 and MCP UCL.  
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TABLE 2

SUMMARY OF METALS, POLYCHLORINATED BIPHENYLS (PCBs),  
AND POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) IN SOIL ANALYSIS  
TOMBARELLO SITE  
LAWRENCE, MASSACHUSETTS

ANALYTES	SAMPLE NUMBER		R01-100830MB-0431	R01-100830MB-0424	R01-100830MB-0350	R01-100830MB-0359	R01-100830MB-0429	R01-100830MB-0422	R01-100830MB-0425	R01-100830MB-0421	R01-100830MB-0351	R01-100830MB-0361
	SAMPLE LOCATION		M-06	M-07	M-08	M-09	N-03	N-04	N-05	N-07	N-08	N-09
	LABORATORY NUMBER		AB11630	AB11623	AB11546	AB11555	AB11628	AB11621	AB11624	AB11620	AB11547	AB11557
	S-3 & GW-3	UCL										
<b>METALS</b>	<b>mg/Kg</b>	<b>mg/Kg</b>										
Arsenic	20	200	ND	89	ND	38	ND	77	34	48	100	78
Cadmium	30	300	ND	35	ND	ND	18	15	ND	ND	25	ND
Chromium*	200	2,000	65	137	59	57	57	410	73	151	100	110
Lead	300	3,000	605	1,553	700	440	370	524	379	1,117	1,500	690
<b>PCBs</b>	<b>mg/Kg</b>	<b>mg/Kg</b>										
Aroclor-1242	3	100	ND									
Aroclor-1248	3	100	ND	11	ND	ND	5.1	1.2	ND	7.2	ND	ND
Aroclor-1254	3	100	ND	18	5.1	ND	7.1	7.5	1.4	4.8	11	ND
Aroclor-1260	3	100	26	46	14	6.1	4.8	6.4	2.2	4.2	21	3.2
Aroclor-1262	3	100	ND									
Aroclor-1268	3	100	ND									
Total PCBs	3	100	26	75	19.1	6.1	17	15.1	3.6	16.2	32	3.2
<b>PAHs</b>	<b>ug/Kg</b>	<b>ug/Kg</b>										
Acenaphthene	5,000,000	10,000,000	2,900	1,600	ND							
Acenaphthylene	10,000	10,000,000	ND									
Anthracene	5,000,000	10,000,000	7,000	6,600	3,200	2,600	10,000	ND	ND	ND	ND	ND
Benzo(a)anthracene	300,000	3,000,000	22,000	15,000	17,000	15,000	41,000	7,700	4,100	3,700	6,600	6,100
Benzo(a)pyrene	30,000	300,000	20,000	13,000	18,000	16,000	42,000	9,400	4,900	4,000	7,200	7,400
Benzo(b)fluoranthene	300,000	3,000,000	16,000	11,000	14,000	13,000	40,000	11,000	5,000	3,500	6,200	7,000
Benzo(g,h,i)perylene	5,000,000	10,000,000	15,000	10,000	15,000	13,000	32,000	12,000	6,000	4,300	6,900	7,700
Benzo(k)fluoranthene	3,000,000	10,000,000	16,000	12,000	18,000	15,000	39,000	6,800	3,600	3,600	7,000	7,100
Chrysene	3,000,000	10,000,000	21,000	14,000	16,000	14,000	38,000	8,000	3,900	3,700	6,600	6,200
Dibenz(a,h)anthracene	30,000	300,000	ND	ND	ND	ND	11,000	ND	ND	1,300	ND	ND
Fluoranthene	5,000,000	10,000,000	48,000	33,000	30,000	26,000	80,000	14,000	6,700	7,200	12,000	10,000
Fluorene	5,000,000	10,000,000	2,500	2,100	ND	ND	2,100	ND	ND	ND	ND	ND
Indeno(1,2,3-cd)pyrene	300,000	3,000,000	14,000	8,700	13,000	11,000	29,000	9,600	4,900	3,300	5,500	6,500
Naphthalene	3,000,000	10,000,000	ND	1,200	ND							
Phenanthrene	3,000,000	10,000,000	30,000	27,000	12,000	9,200	38,000	6,600	2,300	4,200	6,500	3,900
Pyrene	5,000,000	10,000,000	37,000	27,000	28,000	24,000	64,000	12,000	6,100	5,900	11,000	9,500

NOTES:

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Bolded and light gray shaded values exceed MCP S-3 Soil & GW-3 Criteria.  
Bolded and dark gray shaded values exceed both MCP S-3 Soil & GW-3 and MCP UCL.  
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TABLE 2

SUMMARY OF METALS, POLYCHLORINATED BIPHENYLS (PCBs),  
AND POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) IN SOIL ANALYSIS  
TOMBARELLO SITE  
LAWRENCE, MASSACHUSETTS

ANALYTES	SAMPLE NUMBER		R01-100830MB-0362	R01-100830MB-0363	R01-100830MB-0517	R01-100830MB-0432	R01-100830MB-0433	R01-100830MB-0436	R01-100830MB-0420	R01-100830MB-0419	R01-100830MB-0352	R01-100830MB-0364
	SAMPLE LOCATION		N-10	N-11	N-12	O-03	O-04	O-05	O-06	O-07	O-08	O-09
	LABORATORY NUMBER		AB11558	AB11559	AB11842	AB11631	AB11632	AB11635	AB11619	AB11618	AB11548	AB11560
	S-3 & GW-3	UCL										
<b>METALS</b>	<b>mg/Kg</b>	<b>mg/Kg</b>										
Arsenic	20	200	91	ND	ND	ND	45	ND	ND	61	65	ND
Cadmium	30	300	23	ND	ND	ND	ND	13	17	15	14	33
Chromium*	200	2,000	110	160	251	156	303	64	189	221	160	150
Lead	300	3,000	1,900	1,500	1,457	277	341	560	985	1,095	940	800
<b>PCBs</b>	<b>mg/Kg</b>	<b>mg/Kg</b>										
Aroclor-1242	3	100	ND									
Aroclor-1248	3	100	ND	ND	20	ND	ND	ND	ND	5.7	ND	ND
Aroclor-1254	3	100	7	3.7	7	2	2.6	ND	1.1	14	6.7	ND
Aroclor-1260	3	100	8.2	4.3	4.4	3.7	4.2	ND	1.8	6.6	11	3.7
Aroclor-1262	3	100	ND									
Aroclor-1268	3	100	ND									
Total PCBs	3	100	15.2	8	31.4	5.7	6.8	ND	2.9	26.3	17.7	3.7
<b>PAHs</b>	<b>ug/Kg</b>	<b>ug/Kg</b>										
Acenaphthene	5,000,000	10,000,000	ND	ND	ND	ND	2,700	ND	ND	ND	ND	ND
Acenaphthylene	10,000	10,000,000	ND	ND	1,600	ND	ND	1,400	ND	ND	ND	ND
Anthracene	5,000,000	10,000,000	ND	540	3,600	ND	8,100	7,200	ND	ND	ND	ND
Benzo(a)anthracene	300,000	3,000,000	1,500	1,700	12,000	16,000	39,000	36,000	1,300	2,900	1,400	940
Benzo(a)pyrene	30,000	300,000	2,100	2,300	12,000	17,000	44,000	38,000	1,500	3,300	1,800	1,200
Benzo(b)fluoranthene	300,000	3,000,000	2,200	3,000	12,000	18,000	40,000	33,000	1,500	3,600	2,100	1,300
Benzo(g,h,i)perylene	5,000,000	10,000,000	3,000	4,300	11,000	12,000	34,000	27,000	1,700	5,500	3,000	2,300
Benzo(k)fluoranthene	3,000,000	10,000,000	1,700	1,900	9,000	14,000	39,000	31,000	1,800	2,800	1,500	930
Chrysene	3,000,000	10,000,000	1,600	1,700	11,000	15,000	41,000	33,000	1,500	2,800	1,500	890
Dibenz(a,h)anthracene	30,000	300,000	ND	ND	ND	ND	15,000	5,100	ND	ND	ND	ND
Fluoranthene	5,000,000	10,000,000	2,500	3,100	24,000	30,000	79,000	72,000	2,500	5,000	2,300	1,400
Fluorene	5,000,000	10,000,000	ND	ND	ND	ND	1,700	1,400	ND	ND	ND	ND
Indeno(1,2,3-cd)pyrene	300,000	3,000,000	2,500	3,400	9,100	11,000	32,000	24,000	1,300	4,100	2,100	1,600
Naphthalene	3,000,000	10,000,000	ND									
Phenanthrene	3,000,000	10,000,000	1,100	1,700	14,000	15,000	35,000	23,000	1,100	2,600	1,100	620
Pyrene	5,000,000	10,000,000	2,500	2,800	21,000	26,000	65,000	58,000	2,000	4,600	2,200	1,400

NOTES:

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Bolded and dark gray shaded values exceed both MCP S-3 Soil & GW-3 and MCP UCL.  
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TABLE 2

SUMMARY OF METALS, POLYCHLORINATED BIPHENYLS (PCBs),  
AND POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) IN SOIL ANALYSIS  
TOMBARELLO SITE  
LAWRENCE, MASSACHUSETTS

ANALYTES	SAMPLE NUMBER		R01-100830MB-0365	R01-100830MB-0366	R01-100830MB-0383	R01-100830MB-0384	R01-100830MB-0473	R01-100830MB-0454	R01-100830MB-0435	R01-100830MB-0434	R01-100830MB-0388	R01-100830MB-0387
	SAMPLE LOCATION		O-10	O-11	O-12	O-13	P-03	P-04	P-05	P-06	P-10	P-11
	LABORATORY NUMBER		AB11561	AB11562	AB11579	AB11580	AB11755	AB11736	AB11634	AB11633	AB11584	AB11583
	S-3 & GW-3	UCL										
<b>METALS</b>	<b>mg/Kg</b>	<b>mg/Kg</b>										
Arsenic	20	200	ND	ND	ND	ND	41	ND	33	ND	ND	74
Cadmium	30	300	ND	ND	ND	49	ND	ND	ND	ND	ND	ND
Chromium*	200	2,000	180	650	251	293	69	71	61	75	114	154
Lead	300	3,000	1,300	1,300	1,139	1,143	480	486	425	377	1,448	1,283
<b>PCBs</b>	<b>mg/Kg</b>	<b>mg/Kg</b>										
Aroclor-1242	3	100	ND									
Aroclor-1248	3	100	ND	ND	2.2	5.2	ND	ND	ND	ND	1	0.79
Aroclor-1254	3	100	4.1	4.2	2.8	3	4.1	2.6	1.8	ND	6.5	1.8
Aroclor-1260	3	100	3.7	4.4	3.5	3.5	6.5	3.7	3.4	4.2	17	2.4
Aroclor-1262	3	100	ND									
Aroclor-1268	3	100	ND									
Total PCBs	3	100	7.8	8.6	8.5	11.7	10.6	6.3	5.2	4.2	24.5	4.99
<b>PAHs</b>	<b>ug/Kg</b>	<b>ug/Kg</b>										
Acenaphthene	5,000,000	10,000,000	ND	ND	ND	ND	1,100	ND	ND	ND	ND	3,300
Acenaphthylene	10,000	10,000,000	ND									
Anthracene	5,000,000	10,000,000	ND	660	1,500	3,000	2,900	ND	ND	ND	ND	17,000
Benzo(a)anthracene	300,000	3,000,000	5,100	2,400	5,500	9,200	11,000	6,700	4,700	5,400	2,600	48,000
Benzo(a)pyrene	30,000	300,000	5,300	3,000	6,000	11,000	10,000	7,100	5,100	6,100	3,500	42,000
Benzo(b)fluoranthene	300,000	3,000,000	4,500	2,800	4,900	10,000	8,000	9,300	5,200	6,900	2,700	31,000
Benzo(g,h,i)perylene	5,000,000	10,000,000	4,800	3,900	5,600	9,900	7,400	7,200	5,200	5,600	4,300	26,000
Benzo(k)fluoranthene	3,000,000	10,000,000	4,500	2,700	5,300	10,000	7,900	4,100	4,100	ND	2,500	32,000
Chrysene	3,000,000	10,000,000	4,800	2,400	5,500	9,400	11,000	7,300	4,900	5,300	2,500	46,000
Dibenz(a,h)anthracene	30,000	300,000	ND	ND	ND	ND	1,500	ND	ND	ND	ND	ND
Fluoranthene	5,000,000	10,000,000	8,900	4,200	10,000	16,000	26,000	14,000	8,200	8,900	3,800	110,000
Fluorene	5,000,000	10,000,000	ND	ND	ND	ND	950	ND	ND	ND	ND	3,200
Indeno(1,2,3-cd)pyrene	300,000	3,000,000	3,900	3,000	4,500	8,400	6,600	6,200	4,200	5,000	3,500	25,000
Naphthalene	3,000,000	10,000,000	ND									
Phenanthrene	3,000,000	10,000,000	4,600	2,200	6,000	7,700	13,000	6,900	3,900	ND	2,000	63,000
Pyrene	5,000,000	10,000,000	8,400	4,100	9,000	15,000	18,000	12,000	7,300	8,100	3,800	89,000

NOTES:

Samples analyzed by EPA Office of Environmental Measurement and Evaluation Laboratory.  
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Metals and PCB results are reported in milligrams per Kilogram (mg/Kg).  
ND = Value is Non-Detected.  
\* = Value for total chromium listed.  
Bolded and light gray shaded values exceed MCP S-3 Soil & GW-3 Criteria.  
Bolded and dark gray shaded values exceed both MCP S-3 Soil & GW-3 and MCP UCL.  
MCP = Massachusetts Contingency Plan.  
UCL = Upper Concentration Limit.

TABLE 2

SUMMARY OF METALS, POLYCHLORINATED BIPHENYLS (PCBs),  
AND POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) IN SOIL ANALYSIS  
TOMBARELLO SITE  
LAWRENCE, MASSACHUSETTS

ANALYTES	SAMPLE NUMBER		R01-100830MB-0386	R01-100830MB-0385	R01-100830MB-0475	R01-100830MB-0456	R01-100830MB-0486	R01-100830MB-0468	R01-100830MB-0389	R01-100830MB-0390	R01-100830MB-0391	R01-100830MB-0476
	SAMPLE LOCATION		P-12	P-13	Q-03	Q-04	Q-05	Q-06	Q-10	Q-12	Q-13	R-03
	LABORATORY NUMBER		AB11582	AB11581	AB11757	AB11738	AB11768	AB11750	AB11585	AB11586	AB11587	AB11758
	S-3 & GW-3	UCL										
<b>METALS</b>	<b>mg/Kg</b>	<b>mg/Kg</b>										
Arsenic	20	200	63	74	ND	41	ND	ND	75	80	184	ND
Cadmium	30	300	22	40	ND	ND	ND	ND	22	23	29	ND
Chromium*	200	2,000	122	261	65	62	92	130	159	99	152	ND
Lead	300	3,000	1,155	1,566	490	515	290	900	1,350	1,560	2,224	340
<b>PCBs</b>	<b>mg/Kg</b>	<b>mg/Kg</b>										
Aroclor-1242	3	100	ND									
Aroclor-1248	3	100	2.1	ND	ND	ND	ND	1.3	ND	1.2	ND	ND
Aroclor-1254	3	100	4.9	7.7	2.8	4	1.3	6	3.1	1.8	6.3	5
Aroclor-1260	3	100	12	57	2.6	4	2.1	3.2	4.4	2.1	4	2.2
Aroclor-1262	3	100	ND									
Aroclor-1268	3	100	ND									
Total PCBs	3	100	19	64.7	5.4	8	3.4	10.5	7.5	5.1	10.3	7.2
<b>PAHs</b>	<b>ug/Kg</b>	<b>ug/Kg</b>										
Acenaphthene	5,000,000	10,000,000	ND	ND	ND	950	ND	ND	ND	ND	450	1,100
Acenaphthylene	10,000	10,000,000	ND	2,800	360	ND						
Anthracene	5,000,000	10,000,000	1,700	2,500	810	3,000	ND	ND	2,200	7,700	2,100	4,400
Benzo(a)anthracene	300,000	3,000,000	5,600	9,700	3,300	11,000	1,600	2,300	6,800	28,000	7,800	11,000
Benzo(a)pyrene	30,000	300,000	6,100	11,000	3,200	11,000	2,000	2,700	7,900	30,000	7,700	10,000
Benzo(b)fluoranthene	300,000	3,000,000	4,700	11,000	2,800	11,000	2,600	3,000	7,400	22,000	7,000	9,400
Benzo(g,h,i)perylene	5,000,000	10,000,000	6,000	9,100	2,400	9,500	2,800	3,200	8,600	24,000	7,300	6,400
Benzo(k)fluoranthene	3,000,000	10,000,000	5,900	7,500	2,900	9,000	1,600	2,500	6,500	29,000	7,200	8,000
Chrysene	3,000,000	10,000,000	5,300	9,200	3,300	11,000	1,800	2,600	6,700	27,000	8,000	10,000
Dibenz(a,h)anthracene	30,000	300,000	ND	ND	ND	ND	ND	620	1,700	4,400	1,100	1,400
Fluoranthene	5,000,000	10,000,000	9,700	19,000	7,600	21,000	3,100	5,100	14,000	50,000	17,000	27,000
Fluorene	5,000,000	10,000,000	ND	ND	ND	870	ND	ND	ND	1,800	500	1,800
Indeno(1,2,3-cd)pyrene	300,000	3,000,000	5,000	7,900	2,100	8,600	2,200	2,600	7,100	21,000	6,100	6,000
Naphthalene	3,000,000	10,000,000	ND	360	ND							
Phenanthrene	3,000,000	10,000,000	5,600	9,900	3,200	11,000	ND	2,000	10,000	24,000	8,900	15,000
Pyrene	5,000,000	10,000,000	8,900	16,000	5,300	18,000	2,400	3,600	12,000	47,000	14,000	19,000

NOTES:

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Metals and PCB results are reported in milligrams per Kilogram (mg/Kg).  
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\* = Value for total chromium listed.  
Bolded and light gray shaded values exceed MCP S-3 Soil & GW-3 Criteria.  
Bolded and dark gray shaded values exceed both MCP S-3 Soil & GW-3 and MCP UCL.  
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TABLE 2

SUMMARY OF METALS, POLYCHLORINATED BIPHENYLS (PCBs),  
AND POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) IN SOIL ANALYSIS  
TOMBARELLO SITE  
LAWRENCE, MASSACHUSETTS

ANALYTES	SAMPLE NUMBER		R01-100830MB-0457	R01-100830MB-0487	R01-100830MB-0467	R01-100830MB-0469	R01-100830MB-0353	R01-100830MB-0405	R01-100830MB-0392	R01-100830MB-0393	R01-100830MB-0516	R01-100830MB-0477
	SAMPLE LOCATION		R-04	R-05	R-06	R-07	R-08	R-10	R-11	R-12	R-13	S-03
	LABORATORY NUMBER		AB11739	AB11769	AB11749	AB11751	AB11549	AB11605	AB11588	AB11589	AB11841	AB11759
	S-3 & GW-3	UCL										
<b>METALS</b>	<b>mg/Kg</b>	<b>mg/Kg</b>										
Arsenic	20	200	ND	ND	ND	79	52	ND	63	ND	ND	27
Cadmium	30	300	ND	11	ND	18	ND	ND	26	ND	ND	ND
Chromium*	200	2,000	54	36	81	220	140	282	270	162	233	76
Lead	300	3,000	483	250	950	1,600	850	1,394	1,068	5,830	1,565	297
<b>PCBs</b>	<b>mg/Kg</b>	<b>mg/Kg</b>										
Aroclor-1242	3	100	ND									
Aroclor-1248	3	100	ND	ND	ND	ND	ND	ND	4.1	6.9	8.8	ND
Aroclor-1254	3	100	3.2	1.2	4.6	ND	2.1	3.2	2.7	4.1	11	1.5
Aroclor-1260	3	100	3.4	1.1	5.2	24	3.4	2.7	3.3	4.8	19	3.3
Aroclor-1262	3	100	ND									
Aroclor-1268	3	100	ND									
Total PCBs	3	100	6.6	2.3	9.8	24	5.5	5.9	10.1	15.8	38.8	4.8
<b>PAHs</b>	<b>ug/Kg</b>	<b>ug/Kg</b>										
Acenaphthene	5,000,000	10,000,000	770	ND	ND	ND	ND	ND	ND	1,400	ND	ND
Acenaphthylene	10,000	10,000,000	ND	560	ND	ND						
Anthracene	5,000,000	10,000,000	5,000	ND	ND	ND	ND	1,100	1,400	3,800	4,800	2,800
Benzo(a)anthracene	300,000	3,000,000	22,000	1,800	6,700	5,400	3,900	3,700	5,700	13,000	14,000	7,300
Benzo(a)pyrene	30,000	300,000	23,000	2,300	7,400	6,100	3,500	4,200	7,100	13,000	13,000	6,400
Benzo(b)fluoranthene	300,000	3,000,000	22,000	2,200	8,300	5,400	2,900	4,600	6,800	13,000	13,000	5,900
Benzo(g,h,i)perylene	5,000,000	10,000,000	17,000	3,300	5,800	5,900	2,900	4,300	8,400	12,000	10,000	3,900
Benzo(k)fluoranthene	3,000,000	10,000,000	16,000	2,500	5,900	4,700	3,800	4,300	4,200	12,000	10,000	5,100
Chrysene	3,000,000	10,000,000	20,000	2,000	6,500	5,600	4,000	3,800	5,600	12,000	14,000	7,100
Dibenz(a,h)anthracene	30,000	300,000	3,200	ND	1,800	ND						
Fluoranthene	5,000,000	10,000,000	42,000	3,600	13,000	12,000	7,700	6,800	9,900	24,000	30,000	19,000
Fluorene	5,000,000	10,000,000	950	ND	ND	ND	ND	ND	ND	1,400	1,600	1,200
Indeno(1,2,3-cd)pyrene	300,000	3,000,000	15,000	2,500	4,900	5,100	2,400	3,600	6,900	10,000	8,900	3,800
Naphthalene	3,000,000	10,000,000	ND	980	ND	ND						
Phenanthrene	3,000,000	10,000,000	15,000	1,300	6,200	4,100	4,900	3,600	4,800	15,000	17,000	13,000
Pyrene	5,000,000	10,000,000	36,000	2,800	10,000	8,400	6,800	6,500	9,300	21,000	24,000	13,000

NOTES:

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Bolded and light gray shaded values exceed MCP S-3 Soil & GW-3 Criteria.  
Bolded and dark gray shaded values exceed both MCP S-3 Soil & GW-3 and MCP UCL.  
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TABLE 2

SUMMARY OF METALS, POLYCHLORINATED BIPHENYLS (PCBs),  
AND POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) IN SOIL ANALYSIS  
TOMBARELLO SITE  
LAWRENCE, MASSACHUSETTS

ANALYTES	SAMPLE NUMBER		R01-100830MB-0458	R01-100830MB-0443	R01-100830MB-0442	R01-100830MB-0485	R01-100830MB-0466	R01-100830MB-0470	R01-100830MB-0441	R01-100830MB-0354	R01-100830MB-0440	R01-100830MB-0398
	SAMPLE LOCATION		S-04	S-04-01	S-04-02	S-05	S-06	S-07	S-07-01	S-08	S-08-01	S-09
	LABORATORY NUMBER		AB11740	AB11725	AB11724	AB11767	AB11748	AB11752	AB11723	AB11550	AB11722	AB11594
	S-3 & GW-3	UCL										
<b>METALS</b>	<b>mg/Kg</b>	<b>mg/Kg</b>										
Arsenic	20	200	ND	266	ND	ND	47	64	ND	ND	ND	36
Cadmium	30	300	ND	ND	ND	ND	16	ND	58	36	ND	ND
Chromium*	200	2,000	64	178	48	57	100	41	ND	170	147	1,265
Lead	300	3,000	415	1,277	604	470	920	1,200	244	2,100	716	484
<b>PCBs</b>	<b>mg/Kg</b>	<b>mg/Kg</b>										
Aroclor-1242	3	100	ND									
Aroclor-1248	3	100	ND									
Aroclor-1254	3	100	ND	ND	ND	1.1	2.6	2	ND	11	18	0.97
Aroclor-1260	3	100	3.6	11	1.6	1.3	5.1	1.9	1.3	7.4	5.2	1.3
Aroclor-1262	3	100	ND									
Aroclor-1268	3	100	ND									
Total PCBs	3	100	3.6	11	1.6	2.4	7.7	3.9	1.3	18.4	23.2	2.27
<b>PAHs</b>	<b>ug/Kg</b>	<b>ug/Kg</b>										
Acenaphthene	5,000,000	10,000,000	ND	170								
Acenaphthylene	10,000	10,000,000	ND	290								
Anthracene	5,000,000	10,000,000	1,200	ND	3,500	ND	ND	2,300	ND	ND	1,200	850
Benzo(a)anthracene	300,000	3,000,000	5,300	2,100	18,000	2,500	3,100	5,200	11,000	7,100	5,100	3,700
Benzo(a)pyrene	30,000	300,000	6,100	2,400	6,100	3,200	3,300	5,400	11,000	7,600	5,700	3,600
Benzo(b)fluoranthene	300,000	3,000,000	5,100	2,400	19,000	3,700	ND	4,800	12,000	7,600	5,000	3,400
Benzo(g,h,i)perylene	5,000,000	10,000,000	6,700	3,700	16,000	3,900	3,500	5,000	8,900	7,100	6,000	2,900
Benzo(k)fluoranthene	3,000,000	10,000,000	5,000	1,900	14,000	2,500	3,200	4,400	9,200	7,700	4,800	3,200
Chrysene	3,000,000	10,000,000	5,200	2,200	17,000	2,700	2,900	5,900	10,000	7,300	4,900	3,500
Dibenz(a,h)anthracene	30,000	300,000	2,200	ND	560							
Fluoranthene	5,000,000	10,000,000	9,900	3,800	34,000	4,500	5,300	10,000	22,000	14,000	9,900	6,300
Fluorene	5,000,000	10,000,000	ND	ND	930	ND	ND	ND	ND	ND	ND	170
Indeno(1,2,3-cd)pyrene	300,000	3,000,000	5,300	2,800	13,000	3,100	ND	ND	7,300	5,700	4,700	2,700
Naphthalene	3,000,000	10,000,000	ND									
Phenanthrene	3,000,000	10,000,000	4,100	1,700	13,000	1,700	ND	6,400	8,100	8,200	4,400	2,700
Pyrene	5,000,000	10,000,000	8,700	3,400	30,000	3,500	4,200	8,000	18,000	13,000	8,300	5,300

NOTES:

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Metals and PCB results are reported in milligrams per Kilogram (mg/Kg).  
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Bolded and light gray shaded values exceed MCP S-3 Soil & GW-3 Criteria.  
Bolded and dark gray shaded values exceed both MCP S-3 Soil & GW-3 and MCP UCL.  
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TABLE 2

SUMMARY OF METALS, POLYCHLORINATED BIPHENYLS (PCBs),  
AND POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) IN SOIL ANALYSIS  
TOMBARELLO SITE  
LAWRENCE, MASSACHUSETTS

ANALYTES	SAMPLE NUMBER		R01-100830MB-0404	R01-100830MB-0496	R01-100830MB-0512	R01-100830MB-0515	R01-100830MB-0478	R01-100830MB-0459	R01-100830MB-0484	R01-100830MB-0397	R01-100830MB-0403	R01-100830MB-0495
	SAMPLE LOCATION		S-10	S-11	S-12	S-13	T-03	T-04	T-05	T-09	T-10	T-11
	LABORATORY NUMBER		AB11604	AB11778	AB11837	AB11840	AB11760	AB11741	AB11766	AB11593	AB11603	AB11777
	S-3 & GW-3	UCL										
<b>METALS</b>	<b>mg/Kg</b>	<b>mg/Kg</b>										
Arsenic	20	200	ND	ND	ND	58	88	ND	31	176	ND	ND
Cadmium	30	300	ND	37	ND	20						
Chromium*	200	2,000	239	150	1,240	278	130	84	41	291	38	190
Lead	300	3,000	2,178	970	1,398	1,468	850	409	370	4,992	512	1,400
<b>PCBs</b>	<b>mg/Kg</b>	<b>mg/Kg</b>										
Aroclor-1242	3	100	ND									
Aroclor-1248	3	100	ND	9	13	5.9	ND	ND	ND	2.2	ND	ND
Aroclor-1254	3	100	2	4.2	4.1	11	1.8	ND	0.94	8.8	3.6	2.5
Aroclor-1260	3	100	1.8	2.3	3.1	14	2.6	1.1	1.6	4	3.5	2.1
Aroclor-1262	3	100	ND									
Aroclor-1268	3	100	ND									
Total PCBs	3	100	3.8	15.5	20.2	30.9	4.4	1.1	2.54	15	7.1	4.6
<b>PAHs</b>	<b>ug/Kg</b>	<b>ug/Kg</b>										
Acenaphthene	5,000,000	10,000,000	ND	240	3,900	ND						
Acenaphthylene	10,000	10,000,000	ND	290	ND	ND						
Anthracene	5,000,000	10,000,000	1,000	3,400	ND	4,500	860	1,900	ND	2,000	12,000	ND
Benzo(a)anthracene	300,000	3,000,000	4,800	12,000	2,700	15,000	3,000	7,500	3,300	8,600	33,000	2,700
Benzo(a)pyrene	30,000	300,000	5,500	13,000	2,900	15,000	2,800	8,200	4,000	7,000	30,000	2,800
Benzo(b)fluoranthene	300,000	3,000,000	5,900	10,000	3,300	15,000	2,500	6,700	4,200	7,200	29,000	2,800
Benzo(g,h,i)perylene	5,000,000	10,000,000	5,700	11,000	3,300	13,000	2,100	9,100	4,600	6,100	20,000	3,200
Benzo(k)fluoranthene	3,000,000	10,000,000	4,400	11,000	2,000	10,000	2,200	7,000	4,900	6,200	24,000	2,400
Chrysene	3,000,000	10,000,000	4,900	11,000	2,900	15,000	2,800	7,300	3,300	8,600	32,000	2,600
Dibenz(a,h)anthracene	30,000	300,000	ND	ND	ND	ND	ND	3,000	ND	940	ND	ND
Fluoranthene	5,000,000	10,000,000	8,500	25,000	4,800	32,000	6,900	14,000	6,500	17,000	71,000	5,200
Fluorene	5,000,000	10,000,000	ND	340	4,100	ND						
Indeno(1,2,3-cd)pyrene	300,000	3,000,000	4,900	9,700	2,700	10,000	1,800	6,900	3,900	5,600	18,000	2,500
Naphthalene	3,000,000	10,000,000	ND	250	2,100	ND						
Phenanthrene	3,000,000	10,000,000	3,800	11,000	2,100	17,000	2,900	6,000	2,400	6,500	52,000	2,300
Pyrene	5,000,000	10,000,000	8,000	19,000	4,200	27,000	4,800	13,000	5,000	14,000	59,000	4,100

NOTES:

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TABLE 2

SUMMARY OF METALS, POLYCHLORINATED BIPHENYLS (PCBs),  
AND POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) IN SOIL ANALYSIS  
TOMBARELLO SITE  
LAWRENCE, MASSACHUSETTS

ANALYTES	SAMPLE NUMBER		R01-100830MB-0528	R01-100830MB-0499	R01-100830MB-0531	R01-100830MB-0533	R01-100830MB-0534	R01-100830MB-0513	R01-100830MB-0479	R01-100830MB-0460	R01-100830MB-0483	R01-100830MB-0471
	SAMPLE LOCATION		T-11-01	T-12	T-12-01	T-12-02	T-12-03	T-13	U-03	U-04	U-05	U-07
	LABORATORY NUMBER		AB11853	AB11781	AB11856	AB11858	AB11859	AB11838	AB11761	AB11742	AB11765	AB11753
	S-3 & GW-3	UCL										
<b>METALS</b>	<b>mg/Kg</b>	<b>mg/Kg</b>										
Arsenic	20	200	54	83	ND							
Cadmium	30	300	ND	25	ND							
Chromium*	200	2,000	236	110	204	216	179	116	40	87	35	74
Lead	300	3,000	1,012	1,900	1,542	1,347	1,289	1,604	360	369	180	530
<b>PCBs</b>	<b>mg/Kg</b>	<b>mg/Kg</b>										
Aroclor-1242	3	100	ND									
Aroclor-1248	3	100	ND	4.5	5.8	8.6	7.4	ND	ND	ND	ND	ND
Aroclor-1254	3	100	2.6	6.5	8.6	5.1	6.8	5.4	ND	0.93	ND	1.5
Aroclor-1260	3	100	2.4	3.2	3.1	2.5	2.8	7.8	0.98	1.2	ND	1.6
Aroclor-1262	3	100	ND									
Aroclor-1268	3	100	ND									
Total PCBs	3	100	5	14.2	17.5	16.2	17	13.2	0.98	2.13	ND	3.1
<b>PAHs</b>	<b>ug/Kg</b>	<b>ug/Kg</b>										
Acenaphthene	5,000,000	10,000,000	ND	3,500	ND							
Acenaphthylene	10,000	10,000,000	ND									
Anthracene	5,000,000	10,000,000	1,300	ND	2,000	1,500	1,100	2,700	ND	ND	16,000	4,700
Benzo(a)anthracene	300,000	3,000,000	5,100	4,600	7,900	4,800	4,900	10,000	10,000	4,200	56,000	21,000
Benzo(a)pyrene	30,000	300,000	5,100	4,900	7,700	4,700	5,000	11,000	12,000	4,500	57,000	19,000
Benzo(b)fluoranthene	300,000	3,000,000	5,400	4,500	8,200	5,000	5,600	9,700	11,000	4,900	53,000	17,000
Benzo(g,h,i)perylene	5,000,000	10,000,000	5,200	5,800	6,600	4,700	5,600	9,700	7,400	4,400	38,000	14,000
Benzo(k)fluoranthene	3,000,000	10,000,000	3,700	4,700	6,800	3,100	4,600	8,500	6,900	4,600	40,000	17,000
Chrysene	3,000,000	10,000,000	5,100	4,500	7,500	4,700	5,000	10,000	10,000	4,200	54,000	19,000
Dibenz(a,h)anthracene	30,000	300,000	ND	ND	2,400	1,500	2,200	ND	ND	ND	ND	4,800
Fluoranthene	5,000,000	10,000,000	9,700	8,600	16,000	9,300	9,500	21,000	19,000	8,800	130,000	37,000
Fluorene	5,000,000	10,000,000	ND	4,500	ND							
Indeno(1,2,3-cd)pyrene	300,000	3,000,000	4,100	4,600	5,400	3,800	4,400	7,900	6,500	3,900	34,000	13,000
Naphthalene	3,000,000	10,000,000	1,500	ND								
Phenanthrene	3,000,000	10,000,000	4,700	3,900	8,300	5,200	4,800	11,000	8,400	2,900	53,000	17,000
Pyrene	5,000,000	10,000,000	8,500	6,700	14,000	8,100	8,500	17,000	17,000	5,900	92,000	30,000

NOTES:

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Metals and PCB results are reported in milligrams per Kilogram (mg/Kg).  
ND = Value is Non-Detected.  
\* = Value for total chromium listed.  
Bolded and light gray shaded values exceed MCP S-3 Soil & GW-3 Criteria.  
Bolded and dark gray shaded values exceed both MCP S-3 Soil & GW-3 and MCP UCL.  
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UCL = Upper Concentration Limit.

TABLE 2

SUMMARY OF METALS, POLYCHLORINATED BIPHENYLS (PCBs),  
AND POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) IN SOIL ANALYSIS  
TOMBARELLO SITE  
LAWRENCE, MASSACHUSETTS

ANALYTES	SAMPLE NUMBER		R01-100830MB-0396	R01-100830MB-0453	R01-100830MB-0402	R01-100830MB-0450	R01-100830MB-0452	R01-100830MB-0494	R01-100830MB-0529	R01-100830MB-0530	R01-100830MB-0500	R01-100830MB-0535
	SAMPLE LOCATION		U-09	U-09-01	U-10	U-10-01	U-10-02	U-11	U-11-01	U-11-02	U-12	U-12-01
	LABORATORY NUMBER		AB11592	AB11735	AB11602	AB11732	AB11734	AB11776	AB11854	AB11855	AB11825	AB11860
	S-3 & GW-3	UCL										
<b>METALS</b>	<b>mg/Kg</b>	<b>mg/Kg</b>										
Arsenic	20	200	168	135	ND	102	235	ND	60	ND	52	ND
Cadmium	30	300	42	32	ND	34	31	20	ND	ND	ND	ND
Chromium*	200	2,000	324	237	273	255	223	100	195	288	185	254
Lead	300	3,000	2,328	3,133	1,797	2,151	4,332	1,100	1,184	1,092	900	1,377
<b>PCBs</b>	<b>mg/Kg</b>	<b>mg/Kg</b>										
Aroclor-1242	3	100	ND									
Aroclor-1248	3	100	1.9	ND	1.5	ND	ND	4.2	ND	1.1	3.7	5.1
Aroclor-1254	3	100	5.6	9	1	26	11	6.9	5.7	2.9	4.9	5.6
Aroclor-1260	3	100	2	2.5	2.1	ND	3	8	12	2.4	2.5	2.7
Aroclor-1262	3	100	ND									
Aroclor-1268	3	100	ND									
Total PCBs	3	100	9.5	11.5	4.6	26	14	19.1	17.7	6.4	11.1	13.4
<b>PAHs</b>	<b>ug/Kg</b>	<b>ug/Kg</b>										
Acenaphthene	5,000,000	10,000,000	180	ND								
Acenaphthylene	10,000	10,000,000	350	ND								
Anthracene	5,000,000	10,000,000	1,200	4,000	990	ND	1,200	2,000	1,000	ND	ND	1,400
Benzo(a)anthracene	300,000	3,000,000	3,800	8,600	4,300	1,800	6,200	7,600	4,500	4,300	1,800	5,200
Benzo(a)pyrene	30,000	300,000	3,800	8,000	4,800	2,000	6,000	7,800	4,800	5,000	2,100	5,400
Benzo(b)fluoranthene	300,000	3,000,000	3,700	8,900	6,100	3,500	7,000	8,100	4,400	5,200	1,900	4,600
Benzo(g,h,i)perylene	5,000,000	10,000,000	3,900	6,400	5,000	2,300	5,400	8,400	4,900	5,900	3,000	5,300
Benzo(k)fluoranthene	3,000,000	10,000,000	3,200	5,000	5,500	4,000	5,600	7,200	4,200	4,400	2,000	3,400
Chrysene	3,000,000	10,000,000	3,600	8,400	4,100	1,800	6,200	7,600	4,900	4,300	1,700	5,000
Dibenz(a,h)anthracene	30,000	300,000	ND	1,300	ND	ND	1,000	ND	ND	ND	ND	ND
Fluoranthene	5,000,000	10,000,000	7,900	16,000	7,600	3,400	11,000	16,000	9,200	7,400	3,200	9,800
Fluorene	5,000,000	10,000,000	280	1,000	ND							
Indeno(1,2,3-cd)pyrene	300,000	3,000,000	3,300	4,500	ND	960	4,700	7,200	3,900	4,500	2,200	4,100
Naphthalene	3,000,000	10,000,000	ND									
Phenanthrene	3,000,000	10,000,000	4,500	10,000	3,400	1,400	4,400	7,300	4,500	2,900	2,000	4,900
Pyrene	5,000,000	10,000,000	6,500	13,000	7,100	2,600	9,500	12,000	7,800	6,900	2,800	8,500

NOTES:

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TABLE 2

SUMMARY OF METALS, POLYCHLORINATED BIPHENYLS (PCBs),  
AND POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) IN SOIL ANALYSIS  
TOMBARELLO SITE  
LAWRENCE, MASSACHUSETTS

ANALYTES	SAMPLE NUMBER		R01-100830MB-0536	R01-100830MB-0502	R01-100830MB-0537	R01-100830MB-0461	R01-100830MB-0482	R01-100830MB-0472	R01-100830MB-0367	R01-100830MB-0395	R01-100830MB-0401	R01-100830MB-0490
	SAMPLE LOCATION		U-12-02	U-13	U-13-01	V-04	V-05	V-07	V-08	V-09	V-10	V-11
	LABORATORY NUMBER		AB11861	AB11827	AB11862	AB11743	AB11764	AB11754	AB11563	AB11591	AB11597	AB11772
	S-3 & GW-3	UCL										
<b>METALS</b>	<b>mg/Kg</b>	<b>mg/Kg</b>										
Arsenic	20	200	ND	76	ND	40	32	ND	ND	117	ND	69
Cadmium	30	300	ND	ND	ND	ND	ND	ND	25	20	ND	23
Chromium*	200	2,000	322	174	224	87	120	120	200	201	179	160
Lead	300	3,000	2,016	920	1,537	445	390	750	1,600	1,997	730	900
<b>PCBs</b>	<b>mg/Kg</b>	<b>mg/Kg</b>										
Aroclor-1242	3	100	ND									
Aroclor-1248	3	100	9.9	18	16	ND	ND	ND	ND	4	0.91	1.4
Aroclor-1254	3	100	7.9	5.4	6	1.5	1	1.4	1.6	5	1.9	3.5
Aroclor-1260	3	100	2.8	2.9	2.3	1.4	1.2	1.2	ND	5	2.6	3
Aroclor-1262	3	100	ND									
Aroclor-1268	3	100	ND									
Total PCBs	3	100	20.6	26.3	24.3	2.9	2.2	2.6	1.6	14	5.41	7.9
<b>PAHs</b>	<b>ug/Kg</b>	<b>ug/Kg</b>										
Acenaphthene	5,000,000	10,000,000	1,100	47,000	ND	ND	ND	ND	ND	330	260	ND
Acenaphthylene	10,000	10,000,000	ND	480	580	ND						
Anthracene	5,000,000	10,000,000	3,500	80,000	ND	ND	1,700	1,700	ND	1,400	1,400	ND
Benzo(a)anthracene	300,000	3,000,000	9,200	120,000	2,800	14,000	8,500	6,600	7,800	5,600	5,800	2,700
Benzo(a)pyrene	30,000	300,000	8,700	90,000	3,100	13,000	9,300	7,300	8,400	6,100	7,100	3,200
Benzo(b)fluoranthene	300,000	3,000,000	8,100	89,000	3,500	9,700	9,500	6,100	7,300	6,700	7,500	3,800
Benzo(g,h,i)perylene	5,000,000	10,000,000	8,000	52,000	4,000	9,800	8,100	8,200	6,600	7,200	8,000	4,000
Benzo(k)fluoranthene	3,000,000	10,000,000	7,300	62,000	1,900	15,000	7,000	6,100	7,000	5,200	5,700	3,000
Chrysene	3,000,000	10,000,000	8,500	110,000	2,800	14,000	8,700	6,400	7,100	5,600	5,800	2,900
Dibenz(a,h)anthracene	30,000	300,000	2,900	ND	ND	4,700	ND	ND	ND	ND	ND	ND
Fluoranthene	5,000,000	10,000,000	20,000	260,000	5,300	29,000	17,000	15,000	15,000	10,000	9,900	5,600
Fluorene	5,000,000	10,000,000	1,200	44,000	ND	ND	ND	ND	ND	360	330	ND
Indeno(1,2,3-cd)pyrene	300,000	3,000,000	6,500	47,000	3,000	8,300	7,000	7,000	5,800	6,000	6,700	3,300
Naphthalene	3,000,000	10,000,000	ND	25,000	ND	ND	ND	ND	ND	330	370	ND
Phenanthrene	3,000,000	10,000,000	13,000	260,000	2,800	14,000	6,100	5,600	8,200	5,200	4,400	2,200
Pyrene	5,000,000	10,000,000	16,000	210,000	4,800	21,000	13,000	11,000	14,000	9,000	8,700	4,400

NOTES:

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Metals and PCB results are reported in milligrams per Kilogram (mg/Kg).  
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\* = Value for total chromium listed.  
Bolded and light gray shaded values exceed MCP S-3 Soil & GW-3 Criteria.  
Bolded and dark gray shaded values exceed both MCP S-3 Soil & GW-3 and MCP UCL.  
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TABLE 2

SUMMARY OF METALS, POLYCHLORINATED BIPHENYLS (PCBs),  
AND POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) IN SOIL ANALYSIS  
TOMBARELLO SITE  
LAWRENCE, MASSACHUSETTS

ANALYTES	SAMPLE NUMBER		R01-100830MB-0498	R01-100830MB-0538	R01-100830MB-0539	R01-100830MB-0501	R01-100830MB-0462	R01-100830MB-0481	R01-100830MB-0444	R01-100830MB-0465	R01-100830MB-0446	R01-100830MB-0491
	SAMPLE LOCATION		V-12	V-12-01	V-12-02	V-13	W-04	W-05	W-05-01	W-06	W-06-01	W-07
	LABORATORY NUMBER		AB11780	AB11863	AB11864	AB11826	AB11744	AB11763	AB11726	AB11747	AB11728	AB11773
	S-3 & GW-3	UCL										
<b>METALS</b>	<b>mg/Kg</b>	<b>mg/Kg</b>										
Arsenic	20	200	92	50	ND	49	54	ND	ND	48	75	120
Cadmium	30	300	ND	23								
Chromium*	200	2,000	150	499	482	207	192	36	64	106	103	130
Lead	300	3,000	1,200	1,247	1,478	1,176	572	450	490	900	906	1,300
<b>PCBs</b>	<b>mg/Kg</b>	<b>mg/Kg</b>										
Aroclor-1242	3	100	ND									
Aroclor-1248	3	100	3.2	4.3	2.1	30	ND	ND	ND	2.3	1.1	23
Aroclor-1254	3	100	5.8	4.1	3.7	8.1	1.8	1.6	ND	2.2	2.3	6
Aroclor-1260	3	100	4.4	2.3	3.4	2.9	2	2.6	8.9	2.1	2.2	3.2
Aroclor-1262	3	100	ND									
Aroclor-1268	3	100	ND									
Total PCBs	3	100	13.4	10.7	9.2	41	3.8	4.2	8.9	6.6	5.6	32.2
<b>PAHs</b>	<b>ug/Kg</b>	<b>ug/Kg</b>										
Acenaphthene	5,000,000	10,000,000	ND	2,700	1,600	ND	ND	ND	5,800	ND	ND	ND
Acenaphthylene	10,000	10,000,000	ND	ND	ND	ND	ND	ND	1,600	ND	ND	ND
Anthracene	5,000,000	10,000,000	ND	8,800	4,000	1,737	ND	ND	24,000	7,100	7,800	ND
Benzo(a)anthracene	300,000	3,000,000	4,800	14,000	11,000	5,790	6,800	5,400	26,000	11,000	24,000	3,700
Benzo(a)pyrene	30,000	300,000	5,600	11,000	9,900	5,864	7,000	5,600	18,000	9,800	26,000	3,500
Benzo(b)fluoranthene	300,000	3,000,000	6,000	11,000	9,100	5,548	6,800	5,400	16,000	13,000	20,000	3,500
Benzo(g,h,i)perylene	5,000,000	10,000,000	6,000	7,600	7,900	5,973	5,400	5,200	8,700	7,700	29,000	3,000
Benzo(k)fluoranthene	3,000,000	10,000,000	5,100	6,900	7,700	4,674	5,700	4,500	15,000	5,300	19,000	2,200
Chrysene	3,000,000	10,000,000	4,800	13,000	10,000	5,829	6,800	5,100	23,000	11,000	24,000	3,700
Dibenz(a,h)anthracene	30,000	300,000	ND									
Fluoranthene	5,000,000	10,000,000	9,900	36,000	22,000	11,661	13,000	11,000	77,000	28,000	50,000	7,500
Fluorene	5,000,000	10,000,000	ND	4,100	1,500	ND	ND	ND	11,000	ND	ND	ND
Indeno(1,2,3-cd)pyrene	300,000	3,000,000	4,900	6,800	6,500	5,014	5,100	4,100	8,800	6,400	23,000	2,500
Naphthalene	3,000,000	10,000,000	ND	1,900	1,100	ND	ND	ND	1,300	ND	ND	ND
Phenanthrene	3,000,000	10,000,000	4,500	33,000	16,000	7,124	8,800	3,500	83,000	32,000	31,000	3,400
Pyrene	5,000,000	10,000,000	7,400	29,000	18,000	9,565	9,800	7,700	49,000	21,000	40,000	5,600

NOTES:

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Bolded and light gray shaded values exceed MCP S-3 Soil & GW-3 Criteria.  
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TABLE 2

SUMMARY OF METALS, POLYCHLORINATED BIPHENYLS (PCBs),  
AND POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) IN SOIL ANALYSIS  
TOMBARELLO SITE  
LAWRENCE, MASSACHUSETTS

ANALYTES	SAMPLE NUMBER		R01-100830MB-0368	R01-100830MB-0394	R01-100830MB-0527	R01-100830MB-0526	R01-100830MB-0525	R01-100830MB-0400	R01-100830MB-0489	R01-100830MB-0497	R01-100830MB-0463	R01-100830MB-0480
	SAMPLE LOCATION		W-08	W-09	W-09-01	W-09-02	W-09-03	W-10	W-11	W-12	X-04	X-05
	LABORATORY NUMBER		AB11564	AB11590	AB11852	AB11851	AB11850	AB11596	AB11771	AB11779	AB11745	AB11762
	S-3 & GW-3	UCL										
<b>METALS</b>	<b>mg/Kg</b>	<b>mg/Kg</b>										
Arsenic	20	200	ND	ND	ND	ND	101	97	ND	ND	ND	51
Cadmium	30	300	ND	17	ND	ND	ND	35	27	25	18	ND
Chromium*	200	2,000	110	125	230	190	577	258	190	830	122	120
Lead	300	3,000	1,400	877	1,234	895	1,267	1,624	1,600	1,000	1,108	590
<b>PCBs</b>	<b>mg/Kg</b>	<b>mg/Kg</b>										
Aroclor-1242	3	100	ND									
Aroclor-1248	3	100	ND	ND	1.1	ND	ND	6.1	1.9	1.7	ND	ND
Aroclor-1254	3	100	2.1	0.92	2.4	1.5	1.8	5	4.1	5.5	2.1	ND
Aroclor-1260	3	100	1.7	1.2	1.6	1.4	1.2	4.7	2.2	4.6	6.5	8.1
Aroclor-1262	3	100	ND									
Aroclor-1268	3	100	ND									
Total PCBs	3	100	3.8	2.12	5.1	2.9	3	15.8	8.2	11.8	8.6	8.1
<b>PAHs</b>	<b>ug/Kg</b>	<b>ug/Kg</b>										
Acenaphthene	5,000,000	10,000,000	ND	720	ND							
Acenaphthylene	10,000	10,000,000	ND	190	ND	ND	ND	240	ND	ND	ND	ND
Anthracene	5,000,000	10,000,000	ND	2,200	3,400	3,200	ND	430	2,600	ND	ND	1,500
Benzo(a)anthracene	300,000	3,000,000	5,900	4,900	7,800	7,700	3,900	1,600	9,200	5,000	4,700	7,000
Benzo(a)pyrene	30,000	300,000	5,300	4,700	7,500	6,800	3,700	1,900	9,400	5,300	5,400	6,000
Benzo(b)fluoranthene	300,000	3,000,000	5,100	4,300	6,900	6,300	3,600	2,200	8,500	6,700	4,200	5,900
Benzo(g,h,i)perylene	5,000,000	10,000,000	3,900	3,800	6,400	5,200	3,600	2,900	8,200	5,200	4,500	5,000
Benzo(k)fluoranthene	3,000,000	10,000,000	4,700	3,600	5,800	5,300	3,300	2,200	8,800	5,200	5,000	5,100
Chrysene	3,000,000	10,000,000	6,000	4,700	7,200	7,100	3,600	1,600	9,800	5,400	4,400	7,000
Dibenz(a,h)anthracene	30,000	300,000	ND	670	ND	2,000	ND	ND	ND	ND	ND	ND
Fluoranthene	5,000,000	10,000,000	12,000	11,000	17,000	17,000	7,400	2,900	20,000	12,000	8,900	14,000
Fluorene	5,000,000	10,000,000	ND	940	1,500	ND	ND	110	ND	ND	ND	ND
Indeno(1,2,3-cd)pyrene	300,000	3,000,000	3,400	3,300	5,300	4,400	2,900	2,300	7,000	4,300	3,900	4,300
Naphthalene	3,000,000	10,000,000	ND	780	ND	ND	ND	ND	2,200	ND	ND	ND
Phenanthrene	3,000,000	10,000,000	6,800	9,200	13,000	13,000	3,500	1,500	8,800	5,900	5,000	5,800
Pyrene	5,000,000	10,000,000	10,000	8,800	15,000	14,000	6,400	2,600	15,000	9,400	7,000	10,000

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AND POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) IN SOIL ANALYSIS  
TOMBARELLO SITE  
LAWRENCE, MASSACHUSETTS

ANALYTES	SAMPLE NUMBER		R01-100830MB-0445	R01-100830MB-0464	R01-100830MB-0492	R01-100830MB-0447	R01-100830MB-0448	R01-100830MB-0449	R01-100830MB-0369	R01-100830MB-0399	R01-100830MB-0521	R01-100830MB-0523
	SAMPLE LOCATION		X-05-01	X-06	X-07	X-07-01	X-07-02	X-07-03	X-08	X-10	X-10-01	X-10-02
	LABORATORY NUMBER		AB11727	AB11746	AB11774	AB11729	AB11730	AB11731	AB11565	AB11595	AB11846	AB11848
	S-3 & GW-3	UCL										
<b>METALS</b>	<b>mg/Kg</b>	<b>mg/Kg</b>										
Arsenic	20	200	ND	ND	210	123	152	110	ND	97	ND	77
Cadmium	30	300	ND	ND	ND	ND	40	41	ND	21	ND	ND
Chromium*	200	2,000	94	100	340	366	241	355	140	363	440	453
Lead	300	3,000	611	3,476	4,400	2,155	1,896	1,904	1,000	1,241	1,397	1,294
<b>PCBs</b>	<b>mg/Kg</b>	<b>mg/Kg</b>										
Aroclor-1242	3	100	ND									
Aroclor-1248	3	100	ND	1	1.2	ND	ND	ND	ND	4.5	1.5	4
Aroclor-1254	3	100	10	2.7	2.3	1.9	ND	1.8	3	7.3	7.5	8.6
Aroclor-1260	3	100	16	3.9	1.2	0.86	ND	0.83	1.1	5.2	3.4	4.3
Aroclor-1262	3	100	ND									
Aroclor-1268	3	100	ND									
Total PCBs	3	100	26	7.6	4.7	2.76	ND	2.63	4.1	17	12.4	16.9
<b>PAHs</b>	<b>ug/Kg</b>	<b>ug/Kg</b>										
Acenaphthene	5,000,000	10,000,000	ND	510	ND	ND						
Acenaphthylene	10,000	10,000,000	ND	580	ND	ND						
Anthracene	5,000,000	10,000,000	940	ND	1,700	1,500	ND	800	4,100	2,700	5,200	3,400
Benzo(a)anthracene	300,000	3,000,000	3,200	3,100	7,600	7,100	ND	3,200	17,000	7,600	18,000	15,000
Benzo(a)pyrene	30,000	300,000	3,100	3,200	7,700	7,600	ND	3,300	17,000	7,700	14,000	15,000
Benzo(b)fluoranthene	300,000	3,000,000	3,000	3,000	7,900	7,600	ND	3,500	15,000	7,400	15,000	16,000
Benzo(g,h,i)perylene	5,000,000	10,000,000	2,600	3,600	6,500	6,400	ND	2,900	12,000	7,000	9,800	12,000
Benzo(k)fluoranthene	3,000,000	10,000,000	2,300	3,100	5,600	5,600	ND	2,100	14,000	5,400	11,000	13,000
Chrysene	3,000,000	10,000,000	3,000	2,900	7,700	7,100	ND	2,900	16,000	7,100	18,000	15,000
Dibenz(a,h)anthracene	30,000	300,000	ND	ND	1,100	ND	ND	1,100	ND	ND	ND	2,400
Fluoranthene	5,000,000	10,000,000	6,800	6,000	17,000	15,000	1,100	6,100	28,000	15,000	46,000	27,000
Fluorene	5,000,000	10,000,000	ND	760	1,800	ND						
Indeno(1,2,3-cd)pyrene	300,000	3,000,000	2,300	ND	5,700	5,800	ND	2,500	10,000	6,300	8,400	9,900
Naphthalene	3,000,000	10,000,000	ND	460	ND	ND						
Phenanthrene	3,000,000	10,000,000	3,400	4,300	6,900	6,000	ND	2,700	11,000	9,400	25,000	11,000
Pyrene	5,000,000	10,000,000	5,200	4,700	12,000	12,000	ND	4,900	25,000	12,000	37,000	24,000

NOTES:

Samples analyzed by EPA Office of Environmental Measurement and Evaluation Laboratory.  
PAH results are reported in micrograms per Kilogram (µg/Kg).  
Metals and PCB results are reported in milligrams per Kilogram (mg/Kg).  
ND = Value is Non-Detected.  
\* = Value for total chromium listed.  
Bolded and light gray shaded values exceed MCP S-3 Soil & GW-3 Criteria.  
Bolded and dark gray shaded values exceed both MCP S-3 Soil & GW-3 and MCP UCL.  
MCP = Massachusetts Contingency Plan.  
UCL = Upper Concentration Limit.

TABLE 2

SUMMARY OF METALS, POLYCHLORINATED BIPHENYLS (PCBs),  
AND POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) IN SOIL ANALYSIS  
TOMBARELLO SITE  
LAWRENCE, MASSACHUSETTS

ANALYTES	SAMPLE NUMBER		R01-100830MB-0522	R01-100830MB-0524	R01-100830MB-0488	R01-100830MB-0518	R01-100830MB-0520	R01-100830MB-0519	R01-100830MB-0493	R01-100830MB-0324	R01-100830MB-0357	R01-100830MB-0343
	SAMPLE LOCATION		X-10-03	X-10-04	X-11	X-11-01	X-11-02	X-11-03	X-12	Z-00	Z-01	Z-02
	LABORATORY NUMBER		AB11847	AB11849	AB11770	AB11843	AB11845	AB11844	AB11775	AB11505	AB11553	AB11539
	S-3 & GW-3	UCL										
<b>METALS</b>	<b>mg/Kg</b>	<b>mg/Kg</b>										
Arsenic	20	200	ND	ND	ND	83	ND	64	ND	ND	ND	ND
Cadmium	30	300	ND	ND	ND	ND	ND	ND	17	ND	ND	ND
Chromium*	200	2,000	300	386	52	218	178	270	140	75	ND	50
Lead	300	3,000	1,415	1,885	410	1,457	1,110	1,391	1,300	410	540	470
<b>PCBs</b>	<b>mg/Kg</b>	<b>mg/Kg</b>										
Aroclor-1242	3	100	ND									
Aroclor-1248	3	100	7.7	11	0.85	ND	ND	1.7	2	ND	ND	ND
Aroclor-1254	3	100	7.8	13	5	21	4.9	4.1	5.4	ND	ND	ND
Aroclor-1260	3	100	4.2	4.4	2.2	4.9	3.4	1.9	3.8	ND	3	3.6
Aroclor-1262	3	100	ND									
Aroclor-1268	3	100	ND									
Total PCBs	3	100	19.7	28.4	8.05	25.9	8.3	7.7	11.2	ND	3	3.6
<b>PAHs</b>	<b>ug/Kg</b>	<b>ug/Kg</b>										
Acenaphthene	5,000,000	10,000,000	ND	960	ND	ND						
Acenaphthylene	10,000	10,000,000	ND									
Anthracene	5,000,000	10,000,000	ND	1,400	ND	1,700	1,400	ND	1,900	4,700	640	10,000
Benzo(a)anthracene	300,000	3,000,000	8,400	5,700	2,900	7,200	5,000	3,700	8,500	19,000	3,100	35,000
Benzo(a)pyrene	30,000	300,000	9,500	6,200	3,300	7,400	4,900	4,100	8,300	19,000	3,100	33,000
Benzo(b)fluoranthene	300,000	3,000,000	9,600	5,600	3,300	7,900	4,900	4,100	8,200	18,000	2,900	26,000
Benzo(g,h,i)perylene	5,000,000	10,000,000	8,800	6,300	3,400	7,200	4,900	4,200	7,100	13,000	2,900	21,000
Benzo(k)fluoranthene	3,000,000	10,000,000	6,800	4,300	2,500	5,300	3,600	3,000	8,800	15,000	2,700	27,000
Chrysene	3,000,000	10,000,000	8,600	5,600	2,900	7,000	4,900	3,800	8,100	18,000	3,000	31,000
Dibenz(a,h)anthracene	30,000	300,000	ND	2,900	ND	ND						
Fluoranthene	5,000,000	10,000,000	15,000	10,000	5,000	13,000	10,000	7,200	18,000	40,000	5,500	66,000
Fluorene	5,000,000	10,000,000	ND	970	ND	3,000						
Indeno(1,2,3-cd)pyrene	300,000	3,000,000	7,400	5,200	2,600	5,800	3,900	3,500	6,100	12,000	2,300	20,000
Naphthalene	3,000,000	10,000,000	ND									
Phenanthrene	3,000,000	10,000,000	5,600	4,500	1,300	6,400	4,800	3,500	7,600	16,000	2,800	37,000
Pyrene	5,000,000	10,000,000	14,000	8,900	4,200	12,000	8,800	6,300	13,000	30,000	5,000	53,000

NOTES:

Samples analyzed by EPA Office of Environmental Measurement and Evaluation Laboratory.  
PAH results are reported in micrograms per Kilogram (µg/Kg).  
Metals and PCB results are reported in milligrams per Kilogram (mg/Kg).  
ND = Value is Non-Detected.  
\* = Value for total chromium listed.  
Bolded and light gray shaded values exceed MCP S-3 Soil & GW-3 Criteria.  
Bolded and dark gray shaded values exceed both MCP S-3 Soil & GW-3 and MCP UCL.  
MCP = Massachusetts Contingency Plan.  
UCL = Upper Concentration Limit.

TABLE 2

**SUMMARY OF METALS, POLYCHLORINATED BIPHENYLS (PCBs),  
AND POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) IN SOIL ANALYSIS  
TOMBARELLO SITE  
LAWRENCE, MASSACHUSETTS**

ANALYTES	SAMPLE NUMBER		R01-100830MB-0378	R01-100830MB-0417	R01-100830MB-0455	R01-100830MB-0474	R01-100830MB-0451	R01-100830MB-0514	R01-100830MB-0532
	SAMPLE LOCATION		Z-03	Z-04	Z-05	Z-06	Z-07	Z-08	Z-09
	LABORATORY NUMBER		AB11574	AB11616	AB11737	AB11756	AB11733	AB11839	AB11857
	S-3 & GW-3	UCL							
<b>METALS</b>	<b>mg/Kg</b>	<b>mg/Kg</b>							
Arsenic	20	200	ND	ND	ND	82	ND	ND	ND
Cadmium	30	300	ND	ND	ND	ND	51	ND	ND
Chromium*	200	2,000	86	104	143	82	358	153	175
Lead	300	3,000	400	1,921	728	510	3,279	1,256	1,037
<b>PCBs</b>	<b>mg/Kg</b>	<b>mg/Kg</b>							
Aroclor-1242	3	100	ND						
Aroclor-1248	3	100	ND	ND	ND	ND	ND	ND	6
Aroclor-1254	3	100	ND	ND	1.9	3.7	17	7.3	9
Aroclor-1260	3	100	12	15	2.6	6.6	3.1	11	3.5
Aroclor-1262	3	100	ND						
Aroclor-1268	3	100	ND						
Total PCBs	3	100	12	15	4.5	10.3	20.1	18.3	18.5
<b>PAHs</b>	<b>ug/Kg</b>	<b>ug/Kg</b>							
Acenaphthene	5,000,000	10,000,000	ND	ND	2,900	ND	ND	1,900	ND
Acenaphthylene	10,000	10,000,000	ND						
Anthracene	5,000,000	10,000,000	ND	1,100	7,500	1,900	920	7,500	ND
Benzo(a)anthracene	300,000	3,000,000	8,200	4,700	35,000	7,400	4,200	21,000	3,600
Benzo(a)pyrene	30,000	300,000	9,900	5,300	38,000	7,100	4,200	17,000	3,900
Benzo(b)fluoranthene	300,000	3,000,000	9,600	6,800	33,000	4,400	7,100	13,812	3,500
Benzo(g,h,i)perylene	5,000,000	10,000,000	8,900	6,200	40,000	5,600	4,200	12,000	4,400
Benzo(k)fluoranthene	3,000,000	10,000,000	9,700	5,400	38,000	6,900	8,200	13,757	2,600
Chrysene	3,000,000	10,000,000	8,500	5,100	36,000	7,000	4,200	22,000	3,500
Dibenz(a,h)anthracene	30,000	300,000	ND	ND	6,600	ND	1,600	ND	ND
Fluoranthene	5,000,000	10,000,000	16,000	9,500	71,000	17,000	8,400	45,000	6,900
Fluorene	5,000,000	10,000,000	ND	ND	ND	ND	ND	2,500	ND
Indeno(1,2,3-cd)pyrene	300,000	3,000,000	7,900	5,300	32,000	4,900	3,500	10,000	3,300
Naphthalene	3,000,000	10,000,000	ND						
Phenanthrene	3,000,000	10,000,000	5,600	5,200	35,000	7,500	4,900	31,000	3,300
Pyrene	5,000,000	10,000,000	16,000	7,900	61,000	12,000	6,900	42,000	6,000

**NOTES:**

Samples analyzed by EPA Office of Environmental Measurement and Evaluation Laboratory.

PAH results are reported in micrograms per Kilogram ( $\mu\text{g}/\text{Kg}$ ).

Metals and PCB results are reported in milligrams per Kilogram ( $\text{mg}/\text{Kg}$ ).

ND = Value is Non-Detected.

\* = Value for total chromium listed.

Bolded and light gray shaded values exceed MCP S-3 Soil & GW-3 Criteria.

Bolded and dark gray shaded values exceed both MCP S-3 Soil & GW-3 and MCP UCL.

MCP = Massachusetts Contingency Plan.

UCL = Upper Concentration Limit.

## Appendix C

### Photodocumentation Log

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**PHOTODOCUMENTATION LOG**  
**Tombarello Site • Lawrence, Massachusetts**



**SCENE:** View of sign at entrance to the site. Photograph taken facing south.

**DATE:** 17 August 2010  
**PHOTOGRAPHER:** R. Sharp

**TIME:** 0911 hours  
**CAMERA:** Nikon CoolPix 4600



**SCENE:** View of the northern portion of the site. Photograph taken facing east.

**DATE:** 17 August 2010  
**PHOTOGRAPHER:** R. Sharp

**TIME:** 0923 hours  
**CAMERA:** Nikon CoolPix 4600

**PHOTODOCUMENTATION LOG**  
**Tombarello Site • Lawrence, Massachusetts**



**SCENE:** View of building along northern boundary of the site. Photograph taken facing north.

**DATE:** 17 August 2010

**TIME:** 0923 hours

**PHOTOGRAPHER:** R. Sharp

**CAMERA:** Nikon CoolPix 4600



**SCENE:** View of the central portion of the site. Photograph taken facing south.

**DATE:** 17 August 2010

**TIME:** 0923 hours

**PHOTOGRAPHER:** R. Sharp

**CAMERA:** Nikon CoolPix 4600

**PHOTODOCUMENTATION LOG**  
**Tombarello Site • Lawrence, Massachusetts**



**SCENE:** View of residences adjacent to the northern boundary of the site. Photograph taken facing northeast.

**DATE:** 17 August 2010  
**PHOTOGRAPHER:** R. Sharp

**TIME:** 0933 hours  
**CAMERA:** Nikon CoolPix 4600



**SCENE:** View of the unoccupied house located in the northwestern portion of the site. Photograph taken facing north.

**DATE:** 17 August 2010  
**PHOTOGRAPHER:** R. Sharp

**TIME:** 1005 hours  
**CAMERA:** Nikon CoolPix 4600

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## Appendix D

### Chain-of-Custody Record

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## Appendix E

Analytical Data - U.S. Environmental Protection Agency, Office of Environmental  
Measurement and Evaluation Laboratory Results

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United States Environmental Protection Agency  
Office of Environmental Measurement & Evaluation  
11 Technology Drive  
North Chelmsford, MA 01863-2431

Laboratory Report

November 09, 2010

Mike Barry - OSRR02-2  
US EPA New England R1

Project Number: 10100017  
Project: Tombarello Site - Lawrence, MA  
Analysis: PAHs in Soil  
Analyst: Dan Boudreau *DB 11/9/10*

Analytical Procedure:

All samples were received and logged in by the laboratory according to the USEPA New England Laboratory SOP for Sample Log-in.

Sample preparation and analysis was done following the EPA Region I SOP, EIASOP-BNAS3.

Samples were analyzed by a quadrupole GC/MS operating in the full-scan mode. The extraction and analysis SOPs are based on SW-846 methods 3545A, 3630C, 8270C, and EIASOP-BNAGCMS7.

Date Samples Received by the Laboratory: 10/13/2010

Data were reviewed in accordance with the internal verification procedures described in the EPA New England OEME Chemistry QA Plan.

Results relate only to the items tested or to the samples as received by the Laboratory. This analytical report shall not be reproduced except in full, without written approval of the laboratory.

Report may contain multiple sections and each section will be numbered independently.

If you have any questions please call me at 617-918-8340 .

Sincerely,

*Daniel N. Boudreau 11/10/10*  
Daniel N. Boudreau  
Chemistry Team Leader

**Qualifiers:**

RL = Reporting limit

ND = Not Detected above Reporting limit

NA = Not Applicable due to high sample dilutions or sample interferences

NC = Not calculated since analyte concentration is ND.

J = Estimated value

E = Estimated value exceeds the calibration range

L = Estimated value is below the calibration range

B = Analyte is associated with the lab blank or trip blank contamination. Values are qualified when the observed concentration of the contamination in the sample extract is less than 5 times the concentration in the blank.

R = No recovery was calculated since the analyte concentration is greater than four times the spike level.

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

Tombarello Site - Lawrence, MA

PAHs in Soil

Client Sample ID: R01-100830MB-0318  
Date of Collection: 10/12/2010  
Date of Extraction: 10/13/10  
Date of Analysis: 10/27/10  
Dry Weight Extracted: 9.84 grams  
Wet Weight Extracted: 10.56 grams  
Final Volume: 1 mL

Lab Sample ID: AB11499  
Matrix: Soil  
Volume Extracted: N/A  
Percent Solids: 93%  
Extract Dilution: 5  
pH: N/A  
GPC Factor: N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	250	
208-96-8	Acenaphthylene	ND	250	
120-12-7	Anthracene	660	250	
56-55-3	Benzo(a)anthracene	2500	250	
50-32-8	Benzo(a)pyrene	2700	250	
205-99-2	Benzo(b)fluoranthene	2600	250	
191-24-2	Benzo(g,h,i)perylene	2100	250	
207-08-9	Benzo(k)fluoranthene	2000	250	
218-01-9	Chrysene	2600	250	
53-70-3	Dibenz(a,h)anthracene	370	250	
206-44-0	Fluoranthene	5600	250	
86-73-7	Fluorene	ND	250	
193-39-5	Indeno(1,2,3-cd)pyrene	1700	250	
91-20-3	Naphthalene	ND	250	
85-01-8	Phenanthrene	2700	250	
129-00-0	Pyrene	4400	250	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	22	41 - 106
2-Fluorobiphenyl (SS1)	18	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0319	Lab Sample ID:	AB11500
Date of Collection:	10/12/2010	Matrix:	Soil
Date of Extraction:	10/13/10	Volume Extracted:	N/A
Date of Analysis:	10/27/10	Percent Solids:	86%
Dry Weight Extracted:	9.18 grams	Extract Dilution:	5
Wet Weight Extracted:	10.64 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	490	270	
208-96-8	Acenaphthylene	ND	270	
120-12-7	Anthracene	1800	270	
56-55-3	Benzo(a)anthracene	6000	270	
50-32-8	Benzo(a)pyrene	5600	270	
205-99-2	Benzo(b)fluoranthene	5600	270	
191-24-2	Benzo(g,h,i)perylene	4000	270	
207-08-9	Benzo(k)fluoranthene	4100	270	
218-01-9	Chrysene	5800	270	
53-70-3	Dibenz(a,h)anthracene	ND	270	
206-44-0	Fluoranthene	14000	270	
86-73-7	Fluorene	530	270	
193-39-5	Indeno(1,2,3-cd)pyrene	3500	270	
91-20-3	Naphthalene	ND	270	
85-01-8	Phenanthrene	7200	270	
129-00-0	Pyrene	10000	270	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	38	41 - 106
2-Fluorobiphenyl (SS1)	33	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0320	Lab Sample ID:	AB11501
Date of Collection:	10/12/2010	Matrix:	Soil
Date of Extraction:	10/13/10	Volume Extracted:	N/A
Date of Analysis:	10/27/10	Percent Solids:	88%
Dry Weight Extracted:	8.92 grams	Extract Dilution:	5
Wet Weight Extracted:	10.12 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

<u>CAS Number</u>	<u>Compound</u>	<u>Concentration ug/Kg</u>	<u>RL ug/Kg</u>	<u>Qualifier</u>
83-32-9	Acenaphthene	420	280	
208-96-8	Acenaphthylene	ND	280	
120-12-7	Anthracene	1500	280	
56-55-3	Benzo(a)anthracene	4400	280	
50-32-8	Benzo(a)pyrene	4300	280	
205-99-2	Benzo(b)fluoranthene	4700	280	
191-24-2	Benzo(g,h,i)perylene	3600	280	
207-08-9	Benzo(k)fluoranthene	3100	280	
218-01-9	Chrysene	4600	280	
53-70-3	Dibenz(a,h)anthracene	ND	280	
206-44-0	Fluoranthene	9900	280	
86-73-7	Fluorene	440	280	
193-39-5	Indeno(1,2,3-cd)pyrene	3200	280	
91-20-3	Naphthalene	300	280	
85-01-8	Phenanthrene	6300	280	
129-00-0	Pyrene	7200	280	

<b>Surrogate Compounds</b>	<b>Recoveries (%)</b>	<b>QC Ranges</b>
p-Terphenyl-d14 (SS2)	74	41 - 106
2-Fluorobiphenyl (SS1)	63	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

Tombarello Site - Lawrence, MA

Laboratory Blank (PAHs)

Client Sample ID:	N/A	Lab Sample ID:	N/A
Date of Collection:	N/A	Matrix:	Soil
Date of Extraction:	10/13/10	Volume Extracted:	N/A
Date of Analysis:	10/27/10	Percent Solids:	100%
Dry Weight Extracted:	10.81 grams	Extract Dilution:	1
Wet Weight Extracted:	10.81 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	46	
208-96-8	Acenaphthylene	ND	46	
120-12-7	Anthracene	ND	46	
56-55-3	Benzo(a)anthracene	ND	46	
50-32-8	Benzo(a)pyrene	ND	46	
205-99-2	Benzo(b)fluoranthene	ND	46	
191-24-2	Benzo(g,h,i)perylene	ND	46	
207-08-9	Benzo(k)fluoranthene	ND	46	
218-01-9	Chrysene	ND	46	
53-70-3	Dibenz(a,h)anthracene	ND	46	
206-44-0	Fluoranthene	ND	46	
86-73-7	Fluorene	ND	46	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	46	
91-20-3	Naphthalene	ND	46	
85-01-8	Phenanthrene	ND	46	
129-00-0	Pyrene	ND	46	

Surrogate Compounds	Recoveries (%)	QC Ranges
2-Fluorobiphenyl (SS1)	39	39 - 103
p-Terphenyl-d14 (SS2)	48	41 - 106

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID: R01-100830MB-0321  
Date of Collection: 10/12/2010  
Date of Extraction: 10/13/10  
Date of Analysis: 10/27/10  
Dry Weight Extracted: 9.99 grams  
Wet Weight Extracted: 10.87 grams  
Final Volume: 1 mL

Lab Sample ID: AB11502  
Matrix: Soil  
Volume Extracted: N/A  
Percent Solids: 92%  
Extract Dilution: 5  
pH: N/A  
GPC Factor: N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	250	
208-96-8	Acenaphthylene	ND	250	
120-12-7	Anthracene	640	250	
56-55-3	Benzo(a)anthracene	2000	250	
50-32-8	Benzo(a)pyrene	2000	250	
205-99-2	Benzo(b)fluoranthene	1900	250	
191-24-2	Benzo(g,h,i)perylene	1400	250	
207-08-9	Benzo(k)fluoranthene	1700	250	
218-01-9	Chrysene	2100	250	
53-70-3	Dibenz(a,h)anthracene	330	250	
206-44-0	Fluoranthene	4700	250	
86-73-7	Fluorene	ND	250	
193-39-5	Indeno(1,2,3-cd)pyrene	1300	250	
91-20-3	Naphthalene	ND	250	
85-01-8	Phenanthrene	2900	250	
129-00-0	Pyrene	3400	250	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	39	41 - 106
2-Fluorobiphenyl (SS1)	32	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0322	Lab Sample ID:	AB11503
Date of Collection:	10/12/2010	Matrix:	Soil
Date of Extraction:	10/13/10	Volume Extracted:	N/A
Date of Analysis:	10/27/10	Percent Solids:	91%
Dry Weight Extracted:	9.19 grams	Extract Dilution:	50
Wet Weight Extracted:	10.13 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	6500	2700	
208-96-8	Acenaphthylene	ND	2700	
120-12-7	Anthracene	25000	2700	
56-55-3	Benzo(a)anthracene	89000	2700	
50-32-8	Benzo(a)pyrene	75000	2700	
205-99-2	Benzo(b)fluoranthene	88000	2700	
191-24-2	Benzo(g,h,i)perylene	50000	2700	
207-08-9	Benzo(k)fluoranthene	77000	2700	
218-01-9	Chrysene	97000	2700	
53-70-3	Dibenz(a,h)anthracene	ND	2700	
206-44-0	Fluoranthene	230000	2700	
86-73-7	Fluorene	8400	2700	
193-39-5	Indeno(1,2,3-cd)pyrene	48000	2700	
91-20-3	Naphthalene	3800	2700	
85-01-8	Phenanthrene	150000	2700	
129-00-0	Pyrene	160000	2700	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	65	41 - 106
2-Fluorobiphenyl (SS1)	53	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0323	Lab Sample ID:	AB11504
Date of Collection:	10/12/2010	Matrix:	Soil
Date of Extraction:	10/13/10	Volume Extracted:	N/A
Date of Analysis:	10/27/10	Percent Solids:	90%
Dry Weight Extracted:	9.21 grams	Extract Dilution:	10
Wet Weight Extracted:	10.18 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	540	
208-96-8	Acenaphthylene	ND	540	
120-12-7	Anthracene	2500	540	
56-55-3	Benzo(a)anthracene	13000	540	
50-32-8	Benzo(a)pyrene	13000	540	
205-99-2	Benzo(b)fluoranthene	12000	540	
191-24-2	Benzo(g,h,i)perylene	9000	540	
207-08-9	Benzo(k)fluoranthene	10000	540	
218-01-9	Chrysene	12000	540	
53-70-3	Dibenz(a,h)anthracene	1800	540	
206-44-0	Fluoranthene	25000	540	
86-73-7	Fluorene	ND	540	
193-39-5	Indeno(1,2,3-cd)pyrene	8000	540	
91-20-3	Naphthalene	ND	540	
85-01-8	Phenanthrene	8800	540	
129-00-0	Pyrene	19000	540	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	82	41 - 106
2-Fluorobiphenyl (SS1)	72	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0324	Lab Sample ID:	AB11505
Date of Collection:	10/12/2010	Matrix:	Soil
Date of Extraction:	10/13/10	Volume Extracted:	N/A
Date of Analysis:	10/27/10	Percent Solids:	91%
Dry Weight Extracted:	8.81 grams	Extract Dilution:	10
Wet Weight Extracted:	9.64 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	960	570	
208-96-8	Acenaphthylene	ND	570	
120-12-7	Anthracene	4700	570	
56-55-3	Benzo(a)anthracene	19000	570	
50-32-8	Benzo(a)pyrene	19000	570	
205-99-2	Benzo(b)fluoranthene	18000	570	
191-24-2	Benzo(g,h,i)perylene	13000	570	
207-08-9	Benzo(k)fluoranthene	15000	570	
218-01-9	Chrysene	18000	570	
53-70-3	Dibenz(a,h)anthracene	2900	570	
206-44-0	Fluoranthene	40000	570	
86-73-7	Fluorene	970	570	
193-39-5	Indeno(1,2,3-cd)pyrene	12000	570	
91-20-3	Naphthalene	ND	570	
85-01-8	Phenanthrene	16000	570	
129-00-0	Pyrene	30000	570	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	99	41 - 106
2-Fluorobiphenyl (SS1)	83	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0325	Lab Sample ID:	AB11506
Date of Collection:	10/12/2010	Matrix:	Soil
Date of Extraction:	10/13/10	Volume Extracted:	N/A
Date of Analysis:	10/27/10	Percent Solids:	89%
Dry Weight Extracted:	9.13 grams	Extract Dilution:	10
Wet Weight Extracted:	10.30 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	1100	550	
208-96-8	Acenaphthylene	ND	550	
120-12-7	Anthracene	3900	550	
56-55-3	Benzo(a)anthracene	15000	550	
50-32-8	Benzo(a)pyrene	15000	550	
205-99-2	Benzo(b)fluoranthene	16000	550	
191-24-2	Benzo(g,h,i)perylene	13000	550	
207-08-9	Benzo(k)fluoranthene	12000	550	
218-01-9	Chrysene	15000	550	
53-70-3	Dibenz(a,h)anthracene	2400	550	
206-44-0	Fluoranthene	35000	550	
86-73-7	Fluorene	1100	550	
193-39-5	Indeno(1,2,3-cd)pyrene	11000	550	
91-20-3	Naphthalene	ND	550	
85-01-8	Phenanthrene	18000	550	
129-00-0	Pyrene	26000	550	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	89	41 - 106
2-Fluorobiphenyl (SS1)	77	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0326	Lab Sample ID:	AB11507
Date of Collection:	10/12/2010	Matrix:	Soil
Date of Extraction:	10/13/10	Volume Extracted:	N/A
Date of Analysis:	10/27/10	Percent Solids:	95%
Dry Weight Extracted:	9.45 grams	Extract Dilution:	1
Wet Weight Extracted:	9.91 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	80	53	
208-96-8	Acenaphthylene	ND	53	
120-12-7	Anthracene	270	53	
56-55-3	Benzo(a)anthracene	930	53	
50-32-8	Benzo(a)pyrene	890	53	
205-99-2	Benzo(b)fluoranthene	950	53	
191-24-2	Benzo(g,h,i)perylene	690	53	
207-08-9	Benzo(k)fluoranthene	690	53	
218-01-9	Chrysene	940	53	
53-70-3	Dibenz(a,h)anthracene	ND	53	
206-44-0	Fluoranthene	2200	53	
86-73-7	Fluorene	97	53	
193-39-5	Indeno(1,2,3-cd)pyrene	620	53	
91-20-3	Naphthalene	ND	53	
85-01-8	Phenanthrene	1200	53	
129-00-0	Pyrene	1600	53	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	65	41 - 106
2-Fluorobiphenyl (SS1)	56	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0327	Lab Sample ID:	AB11508
Date of Collection:	10/12/2010	Matrix:	Soil
Date of Extraction:	10/13/10	Volume Extracted:	N/A
Date of Analysis:	10/27/10	Percent Solids:	81%
Dry Weight Extracted:	8.64 grams	Extract Dilution:	10
Wet Weight Extracted:	10.63 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	660	580	
208-96-8	Acenaphthylene	720	580	
120-12-7	Anthracene	2600	580	
56-55-3	Benzo(a)anthracene	11000	580	
50-32-8	Benzo(a)pyrene	11000	580	
205-99-2	Benzo(b)fluoranthene	11000	580	
191-24-2	Benzo(g,h,i)perylene	8900	580	
207-08-9	Benzo(k)fluoranthene	11000	580	
218-01-9	Chrysene	11000	580	
53-70-3	Dibenz(a,h)anthracene	2000	580	
206-44-0	Fluoranthene	25000	580	
86-73-7	Fluorene	620	580	
193-39-5	Indeno(1,2,3-cd)pyrene	8000	580	
91-20-3	Naphthalene	ND	580	
85-01-8	Phenanthrene	12000	580	
129-00-0	Pyrene	19000	580	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	76	41 - 106
2-Fluorobiphenyl (SS1)	60	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0328	Lab Sample ID:	AB11509
Date of Collection:	10/12/2010	Matrix:	Soil
Date of Extraction:	10/13/10	Volume Extracted:	N/A
Date of Analysis:	10/27/10	Percent Solids:	92%
Dry Weight Extracted:	9.68 grams	Extract Dilution:	10
Wet Weight Extracted:	10.53 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	920	520	
208-96-8	Acenaphthylene	ND	520	
120-12-7	Anthracene	3500	520	
56-55-3	Benzo(a)anthracene	13000	520	
50-32-8	Benzo(a)pyrene	13000	520	
205-99-2	Benzo(b)fluoranthene	14000	520	
191-24-2	Benzo(g,h,i)perylene	12000	520	
207-08-9	Benzo(k)fluoranthene	10000	520	
218-01-9	Chrysene	13000	520	
53-70-3	Dibenz(a,h)anthracene	2400	520	
206-44-0	Fluoranthene	29000	520	
86-73-7	Fluorene	930	520	
193-39-5	Indeno(1,2,3-cd)pyrene	10000	520	
91-20-3	Naphthalene	ND	520	
85-01-8	Phenanthrene	15000	520	
129-00-0	Pyrene	22000	520	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	103	41 - 106
2-Fluorobiphenyl (SS1)	87	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID: R01-100830MB-0329  
Date of Collection: 10/12/2010  
Date of Extraction: 10/13/10  
Date of Analysis: 10/27/10  
Dry Weight Extracted: 9.23 grams  
Wet Weight Extracted: 10.34 grams  
Final Volume: 1 mL

Lab Sample ID: AB11510  
Matrix: Soil  
Volume Extracted: N/A  
Percent Solids: 89%  
Extract Dilution: 10  
pH: N/A  
GPC Factor: N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	980	540	
208-96-8	Acenaphthylene	570	540	
120-12-7	Anthracene	3000	540	
56-55-3	Benzo(a)anthracene	15000	540	
50-32-8	Benzo(a)pyrene	16000	540	
205-99-2	Benzo(b)fluoranthene	15000	540	
191-24-2	Benzo(g,h,i)perylene	14000	540	
207-08-9	Benzo(k)fluoranthene	15000	540	
218-01-9	Chrysene	16000	540	
53-70-3	Dibenz(a,h)anthracene	ND	540	
206-44-0	Fluoranthene	32000	540	
86-73-7	Fluorene	920	540	
193-39-5	Indeno(1,2,3-cd)pyrene	13000	540	
91-20-3	Naphthalene	ND	540	
85-01-8	Phenanthrene	15000	540	
129-00-0	Pyrene	24000	540	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	91	41 - 106
2-Fluorobiphenyl (SS1)	81	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

Tombarello Site - Lawrence, MA

PAHs in Soil

Client Sample ID:	R01-100830MB-0330	Lab Sample ID:	AB11511
Date of Collection:	10/12/2010	Matrix:	Soil
Date of Extraction:	10/13/10	Volume Extracted:	N/A
Date of Analysis:	10/27/10	Percent Solids:	85%
Dry Weight Extracted:	8.92 grams	Extract Dilution:	10
Wet Weight Extracted:	10.53 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	1200	560	
208-96-8	Acenaphthylene	ND	560	
120-12-7	Anthracene	4100	560	
56-55-3	Benzo(a)anthracene	16000	560	
50-32-8	Benzo(a)pyrene	15000	560	
205-99-2	Benzo(b)fluoranthene	16000	560	
191-24-2	Benzo(g,h,i)perylene	11000	560	
207-08-9	Benzo(k)fluoranthene	12000	560	
218-01-9	Chrysene	17000	560	
53-70-3	Dibenz(a,h)anthracene	ND	560	
206-44-0	Fluoranthene	36000	560	
86-73-7	Fluorene	1200	560	
193-39-5	Indeno(1,2,3-cd)pyrene	10000	560	
91-20-3	Naphthalene	800	560	
85-01-8	Phenanthrene	22000	560	
129-00-0	Pyrene	26000	560	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	103	41 - 106
2-Fluorobiphenyl (SS1)	88	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0331	Lab Sample ID:	AB11512
Date of Collection:	10/12/2010	Matrix:	Soil
Date of Extraction:	10/13/10	Volume Extracted:	N/A
Date of Analysis:	10/27/10	Percent Solids:	90%
Dry Weight Extracted:	9.18 grams	Extract Dilution:	10
Wet Weight Extracted:	10.15 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	1200	550	
208-96-8	Acenaphthylene	ND	550	
120-12-7	Anthracene	3400	550	
56-55-3	Benzo(a)anthracene	8400	550	
50-32-8	Benzo(a)pyrene	7400	550	
205-99-2	Benzo(b)fluoranthene	6500	550	
191-24-2	Benzo(g,h,i)perylene	5300	550	
207-08-9	Benzo(k)fluoranthene	6600	550	
218-01-9	Chrysene	8200	550	
53-70-3	Dibenz(a,h)anthracene	1100	550	
206-44-0	Fluoranthene	20000	550	
86-73-7	Fluorene	1300	550	
193-39-5	Indeno(1,2,3-cd)pyrene	4800	550	
91-20-3	Naphthalene	580	550	
85-01-8	Phenanthrene	15000	550	
129-00-0	Pyrene	15000	550	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	83	41 - 106
2-Fluorobiphenyl (SS1)	71	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
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**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0332	Lab Sample ID:	AB11513
Date of Collection:	10/12/2010	Matrix:	Soil
Date of Extraction:	10/13/10	Volume Extracted:	N/A
Date of Analysis:	10/27/10	Percent Solids:	88%
Dry Weight Extracted:	9.92 grams	Extract Dilution:	10
Wet Weight Extracted:	11.24 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	1700	500	
208-96-8	Acenaphthylene	1200	500	
120-12-7	Anthracene	6600	500	
56-55-3	Benzo(a)anthracene	30000	500	
50-32-8	Benzo(a)pyrene	32000	500	
205-99-2	Benzo(b)fluoranthene	29000	500	
191-24-2	Benzo(g,h,i)perylene	23000	500	
207-08-9	Benzo(k)fluoranthene	24000	500	
218-01-9	Chrysene	29000	500	
53-70-3	Dibenz(a,h)anthracene	ND	500	
206-44-0	Fluoranthene	66000	500	
86-73-7	Fluorene	1800	500	
193-39-5	Indeno(1,2,3-cd)pyrene	21000	500	
91-20-3	Naphthalene	760	500	
85-01-8	Phenanthrene	26000	500	
129-00-0	Pyrene	51000	500	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	72	41 - 106
2-Fluorobiphenyl (SS1)	56	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID: R01-100830MB-0333  
Date of Collection: 10/12/2010  
Date of Extraction: 10/13/10  
Date of Analysis: 10/27/10  
Dry Weight Extracted: 10.54 grams  
Wet Weight Extracted: 11.72 grams  
Final Volume: 1 mL

Lab Sample ID: AB11514  
Matrix: Soil  
Volume Extracted: N/A  
Percent Solids: 90%  
Extract Dilution: 10  
pH: N/A  
GPC Factor: N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	890	470	
208-96-8	Acenaphthylene	510	470	
120-12-7	Anthracene	2400	470	
56-55-3	Benzo(a)anthracene	11000	470	
50-32-8	Benzo(a)pyrene	12000	470	
205-99-2	Benzo(b)fluoranthene	12000	470	
191-24-2	Benzo(g,h,i)perylene	11000	470	
207-08-9	Benzo(k)fluoranthene	9700	470	
218-01-9	Chrysene	12000	470	
53-70-3	Dibenz(a,h)anthracene	2200	470	
206-44-0	Fluoranthene	25000	470	
86-73-7	Fluorene	740	470	
193-39-5	Indeno(1,2,3-cd)pyrene	9300	470	
91-20-3	Naphthalene	ND	470	
85-01-8	Phenanthrene	12000	470	
129-00-0	Pyrene	19000	470	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	72	41 - 106
2-Fluorobiphenyl (SS1)	65	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

Tombarello Site - Lawrence, MA

PAHs in Soil

Client Sample ID:	R01-100830MB-0334	Lab Sample ID:	AB11515
Date of Collection:	10/12/2010	Matrix:	Soil
Date of Extraction:	10/13/10	Volume Extracted:	N/A
Date of Analysis:	10/27/10	Percent Solids:	87%
Dry Weight Extracted:	8.75 grams	Extract Dilution:	10
Wet Weight Extracted:	10.01 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	2700	570	
208-96-8	Acenaphthylene	920	570	
120-12-7	Anthracene	8400	570	
56-55-3	Benzo(a)anthracene	31000	570	
50-32-8	Benzo(a)pyrene	31000	570	
205-99-2	Benzo(b)fluoranthene	30000	570	
191-24-2	Benzo(g,h,i)perylene	23000	570	
207-08-9	Benzo(k)fluoranthene	25000	570	
218-01-9	Chrysene	32000	570	
53-70-3	Dibenz(a,h)anthracene	ND	570	
206-44-0	Fluoranthene	72000	570	
86-73-7	Fluorene	2600	570	
193-39-5	Indeno(1,2,3-cd)pyrene	21000	570	
91-20-3	Naphthalene	1300	570	
85-01-8	Phenanthrene	41000	570	
129-00-0	Pyrene	55000	570	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	87	41 - 106
2-Fluorobiphenyl (SS1)	72	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0335	Lab Sample ID:	AB11516
Date of Collection:	10/12/2010	Matrix:	Soil
Date of Extraction:	10/13/10	Volume Extracted:	N/A
Date of Analysis:	10/27/10	Percent Solids:	98%
Dry Weight Extracted:	10.09 grams	Extract Dilution:	10
Wet Weight Extracted:	10.33 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	410	500	
208-96-8	Acenaphthylene	ND	500	
120-12-7	Anthracene	1600	500	
56-55-3	Benzo(a)anthracene	7200	500	
50-32-8	Benzo(a)pyrene	7400	500	
205-99-2	Benzo(b)fluoranthene	7800	500	
191-24-2	Benzo(g,h,i)perylene	5800	500	
207-08-9	Benzo(k)fluoranthene	5500	500	
218-01-9	Chrysene	7200	500	
53-70-3	Dibenz(a,h)anthracene	1100	500	
206-44-0	Fluoranthene	15000	500	
86-73-7	Fluorene	480	500	
193-39-5	Indeno(1,2,3-cd)pyrene	5300	500	
91-20-3	Naphthalene	ND	500	
85-01-8	Phenanthrene	6600	500	
129-00-0	Pyrene	12000	500	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	93	41 - 106
2-Fluorobiphenyl (SS1)	79	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0336	Lab Sample ID:	AB11517
Date of Collection:	10/12/2010	Matrix:	Soil
Date of Extraction:	10/13/10	Volume Extracted:	N/A
Date of Analysis:	10/27/10	Percent Solids:	91%
Dry Weight Extracted:	10.16 grams	Extract Dilution:	5
Wet Weight Extracted:	11.14 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	580	250	
208-96-8	Acenaphthylene	510	250	
120-12-7	Anthracene	2800	250	
56-55-3	Benzo(a)anthracene	12000	250	
50-32-8	Benzo(a)pyrene	12000	250	
205-99-2	Benzo(b)fluoranthene	13000	250	
191-24-2	Benzo(g,h,i)perylene	9200	250	
207-08-9	Benzo(k)fluoranthene	9300	250	
218-01-9	Chrysene	11000	250	
53-70-3	Dibenz(a,h)anthracene	ND	250	
206-44-0	Fluoranthene	25000	250	
86-73-7	Fluorene	710	250	
193-39-5	Indeno(1,2,3-cd)pyrene	8300	250	
91-20-3	Naphthalene	270	250	
85-01-8	Phenanthrene	9600	250	
129-00-0	Pyrene	20000	250	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	30	41 - 106
2-Fluorobiphenyl (SS1)	20	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0337	Lab Sample ID:	AB11518
Date of Collection:	10/12/2010	Matrix:	Soil
Date of Extraction:	10/13/10	Volume Extracted:	N/A
Date of Analysis:	10/27/10	Percent Solids:	92%
Dry Weight Extracted:	9.17 grams	Extract Dilution:	5
Wet Weight Extracted:	9.99 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

<b>CAS Number</b>	<b>Compound</b>	<b>Concentration ug/Kg</b>	<b>RL ug/Kg</b>	<b>Qualifier</b>
83-32-9	Acenaphthene	490	270	
208-96-8	Acenaphthylene	350	270	
120-12-7	Anthracene	1500	270	
56-55-3	Benzo(a)anthracene	7900	270	
50-32-8	Benzo(a)pyrene	8900	270	
205-99-2	Benzo(b)fluoranthene	9300	270	
191-24-2	Benzo(g,h,i)perylene	7600	270	
207-08-9	Benzo(k)fluoranthene	6500	270	
218-01-9	Chrysene	8500	270	
53-70-3	Dibenz(a,h)anthracene	ND	270	
206-44-0	Fluoranthene	18000	270	
86-73-7	Fluorene	450	270	
193-39-5	Indeno(1,2,3-cd)pyrene	6900	270	
91-20-3	Naphthalene	ND	270	
85-01-8	Phenanthrene	7300	270	
129-00-0	Pyrene	14000	270	

<b>Surrogate Compounds</b>	<b>Recoveries (%)</b>	<b>QC Ranges</b>
p-Terphenyl-d14 (SS2)	69	41 - 106
2-Fluorobiphenyl (SS1)	62	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

PAH MATRIX SPIKE (MS)

Tombarello Site - Lawrence, MA

Sample ID: AB11502

PARAMETER	SPIKE ADDED ug/Kg	SAMPLE CONCENTRATION ug/Kg	MS CONCENTRATION ug/Kg	MS % REC	QC LIMITS (% REC)
Acenaphthene	3900	ND	2200	56	30 - 113
Acenaphthylene	3900	ND	2000	51	28 - 125
Anthracene	3900	640	3100	63	30 - 129
Benzo(a)anthracene	3900	2000	4800	73	25 - 137
Benzo(a)pyrene	3900	2000	4400	63	26 - 115
Benzo(b)fluoranthene	3900	1900	4400	64	29 - 120
Benzo(g,h,i)perylene	3900	1400	4000	66	26 - 119
Benzo(k)fluoranthene	3900	1700	4400	70	27 - 139
Chrysene	3900	2100	4700	67	31 - 120
Dibenz(a,h)anthracene	3900	330	2900	67	31 - 125
Fluoranthene	3900	4700	8500	99	21 - 148
Fluorene	3900	ND	2300	60	34 - 121
Indeno(1,2,3-cd)pyrene	3900	1300	3500	56	29 - 125
Naphthalene	3900	ND	2000	52	19 - 107
Phenanthrene	3900	2900	6000	81	26 - 125
Pyrene	3900	3400	6600	81	20 - 142

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

Laboratory Duplicate Results

Tombarello Site - Lawrence, MA

Sample ID: AB11502

PARAMETER	SAMPLE RESULT ug/Kg	SAMPLE DUPLICATE RESULT ug/Kg	PRECISION RPD %	QC LIMITS
Acenaphthene	ND	ND	ND	40
Acenaphthylene	ND	ND	ND	40
Anthracene	640	630	2.05	40
Benzo(a)anthracene	2000	1900	3.05	40
Benzo(a)pyrene	2000	1800	8.33	40
Benzo(b)fluoranthene	1900	1700	13	40
Benzo(g,h,i)perylene	1400	1300	6.64	40
Benzo(k)fluoranthene	1700	1700	0.00	40
Chrysene	2100	1900	11	40
Dibenz(a,h)anthracene	330	260	25	40
Fluoranthene	4700	4400	6.59	40
Fluorene	ND	ND	ND	40
Indeno(1,2,3-cd)pyrene	1300	1200	9.68	40
Naphthalene	ND	ND	ND	40
Phenanthrene	2900	2800	3.87	40
Pyrene	3400	3200	7.63	40

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

Laboratory Fortified Blank (LFB) Results

Tombarello Site - Lawrence, MA

PARAMETER	LFB AMOUNT SPIKED ppb	LFB RESULT ppb	LFB RECOVERY %	QC LIMITS %
Acenaphthene	3900	1900	50	26 - 129
Acenaphthylene	3900	2000	51	23 - 141
Anthracene	3900	2300	59	25 - 149
Benzo(a)anthracene	3900	2200	56	27 - 142
Benzo(a)pyrene	3900	2000	51	29 - 123
Benzo(b)fluoranthene	3900	2300	59	22 - 146
Benzo(g,h,i)perylene	3900	2200	56	26 - 134
Benzo(k)fluoranthene	3900	2100	53	32 - 144
Chrysene	3900	2100	54	38 - 121
Dibenz(a,h)anthracene	3900	2200	57	35 - 133
Fluoranthene	3900	2300	59	29 - 154
Fluorene	3900	2000	53	29 - 138
Indeno(1,2,3-cd)pyrene	3900	2200	56	26 - 141
Naphthalene	3900	1900	49	30 - 110
Phenanthrene	3900	2200	57	27 - 140
Pyrene	3900	2100	53	24 - 147

Comments:



United States Environmental Protection Agency  
Office of Environmental Measurement & Evaluation  
60 Westview Street  
Lexington, MA 02421-3185

Laboratory Report

October 26, 2010

Mike Barry - OSRR02-2  
US EPA New England R1

Project Number: 10100017  
Project: Tombarello Site - Lawrence, MA  
Analysis: PCB's in Soil Field Method (Fixed Lab)  
Analyst: Paul Carroll

*Paul Carroll*  
10.26.10

Analytical Procedure:

All samples were received and logged in by the laboratory according to the USEPA New England Laboratory SOP for Sample Log-in.

Sample preparation and analysis was done following the EPA Region I SOP, FLDPCB2.SOP.

Concentrations of PCBs in soil were calculated using an external standard technique.

Analysis for PCB's performed by this field analytical technique is used for tentative identification and semi-quantitation of PCB's in soil, oil, and sediment samples.

Date Samples Received by the Laboratory: 10/13/10

Results relate only to the items tested or to the samples as received by the Laboratory. This analytical report shall not be reproduced except in full, without written approval of the laboratory.

Results for soil samples are reported on a dry weight basis.

If you have any questions please call me at 617-918-8340.

Sincerely,

*Daniel Boudreau 10/27/10*  
Daniel Boudreau

Project # 10100017

## PCB's in Soil Field Method (Fixed Lab)

US ENVIRONMENTAL PROTECTION AGENCY NEW ENGLAND LABORATORY Tombarello Site - Lawrence, MA						
Client Sample ID	R01-100830MB-0318	R01-100830MB-0319	R01-100830MB-0320	R01-100830MB-0321	R01-100830MB-0322	R01-100830MB-0323
Lab Sample ID	AB11499	AB11500	AB11501	AB11502	AB11503	AB11504
Date of Collection	10/12/2010	10/12/2010	10/12/2010	10/12/2010	10/12/2010	10/12/2010
Date of Extraction	10/18/2010	10/18/2010	10/18/2010	10/18/2010	10/18/2010	10/18/2010
Date of Analysis	10/22/2010	10/22/2010	10/22/2010	10/22/2010	10/22/2010	10/22/2010
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Compound	Conc. (RL) mg/Kg					
Aroclor-1242	ND (0.68)	ND (0.84)	ND (3.1)	ND (6.8)	ND (0.66)	ND (1.3)
Aroclor-1248	ND (0.68)	ND (0.84)	24 (3.1)	ND (6.8)	ND (0.66)	ND (1.3)
Aroclor-1254	ND (0.68)	ND (0.84)	ND (3.1)	ND (6.8)	ND (0.66)	ND (1.3)
Aroclor-1260	2.1 (0.68)	3.5 (0.84)	ND (3.1)	19 (6.8)	3.9 (0.66)	3.9 (1.3)
Aroclor-1262	ND (0.68)	ND (0.84)	ND (3.1)	ND (6.8)	ND (0.66)	ND (1.3)
Aroclor-1268	ND (0.68)	ND (0.84)	ND (3.1)	ND (6.8)	ND (0.66)	ND (1.3)

**US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY  
Tombarello Site - Lawrence, MA**

	R01-100830MB-0324 AB11505 10/12/2010 10/18/2010 10/22/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0325 AB11506 10/12/2010 10/18/2010 10/22/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0326 AB11507 10/12/2010 10/18/2010 10/22/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0327 AB11508 10/12/2010 10/18/2010 10/22/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0328 AB11509 10/12/2010 10/18/2010 10/22/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0329 AB11510 10/12/2010 10/18/2010 10/22/2010 Soil  Conc. (RL) mg/Kg
Aroclor-1242	ND (0.64)	ND (0.7)	ND (0.7)	ND (0.72)	ND (0.74)	ND (0.58)
Aroclor-1248	ND (0.64)	ND (0.7)	ND (0.7)	ND (0.72)	ND (0.74)	ND (0.58)
Aroclor-1254	ND (0.64)	ND (0.7)	ND (0.7)	ND (0.72)	ND (0.74)	ND (0.58)
Aroclor-1260	ND (0.64)	ND (0.7)	0.91 (0.7)	2.4 (0.72)	4.0 (0.74)	4.5 (0.58)
Aroclor-1262	ND (0.64)	ND (0.7)	ND (0.7)	ND (0.72)	ND (0.74)	ND (0.58)
Aroclor-1268	ND (0.64)	ND (0.7)	ND (0.7)	ND (0.72)	ND (0.74)	ND (0.58)

**US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY  
Tombarello Site - Lawrence, MA**

	R01-100830MB-0330 AB11511 10/12/2010 10/18/2010 10/22/2010 Soil	R01-100830MB-0331 AB11512 10/12/2010 10/18/2010 10/22/2010 Soil	R01-100830MB-0332 AB11513 10/12/2010 10/18/2010 10/22/2010 Soil	R01-100830MB-0333 AB11514 10/12/2010 10/18/2010 10/22/2010 Soil	R01-100830MB-0334 AB11515 10/12/2010 10/18/2010 10/23/2010 Soil	R01-100830MB-0335 AB11516 10/12/2010 10/18/2010 10/23/2010 Soil
	Conc. (RL) mg/Kg					
Aroclor-1242	ND (3.2)	ND (0.32)	ND (0.62)	ND (0.62)	ND (0.86)	ND (0.7)
Aroclor-1248	ND (3.2)	ND (0.32)	ND (0.62)	ND (0.62)	ND (0.86)	ND (0.7)
Aroclor-1254	ND (3.2)	ND (0.32)	ND (0.62)	ND (0.62)	ND (0.86)	ND (0.7)
Aroclor-1260	9.8 (3.2)	2.1 (0.32)	1.5 (0.62)	0.90 (0.62)	9.2 (0.86)	4.0 (0.7)
Aroclor-1262	ND (3.2)	ND (0.32)	ND (0.62)	ND (0.62)	ND (0.86)	ND (0.7)
Aroclor-1268	ND (3.2)	ND (0.32)	ND (0.62)	ND (0.62)	ND (0.86)	ND (0.7)

**US ENVIRONMENTAL PROTECTION  
AGENCY  
NEW ENGLAND LABORATORY**

R01-100830MB-0336 AB11517 10/12/2010 10/18/2010 10/23/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0337 AB11518 10/12/2010 10/18/2010 10/23/2010 Soil  Conc. (RL) mg/Kg
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Aroclor-1242	ND (0.86)	ND (0.8)
Aroclor-1248	ND (0.86)	ND (0.8)
Aroclor-1254	ND (0.86)	ND (0.8)
Aroclor-1260	1.5 (0.86)	1.4 (0.8)
Aroclor-1262	ND (0.86)	ND (0.8)
Aroclor-1268	ND (0.86)	ND (0.8)

Qualifiers: RL = Reporting limit  
ND = Not Detected above Reporting limit  
NA = Not Applicable due to high sample dilutions or sample interferences  
J = Estimated value  
E = Estimated value exceeds the calibration range  
L = Estimated value is below the calibration range  
B = Analyte is associated with the lab blank or trip blank contamination. Values are qualified when the observed concentration of the contamination in the sample extract is less than 10 times the concentration in the blank.  
P = The confirmation value exceeded 35% difference and is less than 100%. The lower value is reported.  
C = The identification has been confirmed by GC/MS.  
A = Suspected Aldol condensation product.  
N = Tentatively identified compound.



United States Environmental Protection Agency  
Office of Environmental Measurement & Evaluation  
60 Westview Street  
Lexington, MA 02421-3185

## Laboratory Report

November 09, 2010

Mike Barry - OSRR02-2  
US EPA New England R1

Project Number: 10100017  
Project: Tombarello Site - Lawrence, MA  
Analysis: Field Analysis of Metals by XRF  
Analyst: Paul Carroll

### Analytical Procedure:

All samples were received and logged in by the laboratory according to the USEPA New England Laboratory SOP for Sample Log-in.

Sample preparation and analysis was done following the EPA Region I SOP, EIA-FLDXRFN3.

The analysis were performed by the EPA New England Regional Laboratory.

Date Samples Received by the Laboratory: 10/13/10

Results relate only to the items tested or to the samples as received by the Laboratory. This analytical report shall not be reproduced except in full, without written approval of the laboratory.

If you have any questions please call me at 617-918-8340.

Sincerely,

 11/9/10  
Dan Boudreau  
Chemistry Team Leader

Project # 10100017

**Field Analysis of Metals by XRF**

<b>US ENVIRONMENTAL PROTECTION AGENCY                      NEW ENGLAND LABORATORY                      Tombarello Site - Lawrence, MA</b>						
Client Sample ID	R01-100830MB-0318	R01-100830MB-0319	R01-100830MB-0320	R01-100830MB-0321	R01-100830MB-0322	R01-100830MB-0323
Lab Sample ID	AB11499	AB11500	AB11501	AB11502	AB11503	AB11504
Date of Collection	10/12/2010	10/12/2010	10/12/2010	10/12/2010	10/12/2010	10/12/2010
Date of Extraction	11/8/2010	11/8/2010	11/8/2010	11/8/2010	11/8/2010	11/8/2010
Date of Analysis	11/8/2010	11/8/2010	11/8/2010	11/8/2010	11/8/2010	11/8/2010
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Compound	Conc. (RL) mg/Kg					
Arsenic	ND ( 18)	ND ( 54)	ND ( 38)	50 ( 20)	ND ( 23)	ND ( 34)
Cadmium	ND ( 17)	ND ( 12)	ND ( 11)	ND ( 11)	ND ( 14)	ND ( 13)
Chromium	58 ( 20)	140 ( 20)	40 ( 20)	94 ( 20)	54 ( 20)	43 ( 20)
Lead	160 ( 20)	1400 ( 20)	720 ( 20)	560 ( 20)	270 ( 20)	630 ( 20)

**US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY  
Tombarello Site - Lawrence, MA**

	R01-100830MB-0324 AB11505 10/12/2010 11/8/2010 11/8/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0325 AB11506 10/12/2010 11/8/2010 11/8/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0326 AB11507 10/12/2010 11/8/2010 11/8/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0327 AB11508 10/12/2010 11/8/2010 11/8/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0328 AB11509 10/12/2010 11/8/2010 11/8/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0329 AB11510 10/12/2010 11/8/2010 11/8/2010 Soil  Conc. (RL) mg/Kg
Arsenic	ND ( 30)	64 ( 20)	ND ( 22)	ND ( 26)	ND ( 43)	ND ( 45)
Cadmium	ND ( 14)	ND ( 14)	ND ( 13)	ND ( 11)	ND ( 15)	ND ( 11)
Chromium	75 ( 20)	66 ( 20)	ND ( 42)	ND ( 42)	92 ( 20)	36 ( 20)
Lead	410 ( 20)	1200 ( 20)	250 ( 20)	340 ( 20)	980 ( 20)	920 ( 20)

**US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY  
Tombarello Site - Lawrence, MA**

	R01-100830MB-0330 AB11511 10/12/2010 11/8/2010 11/8/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0331 AB11512 10/12/2010 11/8/2010 11/8/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0332 AB11513 10/12/2010 11/8/2010 11/8/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0333 AB11514 10/12/2010 11/8/2010 11/8/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0334 AB11515 10/12/2010 11/8/2010 11/8/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0335 AB11516 10/12/2010 11/8/2010 11/8/2010 Soil  Conc. (RL) mg/Kg
Arsenic	94 ( 20)	95 ( 20)	ND ( 23)	25 ( 20)	ND ( 46)	ND ( 39)
Cadmium	ND ( 14)	ND ( 13)	ND ( 16)	ND ( 11)	20 (8.0)	ND ( 12)
Chromium	ND ( 46)	80 ( 20)	45 ( 20)	ND ( 42)	79 ( 20)	65 ( 20)
Lead	3200 ( 20)	1200 ( 20)	270 ( 20)	230 ( 20)	1100 ( 20)	770 ( 20)

**US ENVIRONMENTAL PROTECTION  
AGENCY  
NEW ENGLAND LABORATORY**

R01-100830MB-0336 AB11517 10/12/2010 11/8/2010 11/8/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0337 AB11518 10/12/2010 11/8/2010 11/8/2010 Soil  Conc. (RL) mg/Kg
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Arsenic	33 ( 20)	ND ( 30)
Cadmium	ND ( 13)	ND ( 10)
Chromium	36 ( 20)	58 ( 20)
Lead	300 ( 20)	500 ( 20)



United States Environmental Protection Agency  
Office of Environmental Measurement & Evaluation  
11 Technology Drive  
North Chelmsford, MA 01863-2431

Laboratory Report

October 22, 2010

Mike Barry - OSRR02-2  
US EPA New England R1

Project Number: 10100020  
Project: Tombarello Site - Lawrence, MA  
Analysis: PAHs in Soil  
Analyst: Dan Boudreau *DB*  
*10/22/10*

Analytical Procedure:

All samples were received and logged in by the laboratory according to the USEPA New England Laboratory SOP for Sample Log-in.

Sample preparation and analysis was done following the EPA Region 1 SOP, EIASOP-BNAS3.

Samples were analyzed by an ion trap GC/MS operating in the full-scan mode. The extraction and analysis SOPs are based on SW-846 methods 3545A, 3630C, 8270C, and EIASOP-BNAGCMS7.

Date Samples Received by the Laboratory: 10/14/2010

Data were reviewed in accordance with the internal verification procedures described in the EPA New England OEME Chemistry QA Plan.

Results relate only to the items tested or to the samples as received by the Laboratory. This analytical report shall not be reproduced except in full, without written approval of the laboratory.

Report may contain multiple sections and each section will be numbered independently.

If you have any questions please call me at 617-918-8340 .

Sincerely,

*Daniel N. Boudreau 10/26/10*  
Daniel N. Boudreau  
Chemistry Team Leader

**Qualifiers:**

RL = Reporting limit

ND = Not Detected above Reporting limit

NA = Not Applicable due to high sample dilutions or sample interferences

NC = Not calculated since analyte concentration is ND.

J = Estimated value

E = Estimated value exceeds the calibration range

L = Estimated value is below the calibration range

B = Analyte is associated with the lab blank or trip blank contamination. Values are qualified when the observed concentration of the contamination in the sample extract is less than 5 times the concentration in the blank.

R = No recovery was calculated since the analyte concentration is greater than four times the spike level.

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0342	Lab Sample ID:	AB11538
Date of Collection:	10/13/2010	Matrix:	Soil
Date of Extraction:	10/19/10	Volume Extracted:	N/A
Date of Analysis:	10/19/10	Percent Solids:	88%
Dry Weight Extracted:	8.939 grams	Extract Dilution:	50
Wet Weight Extracted:	10.101 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	2800	
208-96-8	Acenaphthylene	ND	2800	
120-12-7	Anthracene	8900	2800	
56-55-3	Benzo(a)anthracene	32000	2800	
50-32-8	Benzo(a)pyrene	33000	2800	
205-99-2	Benzo(b)fluoranthene	31000	2800	
191-24-2	Benzo(g,h,i)perylene	22000	2800	
207-08-9	Benzo(k)fluoranthene	26000	2800	
218-01-9	Chrysene	29000	2800	
53-70-3	Dibenz(a,h)anthracene	ND	2800	
206-44-0	Fluoranthene	58000	2800	
86-73-7	Fluorene	ND	2800	
193-39-5	Indeno(1,2,3-cd)pyrene	20000	2800	
91-20-3	Naphthalene	ND	2800	
85-01-8	Phenanthrene	28000	2800	
129-00-0	Pyrene	47000	2800	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	78	41 - 106
2-Fluorobiphenyl (SS1)	60	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0343	Lab Sample ID:	AB11539
Date of Collection:	10/13/2010	Matrix:	Soil
Date of Extraction:	10/18/10	Volume Extracted:	N/A
Date of Analysis:	10/19/10	Percent Solids:	88%
Dry Weight Extracted:	9.199 grams	Extract Dilution:	50
Wet Weight Extracted:	10.416 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	2700	
208-96-8	Acenaphthylene	ND	2700	
120-12-7	Anthracene	10000	2700	
56-55-3	Benzo(a)anthracene	35000	2700	
50-32-8	Benzo(a)pyrene	33000	2700	
205-99-2	Benzo(b)fluoranthene	26000	2700	
191-24-2	Benzo(g,h,i)perylene	21000	2700	
207-08-9	Benzo(k)fluoranthene	27000	2700	
218-01-9	Chrysene	31000	2700	
53-70-3	Dibenz(a,h)anthracene	ND	2700	
206-44-0	Fluoranthene	66000	2700	
86-73-7	Fluorene	3000	2700	
193-39-5	Indeno(1,2,3-cd)pyrene	20000	2700	
91-20-3	Naphthalene	ND	2700	
85-01-8	Phenanthrene	37000	2700	
129-00-0	Pyrene	53000	2700	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	83	41 - 106
2-Fluorobiphenyl (SS1)	65	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**Laboratory Blank (PAHs)**

Client Sample ID:	N/A	Lab Sample ID:	N/A
Date of Collection:	N/A	Matrix:	Soil
Date of Extraction:	10/18/10	Volume Extracted:	N/A
Date of Analysis:	10/19/10	Percent Solids:	100%
Dry Weight Extracted:	9.707 grams	Extract Dilution:	1
Wet Weight Extracted:	9.753 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	52	
208-96-8	Acenaphthylene	ND	52	
120-12-7	Anthracene	ND	52	
56-55-3	Benzo(a)anthracene	ND	52	
50-32-8	Benzo(a)pyrene	ND	52	
205-99-2	Benzo(b)fluoranthene	ND	52	
191-24-2	Benzo(g,h,i)perylene	ND	52	
207-08-9	Benzo(k)fluoranthene	ND	52	
218-01-9	Chrysene	ND	52	
53-70-3	Dibenz(a,h)anthracene	ND	52	
206-44-0	Fluoranthene	ND	52	
86-73-7	Fluorene	ND	52	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	52	
91-20-3	Naphthalene	ND	52	
85-01-8	Phenanthrene	ND	52	
129-00-0	Pyrene	ND	52	

Surrogate Compounds	Recoveries (%)	QC Ranges
2-Fluorobiphenyl (SS1)	34	31 - 94
p-Terphenyl-d14 (SS2)	43	32 - 96

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0344	Lab Sample ID:	AB11540
Date of Collection:	10/13/2010	Matrix:	Soil
Date of Extraction:	10/18/10	Volume Extracted:	N/A
Date of Analysis:	10/19/10	Percent Solids:	90%
Dry Weight Extracted:	8.997 grams	Extract Dilution:	50
Wet Weight Extracted:	9.965 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	2800	
208-96-8	Acenaphthylene	ND	2800	
120-12-7	Anthracene	ND	2800	
56-55-3	Benzo(a)anthracene	5600	2800	
50-32-8	Benzo(a)pyrene	6500	2800	
205-99-2	Benzo(b)fluoranthene	5100	2800	
191-24-2	Benzo(g,h,i)perylene	6300	2800	
207-08-9	Benzo(k)fluoranthene	6900	2800	
218-01-9	Chrysene	5400	2800	
53-70-3	Dibenz(a,h)anthracene	ND	2800	
206-44-0	Fluoranthene	9900	2800	
86-73-7	Fluorene	ND	2800	
193-39-5	Indeno(1,2,3-cd)pyrene	5000	2800	
91-20-3	Naphthalene	ND	2800	
85-01-8	Phenanthrene	5000	2800	
129-00-0	Pyrene	9200	2800	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	73	41 - 106
2-Fluorobiphenyl (SS1)	65	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0345	Lab Sample ID:	AB11541
Date of Collection:	10/13/2010	Matrix:	Soil
Date of Extraction:	10/18/10	Volume Extracted:	N/A
Date of Analysis:	10/20/10	Percent Solids:	92%
Dry Weight Extracted:	9.141 grams	Extract Dilution:	10
Wet Weight Extracted:	9.937 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	550	
208-96-8	Acenaphthylene	ND	550	
120-12-7	Anthracene	ND	550	
56-55-3	Benzo(a)anthracene	1800	550	
50-32-8	Benzo(a)pyrene	2000	550	
205-99-2	Benzo(b)fluoranthene	1700	550	
191-24-2	Benzo(g,h,i)perylene	2200	550	
207-08-9	Benzo(k)fluoranthene	1800	550	
218-01-9	Chrysene	1700	550	
53-70-3	Dibenz(a,h)anthracene	ND	550	
206-44-0	Fluoranthene	3200	550	
86-73-7	Fluorene	ND	550	
193-39-5	Indeno(1,2,3-cd)pyrene	1800	550	
91-20-3	Naphthalene	ND	550	
85-01-8	Phenanthrene	1600	550	
129-00-0	Pyrene	3000	550	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	73	41 - 106
2-Fluorobiphenyl (SS1)	62	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

Tombarello Site - Lawrence, MA

PAHs in Soil

Client Sample ID:	R01-100830MB-0346	Lab Sample ID:	AB11542
Date of Collection:	10/13/2010	Matrix:	Soil
Date of Extraction:	10/18/10	Volume Extracted:	N/A
Date of Analysis:	10/19/10	Percent Solids:	91%
Dry Weight Extracted:	10.056 grams	Extract Dilution:	50
Wet Weight Extracted:	11.070 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	2500	
208-96-8	Acenaphthylene	ND	2500	
120-12-7	Anthracene	ND	2500	
56-55-3	Benzo(a)anthracene	4800	2500	
50-32-8	Benzo(a)pyrene	4300	2500	
205-99-2	Benzo(b)fluoranthene	4300	2500	
191-24-2	Benzo(g,h,i)perylene	4200	2500	
207-08-9	Benzo(k)fluoranthene	4300	2500	
218-01-9	Chrysene	4600	2500	
53-70-3	Dibenz(a,h)anthracene	ND	2500	
206-44-0	Fluoranthene	8500	2500	
86-73-7	Fluorene	ND	2500	
193-39-5	Indeno(1,2,3-cd)pyrene	3300	2500	
91-20-3	Naphthalene	ND	2500	
85-01-8	Phenanthrene	4500	2500	
129-00-0	Pyrene	7600	2500	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	83	41 - 106
2-Fluorobiphenyl (SS1)	75	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID: R01-100830MB-0347  
Date of Collection: 10/13/2010  
Date of Extraction: 10/18/10  
Date of Analysis: 10/20/10  
Dry Weight Extracted: 9.521 grams  
Wet Weight Extracted: 10.320 grams  
Final Volume: 1 mL

Lab Sample ID: AB11543  
Matrix: Soil  
Volume Extracted: N/A  
Percent Solids: 92%  
Extract Dilution: 10  
pH: N/A  
GPC Factor: N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	530	
208-96-8	Acenaphthylene	ND	530	
120-12-7	Anthracene	ND	530	
56-55-3	Benzo(a)anthracene	1700	530	
50-32-8	Benzo(a)pyrene	1900	530	
205-99-2	Benzo(b)fluoranthene	1800	530	
191-24-2	Benzo(g,h,i)perylene	2400	530	
207-08-9	Benzo(k)fluoranthene	2400	530	
218-01-9	Chrysene	1800	530	
53-70-3	Dibenz(a,h)anthracene	ND	530	
206-44-0	Fluoranthene	3200	530	
86-73-7	Fluorene	ND	530	
193-39-5	Indeno(1,2,3-cd)pyrene	1900	530	
91-20-3	Naphthalene	ND	530	
85-01-8	Phenanthrene	1400	530	
129-00-0	Pyrene	2800	530	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	80	41 - 106
2-Fluorobiphenyl (SS1)	66	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
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**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0348	Lab Sample ID:	AB11544
Date of Collection:	10/13/2010	Matrix:	Soil
Date of Extraction:	10/18/10	Volume Extracted:	N/A
Date of Analysis:	10/20/10	Percent Solids:	92%
Dry Weight Extracted:	9.637 grams	Extract Dilution:	10
Wet Weight Extracted:	10.465 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	520	
208-96-8	Acenaphthylene	ND	520	
120-12-7	Anthracene	820	520	
56-55-3	Benzo(a)anthracene	3100	520	
50-32-8	Benzo(a)pyrene	3500	520	
205-99-2	Benzo(b)fluoranthene	3100	520	
191-24-2	Benzo(g,h,i)perylene	3800	520	
207-08-9	Benzo(k)fluoranthene	3300	520	
218-01-9	Chrysene	3300	520	
53-70-3	Dibenz(a,h)anthracene	750	520	
206-44-0	Fluoranthene	6000	520	
86-73-7	Fluorene	ND	520	
193-39-5	Indeno(1,2,3-cd)pyrene	3000	520	
91-20-3	Naphthalene	ND	520	
85-01-8	Phenanthrene	3200	520	
129-00-0	Pyrene	5500	520	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	76	41 - 106
2-Fluorobiphenyl (SS1)	61	39 - 103

Comments:

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Tombarello Site - Lawrence, MA

PAHs in Soil

Client Sample ID: R01-100830MB-0349  
Date of Collection: 10/13/2010  
Date of Extraction: 10/18/10  
Date of Analysis: 10/19/10  
Dry Weight Extracted: 10.016 grams  
Wet Weight Extracted: 10.811 grams  
Final Volume: 1 mL

Lab Sample ID: AB11545  
Matrix: Soil  
Volume Extracted: N/A  
Percent Solids: 93%  
Extract Dilution: 50  
pH: N/A  
GPC Factor: N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	2500	
208-96-8	Acenaphthylene	ND	2500	
120-12-7	Anthracene	ND	2500	
56-55-3	Benzo(a)anthracene	7300	2500	
50-32-8	Benzo(a)pyrene	8200	2500	
205-99-2	Benzo(b)fluoranthene	6900	2500	
191-24-2	Benzo(g,h,i)perylene	7500	2500	
207-08-9	Benzo(k)fluoranthene	8400	2500	
218-01-9	Chrysene	7600	2500	
53-70-3	Dibenz(a,h)anthracene	2500	2500	
206-44-0	Fluoranthene	15000	2500	
86-73-7	Fluorene	ND	2500	
193-39-5	Indeno(1,2,3-cd)pyrene	6500	2500	
91-20-3	Naphthalene	ND	2500	
85-01-8	Phenanthrene	6500	2500	
129-00-0	Pyrene	13000	2500	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	78	41 - 106
2-Fluorobiphenyl (SS1)	65	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
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**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0350	Lab Sample ID:	AB11546
Date of Collection:	10/13/2010	Matrix:	Soil
Date of Extraction:	10/18/10	Volume Extracted:	N/A
Date of Analysis:	10/19/10	Percent Solids:	86%
Dry Weight Extracted:	9.483 grams	Extract Dilution:	50
Wet Weight Extracted:	10.979 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

<b>CAS Number</b>	<b>Compound</b>	<b>Concentration ug/Kg</b>	<b>RL ug/Kg</b>	<b>Qualifier</b>
83-32-9	Acenaphthene	ND	2600	
208-96-8	Acenaphthylene	ND	2600	
120-12-7	Anthracene	3200	2600	
56-55-3	Benzo(a)anthracene	17000	2600	
50-32-8	Benzo(a)pyrene	18000	2600	
205-99-2	Benzo(b)fluoranthene	14000	2600	
191-24-2	Benzo(g,h,i)perylene	15000	2600	
207-08-9	Benzo(k)fluoranthene	18000	2600	
218-01-9	Chrysene	16000	2600	
53-70-3	Dibenz(a,h)anthracene	ND	2600	
206-44-0	Fluoranthene	30000	2600	
86-73-7	Fluorene	ND	2600	
193-39-5	Indeno(1,2,3-cd)pyrene	13000	2600	
91-20-3	Naphthalene	ND	2600	
85-01-8	Phenanthrene	12000	2600	
129-00-0	Pyrene	28000	2600	

<b>Surrogate Compounds</b>	<b>Recoveries (%)</b>	<b>QC Ranges</b>
p-Terphenyl-d14 (SS2)	80	41 - 106
2-Fluorobiphenyl (SS1)	65	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
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**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0351	Lab Sample ID:	AB11547
Date of Collection:	10/13/2010	Matrix:	Soil
Date of Extraction:	10/18/10	Volume Extracted:	N/A
Date of Analysis:	10/19/10	Percent Solids:	85%
Dry Weight Extracted:	8.566 grams	Extract Dilution:	50
Wet Weight Extracted:	10.042 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	2900	
208-96-8	Acenaphthylene	ND	2900	
120-12-7	Anthracene	ND	2900	
56-55-3	Benzo(a)anthracene	<b>6600</b>	2900	
50-32-8	Benzo(a)pyrene	<b>7200</b>	2900	
205-99-2	Benzo(b)fluoranthene	<b>6200</b>	2900	
191-24-2	Benzo(g,h,i)perylene	<b>6900</b>	2900	
207-08-9	Benzo(k)fluoranthene	<b>7000</b>	2900	
218-01-9	Chrysene	<b>6600</b>	2900	
53-70-3	Dibenz(a,h)anthracene	ND	2900	
206-44-0	Fluoranthene	<b>12000</b>	2900	
86-73-7	Fluorene	ND	2900	
193-39-5	Indeno(1,2,3-cd)pyrene	<b>5500</b>	2900	
91-20-3	Naphthalene	ND	2900	
85-01-8	Phenanthrene	<b>6500</b>	2900	
129-00-0	Pyrene	<b>11000</b>	2900	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	78	41 - 106
2-Fluorobiphenyl (SS1)	60	39 - 103

Comments:

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Tombarello Site - Lawrence, MA

PAHs in Soil

Client Sample ID:	R01-100830MB-0352	Lab Sample ID:	AB11548
Date of Collection:	10/13/2010	Matrix:	Soil
Date of Extraction:	10/18/10	Volume Extracted:	N/A
Date of Analysis:	10/20/10	Percent Solids:	90%
Dry Weight Extracted:	9.00 grams	Extract Dilution:	10
Wet Weight Extracted:	10.044 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	560	
208-96-8	Acenaphthylene	ND	560	
120-12-7	Anthracene	ND	560	
56-55-3	Benzo(a)anthracene	1400	560	
50-32-8	Benzo(a)pyrene	1800	560	
205-99-2	Benzo(b)fluoranthene	2100	560	
191-24-2	Benzo(g,h,i)perylene	3000	560	
207-08-9	Benzo(k)fluoranthene	1500	560	
218-01-9	Chrysene	1500	560	
53-70-3	Dibenz(a,h)anthracene	ND	560	
206-44-0	Fluoranthene	2300	560	
86-73-7	Fluorene	ND	560	
193-39-5	Indeno(1,2,3-cd)pyrene	2100	560	
91-20-3	Naphthalene	ND	560	
85-01-8	Phenanthrene	1100	560	
129-00-0	Pyrene	2200	560	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	68	41 - 106
2-Fluorobiphenyl (SS1)	57	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
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**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0353	Lab Sample ID:	AB11549
Date of Collection:	10/13/2010	Matrix:	Soil
Date of Extraction:	10/18/10	Volume Extracted:	N/A
Date of Analysis:	10/19/10	Percent Solids:	91%
Dry Weight Extracted:	10.192 grams	Extract Dilution:	50
Wet Weight Extracted:	11.231 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	2500	
208-96-8	Acenaphthylene	ND	2500	
120-12-7	Anthracene	ND	2500	
56-55-3	Benzo(a)anthracene	3900	2500	
50-32-8	Benzo(a)pyrene	3500	2500	
205-99-2	Benzo(b)fluoranthene	2900	2500	
191-24-2	Benzo(g,h,i)perylene	2900	2500	
207-08-9	Benzo(k)fluoranthene	3800	2500	
218-01-9	Chrysene	4000	2500	
53-70-3	Dibenz(a,h)anthracene	ND	2500	
206-44-0	Fluoranthene	7700	2500	
86-73-7	Fluorene	ND	2500	
193-39-5	Indeno(1,2,3-cd)pyrene	2400	2500	
91-20-3	Naphthalene	ND	2500	
85-01-8	Phenanthrene	4900	2500	
129-00-0	Pyrene	6800	2500	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	60	41 - 106
2-Fluorobiphenyl (SS1)	53	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
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**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0354	Lab Sample ID:	AB11550
Date of Collection:	10/13/2010	Matrix:	Soil
Date of Extraction:	10/18/10	Volume Extracted:	N/A
Date of Analysis:	10/19/10	Percent Solids:	85%
Dry Weight Extracted:	8.459 grams	Extract Dilution:	50
Wet Weight Extracted:	9.998 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	3000	
208-96-8	Acenaphthylene	ND	3000	
120-12-7	Anthracene	ND	3000	
56-55-3	Benzo(a)anthracene	7100	3000	
50-32-8	Benzo(a)pyrene	7600	3000	
205-99-2	Benzo(b)fluoranthene	7600	3000	
191-24-2	Benzo(g,h,i)perylene	7100	3000	
207-08-9	Benzo(k)fluoranthene	7700	3000	
218-01-9	Chrysene	7300	3000	
53-70-3	Dibenz(a,h)anthracene	ND	3000	
206-44-0	Fluoranthene	14000	3000	
86-73-7	Fluorene	ND	3000	
193-39-5	Indeno(1,2,3-cd)pyrene	5700	3000	
91-20-3	Naphthalene	ND	3000	
85-01-8	Phenanthrene	8200	3000	
129-00-0	Pyrene	13000	3000	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	75	41 - 106
2-Fluorobiphenyl (SS1)	58	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID: R01-100830MB-0355  
Date of Collection: 10/13/2010  
Date of Extraction: 10/18/10  
Date of Analysis: 10/20/10  
Dry Weight Extracted: 9.360 grams  
Wet Weight Extracted: 10.714 grams  
Final Volume: 1 mL

Lab Sample ID: AB11551  
Matrix: Soil  
Volume Extracted: N/A  
Percent Solids: 87%  
Extract Dilution: 10  
pH: N/A  
GPC Factor: N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	530	
208-96-8	Acenaphthylene	ND	530	
120-12-7	Anthracene	680	530	
56-55-3	Benzo(a)anthracene	2800	530	
50-32-8	Benzo(a)pyrene	3100	530	
205-99-2	Benzo(b)fluoranthene	2500	530	
191-24-2	Benzo(g,h,i)perylene	2900	530	
207-08-9	Benzo(k)fluoranthene	3300	530	
218-01-9	Chrysene	2900	530	
53-70-3	Dibenz(a,h)anthracene	560	530	
206-44-0	Fluoranthene	5600	530	
86-73-7	Fluorene	ND	530	
193-39-5	Indeno(1,2,3-cd)pyrene	2300	530	
91-20-3	Naphthalene	ND	530	
85-01-8	Phenanthrene	3200	530	
129-00-0	Pyrene	5100	530	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	73	41 - 106
2-Fluorobiphenyl (SS1)	58	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0356	Lab Sample ID:	AB11552
Date of Collection:	10/13/2010	Matrix:	Soil
Date of Extraction:	10/18/10	Volume Extracted:	N/A
Date of Analysis:	10/19/10	Percent Solids:	85%
Dry Weight Extracted:	9.291 grams	Extract Dilution:	50
Wet Weight Extracted:	10.985 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	2700	
208-96-8	Acenaphthylene	ND	2700	
120-12-7	Anthracene	4900	2700	
56-55-3	Benzo(a)anthracene	17000	2700	
50-32-8	Benzo(a)pyrene	16000	2700	
205-99-2	Benzo(b)fluoranthene	14000	2700	
191-24-2	Benzo(g,h,i)perylene	11000	2700	
207-08-9	Benzo(k)fluoranthene	16000	2700	
218-01-9	Chrysene	17000	2700	
53-70-3	Dibenz(a,h)anthracene	ND	2700	
206-44-0	Fluoranthene	35000	2700	
86-73-7	Fluorene	ND	2700	
193-39-5	Indeno(1,2,3-cd)pyrene	9600	2700	
91-20-3	Naphthalene	ND	2700	
85-01-8	Phenanthrene	23000	2700	
129-00-0	Pyrene	30000	2700	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	84	41 - 106
2-Fluorobiphenyl (SS1)	70	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID: R01-100830MB-0357  
Date of Collection: 10/13/2010  
Date of Extraction: 10/18/10  
Date of Analysis: 10/20/10  
Dry Weight Extracted: 10.06 grams  
Wet Weight Extracted: 11.349 grams  
Final Volume: 1 mL

Lab Sample ID: AB11553  
Matrix: Soil  
Volume Extracted: N/A  
Percent Solids: 89%  
Extract Dilution: 10  
pH: N/A  
GPC Factor: N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	500	
208-96-8	Acenaphthylene	ND	500	
120-12-7	Anthracene	640	500	
56-55-3	Benzo(a)anthracene	3100	500	
50-32-8	Benzo(a)pyrene	3100	500	
205-99-2	Benzo(b)fluoranthene	2900	500	
191-24-2	Benzo(g,h,i)perylene	2900	500	
207-08-9	Benzo(k)fluoranthene	2700	500	
218-01-9	Chrysene	3000	500	
53-70-3	Dibenz(a,h)anthracene	ND	500	
206-44-0	Fluoranthene	5500	500	
86-73-7	Fluorene	ND	500	
193-39-5	Indeno(1,2,3-cd)pyrene	2300	500	
91-20-3	Naphthalene	ND	500	
85-01-8	Phenanthrene	2800	500	
129-00-0	Pyrene	5000	500	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	83	41 - 106
2-Fluorobiphenyl (SS1)	64	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID: R01-100830MB-0358  
Date of Collection: 10/13/2010  
Date of Extraction: 10/18/10  
Date of Analysis: 10/19/10  
Dry Weight Extracted: 9.155 grams  
Wet Weight Extracted: 10.626 grams  
Final Volume: 1 mL

Lab Sample ID: AB11554  
Matrix: Soil  
Volume Extracted: N/A  
Percent Solids: 86%  
Extract Dilution: 50  
pH: N/A  
GPC Factor: N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	2700	
208-96-8	Acenaphthylene	ND	2700	
120-12-7	Anthracene	ND	2700	
56-55-3	Benzo(a)anthracene	7200	2700	
50-32-8	Benzo(a)pyrene	7600	2700	
205-99-2	Benzo(b)fluoranthene	8100	2700	
191-24-2	Benzo(g,h,i)perylene	6100	2700	
207-08-9	Benzo(k)fluoranthene	7700	2700	
218-01-9	Chrysene	7400	2700	
53-70-3	Dibenz(a,h)anthracene	ND	2700	
206-44-0	Fluoranthene	15000	2700	
86-73-7	Fluorene	ND	2700	
193-39-5	Indeno(1,2,3-cd)pyrene	5500	2700	
91-20-3	Naphthalene	ND	2700	
85-01-8	Phenanthrene	8300	2700	
129-00-0	Pyrene	13000	2700	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	78	41 - 106
2-Fluorobiphenyl (SS1)	65	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0359	Lab Sample ID:	AB11555
Date of Collection:	10/13/2010	Matrix:	Soil
Date of Extraction:	10/18/10	Volume Extracted:	N/A
Date of Analysis:	10/19/10	Percent Solids:	90%
Dry Weight Extracted:	9.846 grams	Extract Dilution:	50
Wet Weight Extracted:	10.886 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	2500	
208-96-8	Acenaphthylene	ND	2500	
120-12-7	Anthracene	2600	2500	
56-55-3	Benzo(a)anthracene	15000	2500	
50-32-8	Benzo(a)pyrene	16000	2500	
205-99-2	Benzo(b)fluoranthene	13000	2500	
191-24-2	Benzo(g,h,i)perylene	13000	2500	
207-08-9	Benzo(k)fluoranthene	15000	2500	
218-01-9	Chrysene	14000	2500	
53-70-3	Dibenz(a,h)anthracene	ND	2500	
206-44-0	Fluoranthene	26000	2500	
86-73-7	Fluorene	ND	2500	
193-39-5	Indeno(1,2,3-cd)pyrene	11000	2500	
91-20-3	Naphthalene	ND	2500	
85-01-8	Phenanthrene	9200	2500	
129-00-0	Pyrene	24000	2500	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	20	41 - 106
2-Fluorobiphenyl (SS1)	15	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0360	Lab Sample ID:	AB11556
Date of Collection:	10/13/2010	Matrix:	Soil
Date of Extraction:	10/18/10	Volume Extracted:	N/A
Date of Analysis:	10/20/10	Percent Solids:	88%
Dry Weight Extracted:	9.600 grams	Extract Dilution:	10
Wet Weight Extracted:	10.850 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	520	
208-96-8	Acenaphthylene	ND	520	
120-12-7	Anthracene	680	520	
56-55-3	Benzo(a)anthracene	2800	520	
50-32-8	Benzo(a)pyrene	3000	520	
205-99-2	Benzo(b)fluoranthene	2900	520	
191-24-2	Benzo(g,h,i)perylene	2800	520	
207-08-9	Benzo(k)fluoranthene	3000	520	
218-01-9	Chrysene	2700	520	
53-70-3	Dibenz(a,h)anthracene	ND	520	
206-44-0	Fluoranthene	5100	520	
86-73-7	Fluorene	ND	520	
193-39-5	Indeno(1,2,3-cd)pyrene	2400	520	
91-20-3	Naphthalene	ND	520	
85-01-8	Phenanthrene	2900	520	
129-00-0	Pyrene	4900	520	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	84	41 - 106
2-Fluorobiphenyl (SS1)	70	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0361	Lab Sample ID:	AB11557
Date of Collection:	10/13/2010	Matrix:	Soil
Date of Extraction:	10/18/10	Volume Extracted:	N/A
Date of Analysis:	10/20/10	Percent Solids:	92%
Dry Weight Extracted:	9.628 grams	Extract Dilution:	50
Wet Weight Extracted:	10.498 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	2600	
208-96-8	Acenaphthylene	ND	2600	
120-12-7	Anthracene	ND	2600	
56-55-3	Benzo(a)anthracene	6100	2600	
50-32-8	Benzo(a)pyrene	7400	2600	
205-99-2	Benzo(b)fluoranthene	7000	2600	
191-24-2	Benzo(g,h,i)perylene	7700	2600	
207-08-9	Benzo(k)fluoranthene	7100	2600	
218-01-9	Chrysene	6200	2600	
53-70-3	Dibenz(a,h)anthracene	ND	2600	
206-44-0	Fluoranthene	10000	2600	
86-73-7	Fluorene	ND	2600	
193-39-5	Indeno(1,2,3-cd)pyrene	6500	2600	
91-20-3	Naphthalene	ND	2600	
85-01-8	Phenanthrene	3900	2600	
129-00-0	Pyrene	9500	2600	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	88	41 - 106
2-Fluorobiphenyl (SS1)	75	39 - 103

Comments:



US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

PAH MATRIX SPIKE (MS)

Tombarello Site - Lawrence, MA

Sample ID: AB11540

PARAMETER	SPIKE ADDED ug/Kg	SAMPLE CONCENTRATION ug/Kg	MS CONCENTRATION ug/Kg	MS % REC	QC LIMITS (% REC)
Acenaphthene	4500	ND	3400	77	30 - 113
Acenaphthylene	4500	ND	3300	73	28 - 125
Anthracene	4500	ND	4700	105	30 - 129
Benzo(a)anthracene	4500	5600	9200	80	25 - 137
Benzo(a)pyrene	4500	6500	9800	73	26 - 115
Benzo(b)fluoranthene	4500	5100	10000	110	29 - 120
Benzo(g,h,i)perylene	4500	6300	9300	67	26 - 119
Benzo(k)fluoranthene	4500	6900	8100	27	27 - 139
Chrysene	4500	5400	8900	79	31 - 120
Dibenz(a,h)anthracene	4500	ND	5500	124	31 - 125
Fluoranthene	4500	9900	14000	99	21 - 148
Fluorene	4500	ND	3400	76	34 - 121
Indeno(1,2,3-cd)pyrene	4500	5000	8100	69	29 - 125
Naphthalene	4500	ND	3000	67	19 - 107
Phenanthrene	4500	5000	8800	86	26 - 125
Pyrene	4500	9200	14000	97	20 - 142

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

Laboratory Duplicate Results

Tombarello Site - Lawrence, MA

Sample ID: AB11540

PARAMETER	SAMPLE RESULT ug/Kg	SAMPLE DUPLICATE RESULT ug/Kg	PRECISION RPD %	QC LIMITS
Acenaphthene	ND	ND	ND	40
Acenaphthylene	ND	ND	ND	40
Anthracene	ND	ND	ND	40
Benzo(a)anthracene	5600	3700	40	40
Benzo(a)pyrene	6500	4200	43	40
Benzo(b)fluoranthene	5100	4200	20	40
Benzo(g,h,i)perylene	6300	4600	31	40
Benzo(k)fluoranthene	6900	3800	57	40
Chrysene	5400	3600	39	40
Dibenz(a,h)anthracene	ND	ND	ND	40
Fluoranthene	9900	6600	40	40
Fluorene	ND	ND	ND	40
Indeno(1,2,3-cd)pyrene	5000	3700	31	40
Naphthalene	ND	ND	ND	40
Phenanthrene	5000	2900	54	40
Pyrene	9200	6300	38	40

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Laboratory Fortified Blank (LFB) Results**

Tombarello Site - Lawrence, MA

PARAMETER	LFB AMOUNT SPIKED ppb	LFB RESULT ppb	LFB RECOVERY %	QC LIMITS %
Acenaphthene	3900	2000	53	26 - 129
Acenaphthylene	3900	2000	52	23 - 141
Anthracene	3900	2400	61	25 - 149
Benzo(a)anthracene	3900	2300	60	27 - 142
Benzo(a)pyrene	3900	2300	59	29 - 123
Benzo(b)fluoranthene	3900	2500	65	22 - 146
Benzo(g,h,i)perylene	3900	2200	57	26 - 134
Benzo(k)fluoranthene	3900	2100	55	32 - 144
Chrysene	3900	2300	59	38 - 121
Dibenz(a,h)anthracene	3900	2200	57	35 - 133
Fluoranthene	3900	2300	58	29 - 154
Fluorene	3900	2100	53	29 - 138
Indeno(1,2,3-cd)pyrene	3900	2100	55	26 - 141
Naphthalene	3900	1900	50	30 - 110
Phenanthrene	3900	2400	61	27 - 140
Pyrene	3900	2300	60	24 - 147

Comments:



United States Environmental Protection Agency  
Office of Environmental Measurement & Evaluation  
60 Westview Street  
Lexington, MA 02421-3185

Laboratory Report

October 26, 2010

Mike Barry - OSRR02-2  
US EPA New England R1

Project Number: 10100020  
Project: Tombarello Site - Lawrence, MA  
Analysis: PCB's in Soil Field Method (Fixed Lab)  
Analyst: Paul Carroll

*Paul Carroll*  
10.26.10

Analytical Procedure:

All samples were received and logged in by the laboratory according to the USEPA New England Laboratory SOP for Sample Log-in.

Sample preparation and analysis was done following the EPA Region I SOP, FLDPCB2.SOP.

Concentrations of PCBs in soil were calculated using an external standard technique.

Analysis for PCB's performed by this field analytical technique is used for tentative identification and semi-quantitation of PCB's in soil, oil, and sediment samples.

Date Samples Received by the Laboratory: 10/14/10

Results relate only to the items tested or to the samples as received by the Laboratory. This analytical report shall not be reproduced except in full, without written approval of the laboratory.

Results for soil samples are reported on a dry weight basis.

If you have any questions please call me at 617-918-8340.

Sincerely,

*Daniel Boudreau* 10/27/10  
Daniel Boudreau

Project # 10100020

PCB's in Soil Field Method (Fixed Lab)

US ENVIRONMENTAL PROTECTION AGENCY NEW ENGLAND LABORATORY Tombarello Site - Lawrence, MA						
Client Sample ID	R01-100830MB-0342	R01-100830MB-0343	R01-100830MB-0344	R01-100830MB-0345	R01-100830MB-0346	R01-100830MB-0347
Lab Sample ID	AB11538	AB11539	AB11540	AB11541	AB11542	AB11543
Date of Collection	10/13/2010	10/13/2010	10/13/2010	10/13/2010	10/13/2010	10/13/2010
Date of Extraction	10/18/2010	10/18/2010	10/18/2010	10/18/2010	10/18/2010	10/18/2010
Date of Analysis	10/19/2010	10/19/2010	10/19/2010	10/19/2010	10/19/2010	10/19/2010
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Compound	Conc. (RL) mg/Kg					
Aroclor-1242	ND (0.14)	ND (0.16)	ND (0.16)	ND (0.12)	ND (0.12)	ND (0.12)
Aroclor-1248	ND (0.14)	ND (0.16)	ND (0.16)	ND (0.12)	ND (0.12)	ND (0.12)
Aroclor-1254	ND (0.14)	ND (0.16)	ND (0.16)	ND (0.12)	ND (0.12)	ND (0.12)
Aroclor-1260	3.4 (0.14)	3.6 (0.16)	3.2 (0.16)	2.0 (0.12)	4.7 (0.12)	5.2 (0.12)
Aroclor-1262	ND (0.14)	ND (0.16)	ND (0.16)	ND (0.12)	ND (0.12)	ND (0.12)
Aroclor-1268	ND (0.14)	ND (0.16)	ND (0.16)	ND (0.12)	ND (0.12)	ND (0.12)

**US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY  
Tombarello Site - Lawrence, MA**

	R01-100830MB-0348 AB11544 10/13/2010 10/18/2010 10/19/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0349 AB11545 10/13/2010 10/18/2010 10/19/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0350 AB11546 10/13/2010 10/18/2010 10/19/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0351 AB11547 10/13/2010 10/18/2010 10/19/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0352 AB11548 10/13/2010 10/18/2010 10/19/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0353 AB11549 10/13/2010 10/18/2010 10/19/2010 Soil  Conc. (RL) mg/Kg
Aroclor-1242	ND (1.6)	ND (1.4)	ND (0.68)	ND (1.4)	ND (0.82)	ND (0.16)
Aroclor-1248	ND (1.6)	ND (1.4)	ND (0.68)	ND (1.4)	ND (0.82)	ND (0.16)
Aroclor-1254	ND (1.6)	ND (1.4)	5.1 (0.68)	11 (1.4)	6.7 (0.82)	2.1 (0.16)
Aroclor-1260	15 (1.6)	40 (1.4)	14 (0.68)	21 (1.4)	11 (0.82)	3.4 (0.16)
Aroclor-1262	ND (1.6)	ND (1.4)	ND (0.68)	ND (1.4)	ND (0.82)	ND (0.16)
Aroclor-1268	ND (1.6)	ND (1.4)	ND (0.68)	ND (1.4)	ND (0.82)	ND (0.16)

**US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY  
Tombarello Site - Lawrence, MA**

	R01-100830MB-0354 AB11550 10/13/2010 10/18/2010 10/19/2010 Soil	R01-100830MB-0355 AB11551 10/13/2010 10/18/2010 10/19/2010 Soil	R01-100830MB-0356 AB11552 10/13/2010 10/18/2010 10/19/2010 Soil	R01-100830MB-0357 AB11553 10/13/2010 10/18/2010 10/19/2010 Soil	R01-100830MB-0358 AB11554 10/13/2010 10/18/2010 10/19/2010 Soil	R01-100830MB-0359 AB11555 10/13/2010 10/18/2010 10/19/2010 Soil
	Conc. (RL) mg/Kg					
Aroclor-1242	ND (0.16)	ND (0.14)	ND (1.6)	ND (0.12)	ND (0.78)	ND (0.68)
Aroclor-1248	ND (0.16)	ND (0.14)	ND (1.6)	ND (0.12)	ND (0.78)	ND (0.68)
Aroclor-1254	11 (0.16)	ND (0.14)	ND (1.6)	ND (0.12)	ND (0.78)	ND (0.68)
Aroclor-1260	7.4 (0.16)	5.6 (0.14)	17 (1.6)	3.0 (0.12)	7.7 (0.78)	6.1 (0.68)
Aroclor-1262	ND (0.16)	ND (0.14)	ND (1.6)	ND (0.12)	ND (0.78)	ND (0.68)
Aroclor-1268	ND (0.16)	ND (0.14)	ND (1.6)	ND (0.12)	ND (0.78)	ND (0.68)

**US ENVIRONMENTAL PROTECTION  
AGENCY  
NEW ENGLAND LABORATORY**

R01-100830MB-0360 AB11556 10/13/2010 10/18/2010 10/19/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0361 AB11557 10/13/2010 10/18/2010 10/19/2010 Soil  Conc. (RL) mg/Kg
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Aroclor-1242	ND (0.16)	ND (0.12)
Aroclor-1248	ND (0.16)	ND (0.12)
Aroclor-1254	ND (0.16)	ND (0.12)
Aroclor-1260	1.7 (0.16)	3.2 (0.12)
Aroclor-1262	ND (0.16)	ND (0.12)
Aroclor-1268	ND (0.16)	ND (0.12)

Qualifiers: RL = Reporting limit  
ND = Not Detected above Reporting limit  
NA = Not Applicable due to high sample dilutions or sample interferences  
J = Estimated value  
E = Estimated value exceeds the calibration range  
L = Estimated value is below the calibration range  
B = Analyte is associated with the lab blank or trip blank contamination. Values are qualified when the observed concentration of the contamination in the sample extract is less than 10 times the concentration in the blank.  
P = The confirmation value exceeded 35% difference and is less than 100%. The lower value is reported.  
C = The identification has been confirmed by GC/MS.  
A = Suspected Aldol condensation product.  
N = Tentatively identified compound.



United States Environmental Protection Agency  
Office of Environmental Measurement & Evaluation  
60 Westview Street  
Lexington, MA 02421-3185

Laboratory Report

November 09, 2010

Mike Barry - OSRR02-2  
US EPA New England R1

Project Number: 10100020

Project: Tombarello Site - Lawrence, MA  
Analysis: Field Analysis of Metals by XRF

Analyst: Paul Carroll *McNeill*  
*11-9-10*

Analytical Procedure:

All samples were received and logged in by the laboratory according to the USEPA New England Laboratory SOP for Sample Log-in.

Sample preparation and analysis was done following the EPA Region I SOP, EIA-FLDXRFN3.

The analysis were performed by the EPA New England Regional Laboratory.

Date Samples Received by the Laboratory: 10/14/10

Results relate only to the items tested or to the samples as received by the Laboratory. This analytical report shall not be reproduced except in full, without written approval of the laboratory.

If you have any questions please call me at 617-918-8340.

Sincerely,

*Dan Boudreau 11/16/10*  
Dan Boudreau  
Chemistry Team Leader

Project # 10100020

Field Analysis of Metals by XRF

US ENVIRONMENTAL PROTECTION AGENCY NEW ENGLAND LABORATORY Tombarello Site - Lawrence, MA						
Client Sample ID	R01-100830MB-0342	R01-100830MB-0343	R01-100830MB-0344	R01-100830MB-0345	R01-100830MB-0346	R01-100830MB-0347
Lab Sample ID	AB11538	AB11539	AB11540	AB11541	AB11542	AB11543
Date of Collection	10/13/2010	10/13/2010	10/13/2010	10/13/2010	10/13/2010	10/13/2010
Date of Extraction	11/5/2010	11/5/2010	11/5/2010	11/5/2010	11/5/2010	11/5/2010
Date of Analysis	11/5/2010	11/5/2010	11/5/2010	11/5/2010	11/5/2010	11/5/2010
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Compound	Conc. (RL) mg/Kg					
Arsenic	ND ( 28)	ND ( 29)	42 ( 20)	ND ( 23)	45 ( 20)	71 ( 20)
Cadmium	ND ( 10)	ND ( 13)	ND ( 14)	ND ( 12)	40 (8.0)	14 (8.0)
Chromium	ND ( 41)	50 ( 20)	80 ( 20)	29 ( 20)	88 ( 20)	98 ( 20)
Lead	420 ( 20)	470 ( 20)	530 ( 20)	300 ( 20)	890 ( 20)	930 ( 20)

**US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY  
Tombarello Site - Lawrence, MA**

	R01-100830MB-0348 AB11544 10/13/2010 11/5/2010 11/5/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0349 AB11545 10/13/2010 11/5/2010 11/5/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0350 AB11546 10/13/2010 11/5/2010 11/5/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0351 AB11547 10/13/2010 11/5/2010 11/5/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0352 AB11548 10/13/2010 11/5/2010 11/5/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0353 AB11549 10/13/2010 11/5/2010 11/5/2010 Soil  Conc. (RL) mg/Kg
Arsenic	ND ( 37)	58 ( 20)	ND ( 42)	100 ( 20)	65 ( 20)	52 ( 20)
Cadmium	ND ( 14)	14 (8.0)	ND ( 16)	25 (8.0)	14 (8.0)	ND ( 16)
Chromium	69 ( 20)	61 ( 20)	59 ( 20)	100 ( 20)	160 ( 20)	140 ( 20)
Lead	690 ( 20)	610 ( 20)	700 ( 20)	1500 ( 20)	940 ( 20)	850 ( 20)

**US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY  
Tombarello Site - Lawrence, MA**

	R01-100830MB-0354 AB11550 10/13/2010 11/5/2010 11/5/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0355 AB11551 10/13/2010 11/5/2010 11/5/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0356 AB11552 10/13/2010 11/5/2010 11/5/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0357 AB11553 10/13/2010 11/5/2010 11/5/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0358 AB11554 10/13/2010 11/5/2010 11/5/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0359 AB11555 10/13/2010 11/5/2010 11/5/2010 Soil  Conc. (RL) mg/Kg
Arsenic	ND ( 72)	ND ( 33)	ND ( 40)	ND ( 32)	45 ( 20)	38 ( 20)
Cadmium	36 (8.0)	ND ( 11)	ND ( 11)	ND ( 14)	16 (8.0)	ND ( 11)
Chromium	170 ( 20)	ND ( 40)	53 ( 20)	ND ( 45)	47 ( 20)	57 ( 20)
Lead	2100 ( 20)	610 ( 20)	850 ( 20)	540 ( 20)	670 ( 20)	440 ( 20)

**US ENVIRONMENTAL PROTECTION  
AGENCY  
NEW ENGLAND LABORATORY**

R01-100830MB-0360 AB11556 10/13/2010 11/5/2010 11/5/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0361 AB11557 10/13/2010 11/5/2010 11/5/2010 Soil  Conc. (RL) mg/Kg
---	---

Arsenic	ND ( 24)	78 ( 20)
Cadmium	ND ( 12)	ND ( 16)
Chromium	ND ( 22)	110 ( 20)
Lead	290 ( 20)	690 ( 20)

Qualifiers: RL = Reporting limit  
ND = Not Detected above Reporting limit  
NA = Not Applicable due to low (pH < 4.5)  
J = Estimated value  
E = Estimated value exceeds the calibration range  
L = Estimated value is below the calibration range  
B = Analyte is associated with the lab blank or trip blank contamination. Values are qualified when the observed concentration of the contamination in the sample extract is less than 10 times the concentration in the blank.  
P = The confirmation value exceeded 35% difference and is less than 100%. The lower value is reported.  
C = The identification has been confirmed by GC/MS.  
A = Suspected Aldol condensation product.  
N = Tentatively identified compound.



Laboratory Report

October 26, 2010

Mike Barry - OSRR02-2  
US EPA New England R1

Project Number: 10100021  
Project: Tombarello Site - Lawrence, MA  
Analysis: PAHs in Soil  
Analyst: Dan Boudreau *DB 10/26/10*

Analytical Procedure:

All samples were received and logged in by the laboratory according to the USEPA New England Laboratory SOP for Sample Log-in.

Sample preparation and analysis was done following the EPA Region I SOP, EIASOP-BNAS3.

Samples were analyzed by a quadrupole GC/MS operating in the full-scan mode. The extraction and analysis SOPs are based on SW-846 methods 3545A, 3630C, 8270C, and EIASOP-BNAGCMS7.

Date Samples Received by the Laboratory: 10/14/2010

Data were reviewed in accordance with the internal verification procedures described in the EPA New England OEME Chemistry QA Plan.

Results relate only to the items tested or to the samples as received by the Laboratory. This analytical report shall not be reproduced except in full, without written approval of the laboratory.

Report may contain multiple sections and each section will be numbered independently.

If you have any questions please call me at 617-918-8340 .

Sincerely,

*Daniel N. Boudreau 10/28/10*  
Daniel N. Boudreau  
Chemistry Team Leader

**Qualifiers:**

RL = Reporting limit

ND = Not Detected above Reporting limit

NA = Not Applicable due to high sample dilutions or sample interferences

NC = Not calculated since analyte concentration is ND.

J = Estimated value

E = Estimated value exceeds the calibration range

L = Estimated value is below the calibration range

B = Analyte is associated with the lab blank or trip blank contamination. Values are qualified when the observed concentration of the contamination in the sample extract is less than 5 times the concentration in the blank.

R = No recovery was calculated since the analyte concentration is greater than four times the spike level.

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID: R01-100830MB-0362  
Date of Collection: 10/13/2010  
Date of Extraction: 10/18/10  
Date of Analysis: 10/21/10  
Dry Weight Extracted: 10.782 grams  
Wet Weight Extracted: 11.412 grams  
Final Volume: 1 mL

Lab Sample ID: AB11558  
Matrix: Soil  
Volume Extracted: N/A  
Percent Solids: 94%  
Extract Dilution: 10  
pH: N/A  
GPC Factor: N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	440	
208-96-8	Acenaphthylene	ND	440	
120-12-7	Anthracene	ND	440	
56-55-3	Benzo(a)anthracene	1500	440	
50-32-8	Benzo(a)pyrene	2100	440	
205-99-2	Benzo(b)fluoranthene	2200	440	
191-24-2	Benzo(g,h,i)perylene	3000	440	
207-08-9	Benzo(k)fluoranthene	1700	440	
218-01-9	Chrysene	1600	440	
53-70-3	Dibenz(a,h)anthracene	ND	440	
206-44-0	Fluoranthene	2500	440	
86-73-7	Fluorene	ND	440	
193-39-5	Indeno(1,2,3-cd)pyrene	2500	440	
91-20-3	Naphthalene	ND	440	
85-01-8	Phenanthrene	1100	440	
129-00-0	Pyrene	2500	440	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	88	41 - 106
2-Fluorobiphenyl (SS1)	58	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0363	Lab Sample ID:	AB11559
Date of Collection:	10/13/2010	Matrix:	Soil
Date of Extraction:	10/18/10	Volume Extracted:	N/A
Date of Analysis:	10/21/10	Percent Solids:	81%
Dry Weight Extracted:	9.678 grams	Extract Dilution:	10
Wet Weight Extracted:	11.929 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	520	
208-96-8	Acenaphthylene	ND	520	
120-12-7	Anthracene	540	520	
56-55-3	Benzo(a)anthracene	1700	520	
50-32-8	Benzo(a)pyrene	2300	520	
205-99-2	Benzo(b)fluoranthene	3000	520	
191-24-2	Benzo(g,h,i)perylene	4300	520	
207-08-9	Benzo(k)fluoranthene	1900	520	
218-01-9	Chrysene	1700	520	
53-70-3	Dibenz(a,h)anthracene	ND	520	
206-44-0	Fluoranthene	3100	520	
86-73-7	Fluorene	ND	520	
193-39-5	Indeno(1,2,3-cd)pyrene	3400	520	
91-20-3	Naphthalene	ND	520	
85-01-8	Phenanthrene	1700	520	
129-00-0	Pyrene	2800	520	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	92	41 - 106
2-Fluorobiphenyl (SS1)	70	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**Laboratory Blank (PAHs)**

Client Sample ID:	N/A	Lab Sample ID:	N/A
Date of Collection:	N/A	Matrix:	Soil
Date of Extraction:	10/18/10	Volume Extracted:	N/A
Date of Analysis:	10/20/10	Percent Solids:	100%
Dry Weight Extracted:	9.621 grams	Extract Dilution:	1
Wet Weight Extracted:	9.644 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	52	
208-96-8	Acenaphthylene	ND	52	
120-12-7	Anthracene	ND	52	
56-55-3	Benzo(a)anthracene	ND	52	
50-32-8	Benzo(a)pyrene	ND	52	
205-99-2	Benzo(b)fluoranthene	ND	52	
191-24-2	Benzo(g,h,i)perylene	ND	52	
207-08-9	Benzo(k)fluoranthene	ND	52	
218-01-9	Chrysene	ND	52	
53-70-3	Dibenz(a,h)anthracene	ND	52	
206-44-0	Fluoranthene	ND	52	
86-73-7	Fluorene	ND	52	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	52	
91-20-3	Naphthalene	ND	52	
85-01-8	Phenanthrene	ND	52	
129-00-0	Pyrene	ND	52	

Surrogate Compounds	Recoveries (%)	QC Ranges
2-Fluorobiphenyl (SS1)	48	31 - 94
p-Terphenyl-d14 (SS2)	60	32 - 96

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

Tombarello Site - Lawrence, MA

PAHs in Soil

Client Sample ID:	R01-100830MB-0364	Lab Sample ID:	AB11560
Date of Collection:	10/13/2010	Matrix:	Soil
Date of Extraction:	10/18/10	Volume Extracted:	N/A
Date of Analysis:	10/21/10	Percent Solids:	92%
Dry Weight Extracted:	10.398 grams	Extract Dilution:	5
Wet Weight Extracted:	11.281 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	240	
208-96-8	Acenaphthylene	ND	240	
120-12-7	Anthracene	ND	240	
56-55-3	Benzo(a)anthracene	940	240	
50-32-8	Benzo(a)pyrene	1200	240	
205-99-2	Benzo(b)fluoranthene	1300	240	
191-24-2	Benzo(g,h,i)perylene	2300	240	
207-08-9	Benzo(k)fluoranthene	930	240	
218-01-9	Chrysene	890	240	
53-70-3	Dibenz(a,h)anthracene	ND	240	
206-44-0	Fluoranthene	1400	240	
86-73-7	Fluorene	ND	240	
193-39-5	Indeno(1,2,3-cd)pyrene	1600	240	
91-20-3	Naphthalene	ND	240	
85-01-8	Phenanthrene	620	240	
129-00-0	Pyrene	1400	240	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	120	41 - 106
2-Fluorobiphenyl (SS1)	98	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0365	Lab Sample ID:	AB11561
Date of Collection:	10/13/2010	Matrix:	Soil
Date of Extraction:	10/18/10	Volume Extracted:	N/A
Date of Analysis:	10/20/10	Percent Solids:	92%
Dry Weight Extracted:	9.505 grams	Extract Dilution:	50
Wet Weight Extracted:	10.328 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	2600	
208-96-8	Acenaphthylene	ND	2600	
120-12-7	Anthracene	ND	2600	
56-55-3	Benzo(a)anthracene	<b>5100</b>	2600	
50-32-8	Benzo(a)pyrene	<b>5300</b>	2600	
205-99-2	Benzo(b)fluoranthene	<b>4500</b>	2600	
191-24-2	Benzo(g,h,i)perylene	<b>4800</b>	2600	
207-08-9	Benzo(k)fluoranthene	<b>4500</b>	2600	
218-01-9	Chrysene	<b>4800</b>	2600	
53-70-3	Dibenz(a,h)anthracene	ND	2600	
206-44-0	Fluoranthene	<b>8900</b>	2600	
86-73-7	Fluorene	ND	2600	
193-39-5	Indeno(1,2,3-cd)pyrene	<b>3900</b>	2600	
91-20-3	Naphthalene	ND	2600	
85-01-8	Phenanthrene	<b>4600</b>	2600	
129-00-0	Pyrene	<b>8400</b>	2600	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	85	41 - 106
2-Fluorobiphenyl (SS1)	70	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0366	Lab Sample ID:	AB11562
Date of Collection:	10/13/2010	Matrix:	Soil
Date of Extraction:	10/18/10	Volume Extracted:	N/A
Date of Analysis:	10/21/10	Percent Solids:	89%
Dry Weight Extracted:	9.49 grams	Extract Dilution:	5
Wet Weight Extracted:	10.653 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	530	
208-96-8	Acenaphthylene	ND	530	
120-12-7	Anthracene	660	530	
56-55-3	Benzo(a)anthracene	2400	530	
50-32-8	Benzo(a)pyrene	3000	530	
205-99-2	Benzo(b)fluoranthene	2800	530	
191-24-2	Benzo(g,h,i)perylene	3900	530	
207-08-9	Benzo(k)fluoranthene	2700	530	
218-01-9	Chrysene	2400	530	
53-70-3	Dibenz(a,h)anthracene	ND	530	
206-44-0	Fluoranthene	4200	530	
86-73-7	Fluorene	ND	530	
193-39-5	Indeno(1,2,3-cd)pyrene	3000	530	
91-20-3	Naphthalene	ND	530	
85-01-8	Phenanthrene	2200	530	
129-00-0	Pyrene	4100	530	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	90	41 - 106
2-Fluorobiphenyl (SS1)	65	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID: R01-100830MB-0367  
Date of Collection: 10/13/2010  
Date of Extraction: 10/18/10  
Date of Analysis: 10/20/10  
Dry Weight Extracted: 10.26 grams  
Wet Weight Extracted: 11.555 grams  
Final Volume: 1 mL

Lab Sample ID: AB11563  
Matrix: Soil  
Volume Extracted: N/A  
Percent Solids: 89%  
Extract Dilution: 50  
pH: N/A  
GPC Factor: N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	2400	
208-96-8	Acenaphthylene	ND	2400	
120-12-7	Anthracene	ND	2400	
56-55-3	Benzo(a)anthracene	7800	2400	
50-32-8	Benzo(a)pyrene	8400	2400	
205-99-2	Benzo(b)fluoranthene	7300	2400	
191-24-2	Benzo(g,h,i)perylene	6600	2400	
207-08-9	Benzo(k)fluoranthene	7000	2400	
218-01-9	Chrysene	7100	2400	
53-70-3	Dibenz(a,h)anthracene	ND	2400	
206-44-0	Fluoranthene	15000	2400	
86-73-7	Fluorene	ND	2400	
193-39-5	Indeno(1,2,3-cd)pyrene	5800	2400	
91-20-3	Naphthalene	ND	2400	
85-01-8	Phenanthrene	8200	2400	
129-00-0	Pyrene	14000	2400	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	88	41 - 106
2-Fluorobiphenyl (SS1)	70	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0368	Lab Sample ID:	AB11564
Date of Collection:	10/13/2010	Matrix:	Soil
Date of Extraction:	10/18/10	Volume Extracted:	N/A
Date of Analysis:	10/20/10	Percent Solids:	88%
Dry Weight Extracted:	9.027 grams	Extract Dilution:	50
Wet Weight Extracted:	10.248 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	2800	
208-96-8	Acenaphthylene	ND	2800	
120-12-7	Anthracene	ND	2800	
56-55-3	Benzo(a)anthracene	5900	2800	
50-32-8	Benzo(a)pyrene	5300	2800	
205-99-2	Benzo(b)fluoranthene	5100	2800	
191-24-2	Benzo(g,h,i)perylene	3900	2800	
207-08-9	Benzo(k)fluoranthene	4700	2800	
218-01-9	Chrysene	6000	2800	
53-70-3	Dibenz(a,h)anthracene	ND	2800	
206-44-0	Fluoranthene	12000	2800	
86-73-7	Fluorene	ND	2800	
193-39-5	Indeno(1,2,3-cd)pyrene	3400	2800	
91-20-3	Naphthalene	ND	2800	
85-01-8	Phenanthrene	6800	2800	
129-00-0	Pyrene	10000	2800	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	90	41 - 106
2-Fluorobiphenyl (SS1)	65	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID: R01-100830MB-0369  
Date of Collection: 10/13/2010  
Date of Extraction: 10/18/10  
Date of Analysis: 10/20/10  
Dry Weight Extracted: 9.390 grams  
Wet Weight Extracted: 10.787 grams  
Final Volume: 1 mL

Lab Sample ID: AB11565  
Matrix: Soil  
Volume Extracted: N/A  
Percent Solids: 87%  
Extract Dilution: 50  
pH: N/A  
GPC Factor: N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	2700	
208-96-8	Acenaphthylene	ND	2700	
120-12-7	Anthracene	4100	2700	
56-55-3	Benzo(a)anthracene	17000	2700	
50-32-8	Benzo(a)pyrene	17000	2700	
205-99-2	Benzo(b)fluoranthene	15000	2700	
191-24-2	Benzo(g,h,i)perylene	12000	2700	
207-08-9	Benzo(k)fluoranthene	14000	2700	
218-01-9	Chrysene	16000	2700	
53-70-3	Dibenz(a,h)anthracene	ND	2700	
206-44-0	Fluoranthene	28000	2700	
86-73-7	Fluorene	ND	2700	
193-39-5	Indeno(1,2,3-cd)pyrene	10000	2700	
91-20-3	Naphthalene	ND	2700	
85-01-8	Phenanthrene	11000	2700	
129-00-0	Pyrene	25000	2700	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	95	41 - 106
2-Fluorobiphenyl (SS1)	72	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0370	Lab Sample ID:	AB11566
Date of Collection:	10/13/2010	Matrix:	Soil
Date of Extraction:	10/18/10	Volume Extracted:	N/A
Date of Analysis:	10/21/10	Percent Solids:	64%
Dry Weight Extracted:	6.282 grams	Extract Dilution:	10
Wet Weight Extracted:	9.879 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	800	
208-96-8	Acenaphthylene	ND	800	
120-12-7	Anthracene	ND	800	
56-55-3	Benzo(a)anthracene	4100	800	
50-32-8	Benzo(a)pyrene	4900	800	
205-99-2	Benzo(b)fluoranthene	6300	800	
191-24-2	Benzo(g,h,i)perylene	4200	800	
207-08-9	Benzo(k)fluoranthene	5100	800	
218-01-9	Chrysene	6500	800	
53-70-3	Dibenz(a,h)anthracene	ND	800	
206-44-0	Fluoranthene	10000	800	
86-73-7	Fluorene	ND	800	
193-39-5	Indeno(1,2,3-cd)pyrene	3700	800	
91-20-3	Naphthalene	ND	800	
85-01-8	Phenanthrene	5000	800	
129-00-0	Pyrene	8700	800	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	129	41 - 106
2-Fluorobiphenyl (SS1)	104	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0371	Lab Sample ID:	AB11567
Date of Collection:	10/13/2010	Matrix:	Soil
Date of Extraction:	10/18/10	Volume Extracted:	N/A
Date of Analysis:	10/21/10	Percent Solids:	92%
Dry Weight Extracted:	10.030 grams	Extract Dilution:	10
Wet Weight Extracted:	10.866 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	650	500	
208-96-8	Acenaphthylene	ND	500	
120-12-7	Anthracene	2700	500	
56-55-3	Benzo(a)anthracene	10000	500	
50-32-8	Benzo(a)pyrene	11000	500	
205-99-2	Benzo(b)fluoranthene	11000	500	
191-24-2	Benzo(g,h,i)perylene	9200	500	
207-08-9	Benzo(k)fluoranthene	10000	500	
218-01-9	Chrysene	10000	500	
53-70-3	Dibenz(a,h)anthracene	1600	500	
206-44-0	Fluoranthene	19000	500	
86-73-7	Fluorene	780	500	
193-39-5	Indeno(1,2,3-cd)pyrene	7900	500	
91-20-3	Naphthalene	ND	500	
85-01-8	Phenanthrene	9200	500	
129-00-0	Pyrene	17000	500	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	130	41 - 106
2-Fluorobiphenyl (SS1)	110	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0372	Lab Sample ID:	AB11568
Date of Collection:	10/13/2010	Matrix:	Soil
Date of Extraction:	10/18/10	Volume Extracted:	N/A
Date of Analysis:	10/21/10	Percent Solids:	90%
Dry Weight Extracted:	9.200 grams	Extract Dilution:	10
Wet Weight Extracted:	10.166 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	540	
208-96-8	Acenaphthylene	ND	540	
120-12-7	Anthracene	580	540	
56-55-3	Benzo(a)anthracene	1900	540	
50-32-8	Benzo(a)pyrene	2400	540	
205-99-2	Benzo(b)fluoranthene	2100	540	
191-24-2	Benzo(g,h,i)perylene	2500	540	
207-08-9	Benzo(k)fluoranthene	2000	540	
218-01-9	Chrysene	2000	540	
53-70-3	Dibenz(a,h)anthracene	ND	540	
206-44-0	Fluoranthene	3800	540	
86-73-7	Fluorene	ND	540	
193-39-5	Indeno(1,2,3-cd)pyrene	2100	540	
91-20-3	Naphthalene	ND	540	
85-01-8	Phenanthrene	1900	540	
129-00-0	Pyrene	3600	540	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	110	41 - 106
2-Fluorobiphenyl (SS1)	86	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0373	Lab Sample ID:	AB11569
Date of Collection:	10/13/2010	Matrix:	Soil
Date of Extraction:	10/18/10	Volume Extracted:	N/A
Date of Analysis:	10/21/10	Percent Solids:	88%
Dry Weight Extracted:	10.351 grams	Extract Dilution:	50
Wet Weight Extracted:	11.761 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	2400	
208-96-8	Acenaphthylene	ND	2400	
120-12-7	Anthracene	ND	2400	
56-55-3	Benzo(a)anthracene	<b>7800</b>	2400	
50-32-8	Benzo(a)pyrene	<b>8100</b>	2400	
205-99-2	Benzo(b)fluoranthene	<b>7400</b>	2400	
191-24-2	Benzo(g,h,i)perylene	<b>6100</b>	2400	
207-08-9	Benzo(k)fluoranthene	<b>8700</b>	2400	
218-01-9	Chrysene	<b>8400</b>	2400	
53-70-3	Dibenz(a,h)anthracene	ND	2400	
206-44-0	Fluoranthene	<b>17000</b>	2400	
86-73-7	Fluorene	ND	2400	
193-39-5	Indeno(1,2,3-cd)pyrene	<b>5200</b>	2400	
91-20-3	Naphthalene	ND	2400	
85-01-8	Phenanthrene	<b>11000</b>	2400	
129-00-0	Pyrene	<b>14000</b>	2400	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	75	41 - 106
2-Fluorobiphenyl (SS1)	62	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0374	Lab Sample ID:	AB11570
Date of Collection:	10/13/2010	Matrix:	Soil
Date of Extraction:	10/18/10	Volume Extracted:	N/A
Date of Analysis:	10/21/10	Percent Solids:	64%
Dry Weight Extracted:	6.703 grams	Extract Dilution:	1
Wet Weight Extracted:	10.547 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	200	74	
208-96-8	Acenaphthylene	120	74	
120-12-7	Anthracene	630	74	
56-55-3	Benzo(a)anthracene	2200	74	
50-32-8	Benzo(a)pyrene	2100	74	
205-99-2	Benzo(b)fluoranthene	2300	74	
191-24-2	Benzo(g,h,i)perylene	1500	74	
207-08-9	Benzo(k)fluoranthene	1600	74	
218-01-9	Chrysene	2300	74	
53-70-3	Dibenz(a,h)anthracene	320	74	
206-44-0	Fluoranthene	4600	74	
86-73-7	Fluorene	200	74	
193-39-5	Indeno(1,2,3-cd)pyrene	1300	74	
91-20-3	Naphthalene	94	74	
85-01-8	Phenanthrene	2900	74	
129-00-0	Pyrene	3900	74	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	80	41 - 106
2-Fluorobiphenyl (SS1)	65	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0375	Lab Sample ID:	AB11571
Date of Collection:	10/13/2010	Matrix:	Soil
Date of Extraction:	10/18/10	Volume Extracted:	N/A
Date of Analysis:	10/21/10	Percent Solids:	93%
Dry Weight Extracted:	10.000 grams	Extract Dilution:	10
Wet Weight Extracted:	10.810 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	710	500	
208-96-8	Acenaphthylene	510	500	
120-12-7	Anthracene	2000	500	
56-55-3	Benzo(a)anthracene	5000	500	
50-32-8	Benzo(a)pyrene	5300	500	
205-99-2	Benzo(b)fluoranthene	4800	500	
191-24-2	Benzo(g,h,i)perylene	6000	500	
207-08-9	Benzo(k)fluoranthene	5300	500	
218-01-9	Chrysene	5100	500	
53-70-3	Dibenz(a,h)anthracene	ND	500	
206-44-0	Fluoranthene	10000	500	
86-73-7	Fluorene	730	500	
193-39-5	Indeno(1,2,3-cd)pyrene	5100	500	
91-20-3	Naphthalene	ND	500	
85-01-8	Phenanthrene	7700	500	
129-00-0	Pyrene	9700	500	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	133	41 - 106
2-Fluorobiphenyl (SS1)	111	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0376	Lab Sample ID:	AB11572
Date of Collection:	10/13/2010	Matrix:	Soil
Date of Extraction:	10/18/10	Volume Extracted:	N/A
Date of Analysis:	10/21/10	Percent Solids:	96%
Dry Weight Extracted:	10.017 grams	Extract Dilution:	5
Wet Weight Extracted:	10.484 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	250	
208-96-8	Acenaphthylene	270	250	
120-12-7	Anthracene	380	250	
56-55-3	Benzo(a)anthracene	1900	250	
50-32-8	Benzo(a)pyrene	2400	250	
205-99-2	Benzo(b)fluoranthene	3500	250	
191-24-2	Benzo(g,h,i)perylene	2900	250	
207-08-9	Benzo(k)fluoranthene	2300	250	
218-01-9	Chrysene	2100	250	
53-70-3	Dibenz(a,h)anthracene	380	250	
206-44-0	Fluoranthene	3300	250	
86-73-7	Fluorene	ND	250	
193-39-5	Indeno(1,2,3-cd)pyrene	2200	250	
91-20-3	Naphthalene	ND	250	
85-01-8	Phenanthrene	1300	250	
129-00-0	Pyrene	3200	250	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	150	41 - 106
2-Fluorobiphenyl (SS1)	126	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0377	Lab Sample ID:	AB11573
Date of Collection:	10/13/2010	Matrix:	Soil
Date of Extraction:	10/18/10	Volume Extracted:	N/A
Date of Analysis:	10/21/10	Percent Solids:	93%
Dry Weight Extracted:	9.365 grams	Extract Dilution:	10
Wet Weight Extracted:	10.112 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	460	530	
208-96-8	Acenaphthylene	860	530	
120-12-7	Anthracene	2500	530	
56-55-3	Benzo(a)anthracene	11000	530	
50-32-8	Benzo(a)pyrene	14000	530	
205-99-2	Benzo(b)fluoranthene	15000	530	
191-24-2	Benzo(g,h,i)perylene	13000	530	
207-08-9	Benzo(k)fluoranthene	11000	530	
218-01-9	Chrysene	12000	530	
53-70-3	Dibenz(a,h)anthracene	2000	530	
206-44-0	Fluoranthene	21000	530	
86-73-7	Fluorene	550	530	
193-39-5	Indeno(1,2,3-cd)pyrene	12000	530	
91-20-3	Naphthalene	380	530	
85-01-8	Phenanthrene	8000	530	
129-00-0	Pyrene	21000	530	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	77	41 - 106
2-Fluorobiphenyl (SS1)	64	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0378	Lab Sample ID:	AB11574
Date of Collection:	10/13/2010	Matrix:	Soil
Date of Extraction:	10/18/10	Volume Extracted:	N/A
Date of Analysis:	10/21/10	Percent Solids:	91%
Dry Weight Extracted:	9.881 grams	Extract Dilution:	50
Wet Weight Extracted:	10.799 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	2500	
208-96-8	Acenaphthylene	ND	2500	
120-12-7	Anthracene	ND	2500	
56-55-3	Benzo(a)anthracene	<b>8200</b>	2500	
50-32-8	Benzo(a)pyrene	<b>9900</b>	2500	
205-99-2	Benzo(b)fluoranthene	<b>9600</b>	2500	
191-24-2	Benzo(g,h,i)perylene	<b>8900</b>	2500	
207-08-9	Benzo(k)fluoranthene	<b>9700</b>	2500	
218-01-9	Chrysene	<b>8500</b>	2500	
53-70-3	Dibenz(a,h)anthracene	ND	2500	
206-44-0	Fluoranthene	<b>16000</b>	2500	
86-73-7	Fluorene	ND	2500	
193-39-5	Indeno(1,2,3-cd)pyrene	<b>7900</b>	2500	
91-20-3	Naphthalene	ND	2500	
85-01-8	Phenanthrene	<b>5600</b>	2500	
129-00-0	Pyrene	<b>16000</b>	2500	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	80	41 - 106
2-Fluorobiphenyl (SS1)	68	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID: R01-100830MB-0379  
Date of Collection: 10/13/2010  
Date of Extraction: 10/18/10  
Date of Analysis: 10/21/10  
Dry Weight Extracted: 10.701 grams  
Wet Weight Extracted: 11.431 grams  
Final Volume: 1 mL

Lab Sample ID: AB11575  
Matrix: Soil  
Volume Extracted: N/A  
Percent Solids: 94%  
Extract Dilution: 50  
pH: N/A  
GPC Factor: N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	2300	
208-96-8	Acenaphthylene	ND	2300	
120-12-7	Anthracene	ND	2300	
56-55-3	Benzo(a)anthracene	6800	2300	
50-32-8	Benzo(a)pyrene	6300	2300	
205-99-2	Benzo(b)fluoranthene	5700	2300	
191-24-2	Benzo(g,h,i)perylene	4900	2300	
207-08-9	Benzo(k)fluoranthene	6400	2300	
218-01-9	Chrysene	6600	2300	
53-70-3	Dibenz(a,h)anthracene	ND	2300	
206-44-0	Fluoranthene	14000	2300	
86-73-7	Fluorene	ND	2300	
193-39-5	Indeno(1,2,3-cd)pyrene	4600	2300	
91-20-3	Naphthalene	ND	2300	
85-01-8	Phenanthrene	8400	2300	
129-00-0	Pyrene	12000	2300	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	88	41 - 106
2-Fluorobiphenyl (SS1)	65	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
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**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0380	Lab Sample ID:	AB11576
Date of Collection:	10/13/2010	Matrix:	Soil
Date of Extraction:	10/18/10	Volume Extracted:	N/A
Date of Analysis:	10/21/10	Percent Solids:	94%
Dry Weight Extracted:	9.692 grams	Extract Dilution:	5
Wet Weight Extracted:	10.295 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	260	
208-96-8	Acenaphthylene	310	260	
120-12-7	Anthracene	560	260	
56-55-3	Benzo(a)anthracene	2400	260	
50-32-8	Benzo(a)pyrene	2900	260	
205-99-2	Benzo(b)fluoranthene	3300	260	
191-24-2	Benzo(g,h,i)perylene	3700	260	
207-08-9	Benzo(k)fluoranthene	3100	260	
218-01-9	Chrysene	2500	260	
53-70-3	Dibenz(a,h)anthracene	ND	260	
206-44-0	Fluoranthene	4400	260	
86-73-7	Fluorene	ND	260	
193-39-5	Indeno(1,2,3-cd)pyrene	3000	260	
91-20-3	Naphthalene	ND	260	
85-01-8	Phenanthrene	1800	260	
129-00-0	Pyrene	4000	260	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	121	41 - 106
2-Fluorobiphenyl (SS1)	98	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
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**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0381	Lab Sample ID:	AB11577
Date of Collection:	10/13/2010	Matrix:	Soil
Date of Extraction:	10/18/10	Volume Extracted:	N/A
Date of Analysis:	10/21/10	Percent Solids:	92%
Dry Weight Extracted:	9.138 grams	Extract Dilution:	10
Wet Weight Extracted:	9.959 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	550	
208-96-8	Acenaphthylene	ND	550	
120-12-7	Anthracene	1300	550	
56-55-3	Benzo(a)anthracene	5300	550	
50-32-8	Benzo(a)pyrene	6500	550	
205-99-2	Benzo(b)fluoranthene	6600	550	
191-24-2	Benzo(g,h,i)perylene	7100	550	
207-08-9	Benzo(k)fluoranthene	6800	550	
218-01-9	Chrysene	5500	550	
53-70-3	Dibenz(a,h)anthracene	900	550	
206-44-0	Fluoranthene	9400	550	
86-73-7	Fluorene	ND	550	
193-39-5	Indeno(1,2,3-cd)pyrene	6000	550	
91-20-3	Naphthalene	ND	550	
85-01-8	Phenanthrene	4000	550	
129-00-0	Pyrene	8900	550	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	129	41 - 106
2-Fluorobiphenyl (SS1)	110	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
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PAH MATRIX SPIKE (MS)

Tombarello Site - Lawrence, MA

Sample ID: AB11560

PARAMETER	SPIKE ADDED ug/Kg	SAMPLE CONCENTRATION ug/Kg	MS CONCENTRATION ug/Kg	MS % REC	QC LIMITS (% REC)
Acenaphthene	3700	ND	2800	76	30 - 113
Acenaphthylene	3700	ND	2900	79	28 - 125
Anthracene	3700	ND	3500	96	30 - 129
Benzo(a)anthracene	3700	940	3900	81	25 - 137
Benzo(a)pyrene	3700	1200	4200	80	26 - 115
Benzo(b)fluoranthene	3700	1300	4000	72	29 - 120
Benzo(g,h,i)perylene	3700	2300	5100	76	26 - 119
Benzo(k)fluoranthene	3700	930	4400	93	27 - 139
Chrysene	3700	890	4000	85	31 - 120
Dibenz(a,h)anthracene	3700	ND	3400	93	31 - 125
Fluoranthene	3700	1400	4600	87	21 - 148
Fluorene	3700	ND	2900	78	34 - 121
Indeno(1,2,3-cd)pyrene	3700	1600	4300	73	29 - 125
Naphthalene	3700	ND	2600	71	19 - 107
Phenanthrene	3700	620	3800	87	26 - 125
Pyrene	3700	1400	4600	87	20 - 142

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
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Laboratory Duplicate Results

Tombarello Site - Lawrence, MA

Sample ID: AB11560

PARAMETER	SAMPLE RESULT ug/Kg	SAMPLE DUPLICATE RESULT ug/Kg	PRECISION RPD %	QC LIMITS
Acenaphthene	ND	ND	ND	40
Acenaphthylene	ND	ND	ND	40
Anthracene	ND	ND	ND	40
Benzo(a)anthracene	940	830	12	40
Benzo(a)pyrene	1200	1100	6.90	40
Benzo(b)fluoranthene	1300	1200	4.72	40
Benzo(g,h,i)perylene	2300	2400	3.42	40
Benzo(k)fluoranthene	930	1100	14	40
Chrysene	890	860	3.20	40
Dibenz(a,h)anthracene	ND	ND	ND	40
Fluoranthene	1400	1200	12	40
Fluorene	ND	ND	ND	40
Indeno(1,2,3-cd)pyrene	1600	1600	0.00	40
Naphthalene	ND	ND	ND	40
Phenanthrene	620	510	19	40
Pyrene	1400	1300	9.74	40

US ENVIRONMENTAL PROTECTION AGENCY  
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Laboratory Fortified Blank (LFB) Results

Tombarello Site - Lawrence, MA

PARAMETER	LFB AMOUNT SPIKED ppb	LFB RESULT ppb	LFB RECOVERY %	QC LIMITS %
Acenaphthene	3800	1500	39	26 - 129
Acenaphthylene	3800	1500	39	23 - 141
Anthracene	3800	1700	44	25 - 149
Benzo(a)anthracene	3800	1600	43	27 - 142
Benzo(a)pyrene	3800	1600	43	29 - 123
Benzo(b)fluoranthene	3800	1300	35	22 - 146
Benzo(g,h,i)perylene	3800	1500	40	26 - 134
Benzo(k)fluoranthene	3800	1600	43	32 - 144
Chrysene	3800	1600	42	38 - 121
Dibenz(a,h)anthracene	3800	1500	41	35 - 133
Fluoranthene	3800	1600	42	29 - 154
Fluorene	3800	1500	39	29 - 138
Indeno(1,2,3-cd)pyrene	3800	1500	39	26 - 141
Naphthalene	3800	1400	37	30 - 110
Phenanthrene	3800	1700	44	27 - 140
Pyrene	3800	1600	43	24 - 147

Comments:



United States Environmental Protection Agency  
Office of Environmental Measurement & Evaluation  
60 Westview Street  
Lexington, MA 02421-3185

Laboratory Report

October 27, 2010

Mike Barry - OSRR02-2  
US EPA New England R1

Project Number: 10100021  
Project: Tombarello Site - Lawrence, MA  
Analysis: PCB's in Soil Field Method (Fixed Lab)  
Analyst: Paul Carroll

*Paul Carroll*  
10.27.10

Analytical Procedure:

All samples were received and logged in by the laboratory according to the USEPA New England Laboratory SOP for Sample Log-in.

Sample preparation and analysis was done following the EPA Region I SOP, FLDPCB2.SOP.

Concentrations of PCBs in soil were calculated using an external standard technique.

Analysis for PCB's performed by this field analytical technique is used for tentative identification and semi-quantitation of PCB's in soil, oil, and sediment samples.

Date Samples Received by the Laboratory: 10/14/10

Results relate only to the items tested or to the samples as received by the Laboratory. This analytical report shall not be reproduced except in full, without written approval of the laboratory.

Results for soil samples are reported on a dry weight basis.

If you have any questions please call me at 617-918-8340.

Sincerely,

*Daniel Boudreau 10/28/10*  
Daniel Boudreau

Project # 10100021

**PCB's in Soil Field Method (Fixed Lab)**

US ENVIRONMENTAL PROTECTION AGENCY NEW ENGLAND LABORATORY Tombarello Site - Lawrence, MA						
Client Sample ID	R01-100830MB-0362	R01-100830MB-0363	R01-100830MB-0364	R01-100830MB-0365	R01-100830MB-0366	R01-100830MB-0367
Lab Sample ID	AB11558	AB11559	AB11560	AB11561	AB11562	AB11563
Date of Collection	10/13/2010	10/13/2010	10/13/2010	10/13/2010	10/13/2010	10/13/2010
Date of Extraction	10/19/2010	10/19/2010	10/19/2010	10/19/2010	10/19/2010	10/19/2010
Date of Analysis	10/25/2010	10/25/2010	10/25/2010	10/25/2010	10/25/2010	10/25/2010
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Compound	Conc. (RL) mg/Kg					
Aroclor-1242	ND (0.86)	ND (0.92)	ND (0.8)	ND (0.66)	ND (0.76)	ND (0.8)
Aroclor-1248	ND (0.86)	ND (0.92)	ND (0.8)	ND (0.66)	ND (0.76)	ND (0.8)
Aroclor-1254	7.0 (0.86)	3.7 (0.92)	ND (0.8)	4.1 (0.66)	4.2 (0.76)	1.6 (0.8)
Aroclor-1260	8.2 (0.86)	4.3 (0.92)	3.7 (0.8)	3.7 (0.66)	4.4 (0.76)	ND (0.8)
Aroclor-1262	ND (0.86)	ND (0.92)	ND (0.8)	ND (0.66)	ND (0.76)	ND (0.8)
Aroclor-1268	ND (0.86)	ND (0.92)	ND (0.8)	ND (0.66)	ND (0.76)	ND (0.8)

**US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY  
Tombarello Site - Lawrence, MA**

	R01-100830MB-0368 AB11564 10/13/2010 10/19/2010 10/25/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0369 AB11565 10/13/2010 10/19/2010 10/25/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0370 AB11566 10/13/2010 10/19/2010 10/25/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0371 AB11567 10/13/2010 10/19/2010 10/25/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0372 AB11568 10/13/2010 10/19/2010 10/25/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0373 AB11569 10/13/2010 10/19/2010 10/25/2010 Soil  Conc. (RL) mg/Kg
Aroclor-1242	ND (0.84)	ND (0.82)	ND (1.2)	ND (0.68)	ND (0.76)	ND (0.64)
Aroclor-1248	ND (0.84)	ND (0.82)	ND (1.2)	ND (0.68)	ND (0.76)	ND (0.64)
Aroclor-1254	2.1 (0.84)	3.0 (0.82)	ND (1.2)	ND (0.68)	ND (0.76)	ND (0.64)
Aroclor-1260	1.7 (0.84)	1.1 (0.82)	ND (1.2)	15 (0.68)	3.4 (0.76)	2.2 (0.64)
Aroclor-1262	ND (0.84)	ND (0.82)	ND (1.2)	ND (0.68)	ND (0.76)	ND (0.64)
Aroclor-1268	ND (0.84)	ND (0.82)	ND (1.2)	ND (0.68)	ND (0.76)	ND (0.64)

**US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY  
Tombarello Site - Lawrence, MA**

	R01-100830MB-0374 AB11570 10/13/2010 10/19/2010 10/25/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0375 AB11571 10/13/2010 10/19/2010 10/25/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0376 AB11572 10/13/2010 10/19/2010 10/25/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0377 AB11573 10/13/2010 10/19/2010 10/26/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0378 AB11574 10/13/2010 10/19/2010 10/26/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0379 AB11575 10/13/2010 10/19/2010 10/26/2010 Soil  Conc. (RL) mg/Kg
Aroclor-1242	ND (0.88)	ND (0.72)	ND (0.58)	ND (0.64)	ND (0.68)	ND (0.7)
Aroclor-1248	ND (0.88)	ND (0.72)	ND (0.58)	ND (0.64)	ND (0.68)	ND (0.7)
Aroclor-1254	ND (0.88)	0.9 (0.72)	ND (0.58)	ND (0.64)	ND (0.68)	15 (0.7)
Aroclor-1260	2.2 (0.88)	1.1 (0.72)	1.5 (0.58)	12 (0.64)	12 (0.68)	12 (0.7)
Aroclor-1262	ND (0.88)	ND (0.72)	ND (0.58)	ND (0.64)	ND (0.68)	ND (0.7)
Aroclor-1268	ND (0.88)	ND (0.72)	ND (0.58)	ND (0.64)	ND (0.68)	ND (0.7)

**US ENVIRONMENTAL PROTECTION  
AGENCY  
NEW ENGLAND LABORATORY**

	R01-100830MB-0380 AB11576 10/13/2010 10/19/2010 10/26/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0381 AB11577 10/13/2010 10/19/2010 10/26/2010 Soil  Conc. (RL) mg/Kg
Aroclor-1242	ND (0.8)	ND (0.6)
Aroclor-1248	ND (0.8)	ND (0.6)
Aroclor-1254	ND (0.8)	ND (0.6)
Aroclor-1260	2.5 (0.8)	4.1 (0.6)
Aroclor-1262	ND (0.8)	ND (0.6)
Aroclor-1268	ND (0.8)	ND (0.6)

Qualifiers: RL = Reporting limit  
ND = Not Detected above Reporting limit  
NA = Not Applicable due to high sample dilutions or sample interferences  
J = Estimated value  
E = Estimated value exceeds the calibration range  
L = Estimated value is below the calibration range  
B = Analyte is associated with the lab blank or trip blank contamination. Values are qualified when the observed concentration of the contamination in the sample extract is less than 10 times the concentration in the blank.  
P = The confirmation value exceeded 35% difference and is less than 100%. The lower value is reported.  
C = The identification has been confirmed by GC/MS.  
A = Suspected Aldol condensation product.  
N = Tentatively identified compound.



United States Environmental Protection Agency  
Office of Environmental Measurement & Evaluation  
60 Westview Street  
Lexington, MA 02421-3185

## Laboratory Report

November 15, 2010

Mike Barry - OSRR02-2

US EPA New England R1

Project Number: 10100021

Project: Tombarello Site - Lawrence, MA

Analysis: Field Analysis of Metals by XRF

Analyst: Paul Carroll

*PC*  
11.15.10

### Analytical Procedure:

All samples were received and logged in by the laboratory according to the USEPA New England Laboratory SOP for Sample Log-in.

Sample preparation and analysis was done following the EPA Region I SOP, EIA-FLDXRFN3.

The analysis were performed by the EPA New England Regional Laboratory.

Date Samples Received by the Laboratory: 10/14/10

Results relate only to the items tested or to the samples as received by the Laboratory. This analytical report shall not be reproduced except in full, without written approval of the laboratory.

If you have any questions please call me at 617-918-8340.

Sincerely,

*Dan Boudreau* 11/16/10

Dan Boudreau

Chemistry Team Leader

Project # 10100021

Field Analysis of Metals by XRF

US ENVIRONMENTAL PROTECTION AGENCY NEW ENGLAND LABORATORY Tombarello Site - Lawrence, MA						
Client Sample ID	R01-100830MB-0362	R01-100830MB-0363	R01-100830MB-0364	R01-100830MB-0365	R01-100830MB-0366	R01-100830MB-0367
Lab Sample ID	AB11558	AB11559	AB11560	AB11561	AB11562	AB11563
Date of Collection	10/13/2010	10/13/2010	10/13/2010	10/13/2010	10/13/2010	10/13/2010
Date of Extraction	11/12/2010	11/8/2010	11/8/2010	11/8/2010	11/8/2010	11/8/2010
Date of Analysis	11/12/2010	11/8/2010	11/8/2010	11/8/2010	11/8/2010	11/8/2010
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Compound	Conc. (RL) mg/Kg					
Arsenic	91 ( 20)	ND ( 62)	ND ( 45)	ND ( 57)	ND ( 71)	ND ( 67)
Cadmium	23 (8.0)	ND ( 13)	33 (8.0)	ND ( 17)	ND ( 18)	25 (8.0)
Chromium	110 ( 20)	160 ( 20)	150 ( 20)	180 ( 20)	650 ( 20)	200 ( 20)
Lead	1900 ( 20)	1500 ( 20)	800 ( 20)	1300 ( 20)	1300 ( 20)	1600 ( 20)

**US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY  
Tombarello Site - Lawrence, MA**

	R01-100830MB-0368 AB11564 10/13/2010 11/8/2010 11/8/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0369 AB11565 10/13/2010 11/8/2010 11/8/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0370 AB11566 10/13/2010 11/8/2010 11/8/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0371 AB11567 10/13/2010 11/8/2010 11/8/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0372 AB11568 10/13/2010 11/8/2010 11/8/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0373 AB11569 10/13/2010 11/8/2010 11/8/2010 Soil  Conc. (RL) mg/Kg
Arsenic	ND ( 57)	ND ( 52)	ND ( 22)	ND ( 37)	ND ( 33)	55 ( 20)
Cadmium	ND ( 13)	ND ( 13)	ND ( 12)	ND ( 12)	11 (8.0)	ND ( 13)
Chromium	110 ( 20)	140 ( 20)	82 ( 20)	55 ( 20)	71 ( 20)	ND ( 42)
Lead	1400 ( 20)	1000 ( 20)	280 ( 20)	660 ( 20)	630 ( 20)	450 ( 20)

**US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY  
Tombarello Site - Lawrence, MA**

	R01-100830MB-0374 AB11570 10/13/2010 11/8/2010 11/8/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0375 AB11571 10/13/2010 11/8/2010 11/8/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0376 AB11572 10/13/2010 11/8/2010 11/8/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0377 AB11573 10/13/2010 11/8/2010 11/8/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0378 AB11574 10/13/2010 11/8/2010 11/8/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0379 AB11575 10/13/2010 11/8/2010 11/8/2010 Soil  Conc. (RL) mg/Kg
Arsenic	ND ( 18)	47 ( 20)	ND ( 24)	ND ( 27)	ND ( 28)	ND ( 37)
Cadmium	ND (9.4)	ND ( 14)	ND ( 13)	ND ( 11)	ND ( 11)	ND ( 12)
Chromium	52 ( 20)	75 ( 20)	83 ( 20)	72 ( 20)	86 ( 20)	64 ( 20)
Lead	180 ( 20)	680 ( 20)	330 ( 20)	370 ( 20)	400 ( 20)	660 ( 20)

**US ENVIRONMENTAL PROTECTION  
AGENCY  
NEW ENGLAND LABORATORY**

	R01-100830MB-0380 AB11576 10/13/2010 11/8/2010 11/8/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0381 AB11577 10/13/2010 11/8/2010 11/8/2010 Soil  Conc. (RL) mg/Kg
Arsenic	ND ( 28)	48 ( 20)
Cadmium	ND ( 11)	ND ( 15)
Chromium	52 ( 20)	200 ( 20)
Lead	400 ( 20)	520 ( 20)

Qualifiers: RL = Reporting limit  
ND = Not Detected above Reporting limit  
NA = Not Applicable due to low (pH < 4.5)  
J = Estimated value  
E = Estimated value exceeds the calibration range  
L = Estimated value is below the calibration range  
B = Analyte is associated with the lab blank or trip blank contamination. Values are qualified when the observed concentration of the contamination in the sample extract is less than 10 times the concentration in the blank.  
P = The confirmation value exceeded 35% difference and is less than 100%. The lower value is reported.  
C = The identification has been confirmed by GC/MS.  
A = Suspected Aldol condensation product.  
N = Tentatively identified compound.

## Laboratory Report

October 28, 2010

Mike Barry - OSRR02-2  
US EPA New England R1

Project Number: 10100022

Project: Tombarello Site - Lawrence, MA

Analysis: PAHs in Soil

Analyst: Dan Boudreau *DB 10/28/10*

### Analytical Procedure:

All samples were received and logged in by the laboratory according to the USEPA New England Laboratory SOP for Sample Log-in.

Sample preparation and analysis was done following the EPA Region I SOP, EIASOP-BNAS3.

Samples were analyzed by a quadrapole GC/MS operating in the full-scan mode. The extraction and analysis SOPs are based on SW-846 methods 3545A, 3630C, 8270C, and EIASOP-BNAGCMS7.

Date Samples Received by the Laboratory: 10/14/2010

Data were reviewed in accordance with the internal verification procedures described in the EPA New England OEME Chemistry QA Plan.

Results relate only to the items tested or to the samples as received by the Laboratory. This analytical report shall not be reproduced except in full, without written approval of the laboratory.

Report may contain multiple sections and each section will be numbered independently.

If you have any questions please call me at 617-918-8340 .

Sincerely,

11/3/10

Daniel N. Boudreau  
Chemistry Team Leader

Quantities:

RL = Reporting limit

ND = Not Detected above Reporting limit

NA = Not Applicable due to high sample dilutions or sample interferences

NC = Not calculated since analyte concentration is ND.

J = Estimated value

E = Estimated value exceeds the calibration range

L = Estimated value is below the calibration range

B = Analyte is associated with the lab blank or trip blank contamination. Values are qualified when the observed concentration of the contamination in the sample extract is less than 5 times the concentration in the blank.

R = No recovery was calculated since the analyte concentration is greater than four times the spike level.

NEW ENGLAND LABORATORY

Tombarello Site - Lawrence, MA

PAHs in Soil

Client Sample ID: R01-100830MB-0382  
 Date of Collection: 10/13/2010  
 Date of Extraction: 10/19/10  
 Date of Analysis: 10/22/10  
 Dry Weight Extracted: 8.954 grams  
 Wet Weight Extracted: 9.984 grams  
 Final Volume: 1 mL

Lab Sample ID: AB11578  
 Matrix: Soil  
 Volume Extracted: N/A  
 Percent Solids: 90%  
 Extract Dilution: 50  
 pH: N/A  
 GPC Factor: N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	2800	
208-96-8	Acenaphthylene	ND	2800	
120-12-7	Anthracene	ND	2800	
56-55-3	Benzo(a)anthracene	4700	2800	
50-32-8	Benzo(a)pyrene	ND	2800	
205-99-2	Benzo(b)fluoranthene	5700	2800	
191-24-2	Benzo(g,h,i)perylene	6000	2800	
207-08-9	Benzo(k)fluoranthene	4200	2800	
218-01-9	Chrysene	5000	2800	
53-70-3	Dibenz(a,h)anthracene	ND	2800	
206-44-0	Fluoranthene	9500	2800	
86-73-7	Fluorene	ND	2800	
193-39-5	Indeno(1,2,3-cd)pyrene	4700	2800	
91-20-3	Naphthalene	ND	2800	
85-01-8	Phenanthrene	5100	2800	
129-00-0	Pyrene	7700	2800	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	120	41 - 106
2-Fluorobiphenyl (SS1)	98	39 - 103

Comments:

**Tombarello Site - Lawrence, MA**

**Laboratory Blank (PAHs)**

Client Sample ID:	N/A	Lab Sample ID:	N/A
Date of Collection:	N/A	Matrix:	Soil
Date of Extraction:	10/19/10	Volume Extracted:	N/A
Date of Analysis:	10/22/10	Percent Solids:	100%
Dry Weight Extracted:	10.290 grams	Extract Dilution:	1
Wet Weight Extracted:	10.309 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	49	
208-96-8	Acenaphthylene	ND	49	
120-12-7	Anthracene	ND	49	
56-55-3	Benzo(a)anthracene	ND	49	
50-32-8	Benzo(a)pyrene	ND	49	
205-99-2	Benzo(b)fluoranthene	ND	49	
191-24-2	Benzo(g,h,i)perylene	ND	49	
207-08-9	Benzo(k)fluoranthene	ND	49	
218-01-9	Chrysene	ND	49	
53-70-3	Dibenz(a,h)anthracene	ND	49	
206-44-0	Fluoranthene	ND	49	
86-73-7	Fluorene	ND	49	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	49	
91-20-3	Naphthalene	ND	49	
85-01-8	Phenanthrene	ND	49	
129-00-0	Pyrene	ND	49	

Surrogate Compounds	Recoveries (%)	QC Ranges
2-Fluorobiphenyl (SS1)	92	31 - 94
p-Terphenyl-d14 (SS2)	107	32 - 96

Comments:

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID: R01-100830MB-0383  
 Date of Collection: 10/13/2010  
 Date of Extraction: 10/19/10  
 Date of Analysis: 10/22/10  
 Dry Weight Extracted: 4.977 grams  
 Wet Weight Extracted: 5.776 grams  
 Final Volume: 1 mL

Lab Sample ID: AB11579  
 Matrix: Soil  
 Volume Extracted: N/A  
 Percent Solids: 86%  
 Extract Dilution: 10  
 pH: N/A  
 GPC Factor: N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	1000	
208-96-8	Acenaphthylene	ND	1000	
120-12-7	Anthracene	1500	1000	
56-55-3	Benzo(a)anthracene	5500	1000	
50-32-8	Benzo(a)pyrene	6000	1000	
205-99-2	Benzo(b)fluoranthene	4900	1000	
191-24-2	Benzo(g,h,i)perylene	5600	1000	
207-08-9	Benzo(k)fluoranthene	5300	1000	
218-01-9	Chrysene	5500	1000	
53-70-3	Dibenz(a,h)anthracene	ND	1000	
206-44-0	Fluoranthene	10000	1000	
86-73-7	Fluorene	ND	1000	
193-39-5	Indeno(1,2,3-cd)pyrene	4500	1000	
91-20-3	Naphthalene	ND	1000	
85-01-8	Phenanthrene	6000	1000	
129-00-0	Pyrene	9000	1000	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	120	41 - 106
2-Fluorobiphenyl (SS1)	100	39 - 103

Comments:

Tombarello Site - Lawrence, MA

PAHs in Soil

Client Sample ID:	R01-100830MB-0384	Lab Sample ID:	AB11580
Date of Collection:	10/13/2010	Matrix:	Soil
Date of Extraction:	10/19/10	Volume Extracted:	N/A
Date of Analysis:	10/22/10	Percent Solids:	87%
Dry Weight Extracted:	4.585 grams	Extract Dilution:	10
Wet Weight Extracted:	5.263 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	1100	
208-96-8	Acenaphthylene	ND	1100	
120-12-7	Anthracene	3000	1100	
56-55-3	Benzo(a)anthracene	9200	1100	
50-32-8	Benzo(a)pyrene	11000	1100	
205-99-2	Benzo(b)fluoranthene	10000	1100	
191-24-2	Benzo(g,h,i)perylene	9900	1100	
207-08-9	Benzo(k)fluoranthene	10000	1100	
218-01-9	Chrysene	9400	1100	
53-70-3	Dibenz(a,h)anthracene	ND	1100	
206-44-0	Fluoranthene	16000	1100	
86-73-7	Fluorene	ND	1100	
193-39-5	Indeno(1,2,3-cd)pyrene	8400	1100	
91-20-3	Naphthalene	ND	1100	
85-01-8	Phenanthrene	7700	1100	
129-00-0	Pyrene	15000	1100	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	130	41 - 106
2-Fluorobiphenyl (SS1)	110	39 - 103

Comments:

NEW ENGLAND LABORATORY

Tombarello Site - Lawrence, MA

PAHs in Soil

Client Sample ID: R01-100830MB-0385  
 Date of Collection: 10/13/2010  
 Date of Extraction: 10/19/10  
 Date of Analysis: 10/22/10  
 Dry Weight Extracted: 4.590 grams  
 Wet Weight Extracted: 5.541 grams  
 Final Volume: 1 mL

Lab Sample ID: AB11581  
 Matrix: Soil  
 Volume Extracted: N/A  
 Percent Solids: 83%  
 Extract Dilution: 10  
 pH: N/A  
 GPC Factor: N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	1100	
208-96-8	Acenaphthylene	ND	1100	
120-12-7	Anthracene	2500	1100	
56-55-3	Benzo(a)anthracene	9700	1100	
50-32-8	Benzo(a)pyrene	11000	1100	
205-99-2	Benzo(b)fluoranthene	11000	1100	
191-24-2	Benzo(g,h,i)perylene	9100	1100	
207-08-9	Benzo(k)fluoranthene	7500	1100	
218-01-9	Chrysene	9200	1100	
53-70-3	Dibenz(a,h)anthracene	ND	1100	
206-44-0	Fluoranthene	19000	1100	
86-73-7	Fluorene	ND	1100	
193-39-5	Indeno(1,2,3-cd)pyrene	7900	1100	
91-20-3	Naphthalene	ND	1100	
85-01-8	Phenanthrene	9900	1100	
129-00-0	Pyrene	16000	1100	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	130	41 - 106
2-Fluorobiphenyl (SS1)	110	39 - 103

Comments:

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0386	Lab Sample ID:	AB11582
Date of Collection:	10/13/2010	Matrix:	Soil
Date of Extraction:	10/19/10	Volume Extracted:	N/A
Date of Analysis:	10/25/10	Percent Solids:	85%
Dry Weight Extracted:	5.057 grams	Extract Dilution:	10
Wet Weight Extracted:	5.968 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	990	
208-96-8	Acenaphthylene	ND	990	
120-12-7	Anthracene	1700	990	
56-55-3	Benzo(a)anthracene	5600	990	
50-32-8	Benzo(a)pyrene	6100	990	
205-99-2	Benzo(b)fluoranthene	4700	990	
191-24-2	Benzo(g,h,i)perylene	6000	990	
207-08-9	Benzo(k)fluoranthene	5900	990	
218-01-9	Chrysene	5300	990	
53-70-3	Dibenz(a,h)anthracene	ND	990	
206-44-0	Fluoranthene	9700	990	
86-73-7	Fluorene	ND	990	
193-39-5	Indeno(1,2,3-cd)pyrene	5000	990	
91-20-3	Naphthalene	ND	990	
85-01-8	Phenanthrene	5600	990	
129-00-0	Pyrene	8900	990	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	120	41 - 106
2-Fluorobiphenyl (SS1)	91	39 - 103

Comments:

NEW ENGLAND LABORATORY

Tombarello Site - Lawrence, MA

PAHs in Soil

Client Sample ID: R01-100830MB-0387  
 Date of Collection: 10/13/2010  
 Date of Extraction: 10/19/10  
 Date of Analysis: 10/22/10  
 Dry Weight Extracted: 4.545 grams  
 Wet Weight Extracted: 5.040 grams  
 Final Volume: 1 mL

Lab Sample ID: AB11583  
 Matrix: Soil  
 Volume Extracted: N/A  
 Percent Solids: 90%  
 Extract Dilution: 10  
 pH: N/A  
 GPC Factor: N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	3300	1100	
208-96-8	Acenaphthylene	ND	1100	
120-12-7	Anthracene	17000	1100	
56-55-3	Benzo(a)anthracene	48000	1100	
50-32-8	Benzo(a)pyrene	42000	1100	
205-99-2	Benzo(b)fluoranthene	31000	1100	
191-24-2	Benzo(g,h,i)perylene	26000	1100	
207-08-9	Benzo(k)fluoranthene	32000	1100	
218-01-9	Chrysene	46000	1100	
53-70-3	Dibenz(a,h)anthracene	ND	1100	
206-44-0	Fluoranthene	110000	1100	
86-73-7	Fluorene	3200	1100	
193-39-5	Indeno(1,2,3-cd)pyrene	25000	1100	
91-20-3	Naphthalene	ND	1100	
85-01-8	Phenanthrene	63000	1100	
129-00-0	Pyrene	89000	1100	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	140	41 - 106
2-Fluorobiphenyl (SS1)	110	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0388	Lab Sample ID:	AB11584
Date of Collection:	10/13/2010	Matrix:	Soil
Date of Extraction:	10/19/10	Volume Extracted:	N/A
Date of Analysis:	10/26/10	Percent Solids:	92%
Dry Weight Extracted:	4.670 grams	Extract Dilution:	10
Wet Weight Extracted:	5.099 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

<b>CAS Number</b>	<b>Compound</b>	<b>Concentration ug/Kg</b>	<b>RL ug/Kg</b>	<b>Qualifier</b>
83-32-9	Acenaphthene	ND	1100	
208-96-8	Acenaphthylene	ND	1100	
120-12-7	Anthracene	ND	1100	
56-55-3	Benzo(a)anthracene	2600	1100	
50-32-8	Benzo(a)pyrene	3500	1100	
205-99-2	Benzo(b)fluoranthene	2700	1100	
191-24-2	Benzo(g,h,i)perylene	4300	1100	
207-08-9	Benzo(k)fluoranthene	2500	1100	
218-01-9	Chrysene	2500	1100	
53-70-3	Dibenz(a,h)anthracene	ND	1100	
206-44-0	Fluoranthene	3800	1100	
86-73-7	Fluorene	ND	1100	
193-39-5	Indeno(1,2,3-cd)pyrene	3500	1100	
91-20-3	Naphthalene	ND	1100	
85-01-8	Phenanthrene	2000	1100	
129-00-0	Pyrene	3800	1100	

<b>Surrogate Compounds</b>	<b>Recoveries (%)</b>	<b>QC Ranges</b>
p-Terphenyl-d14 (SS2)	110	41 - 106
2-Fluorobiphenyl (SS1)	90	39 - 103

Comments:

NEW ENGLAND LABORATORY

Tombarello Site - Lawrence, MA

PAHs in Soil

Client Sample ID: R01-100830MB-0389  
 Date of Collection: 10/13/2010  
 Date of Extraction: 10/19/10  
 Date of Analysis: 10/22/10  
 Dry Weight Extracted: 5.153 grams  
 Wet Weight Extracted: 5.493 grams  
 Final Volume: 1 mL

Lab Sample ID: AB11585  
 Matrix: Soil  
 Volume Extracted: N/A  
 Percent Solids: 94%  
 Extract Dilution: 10  
 pH: N/A  
 GPC Factor: N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	970	
208-96-8	Acenaphthylene	ND	970	
120-12-7	Anthracene	2200	970	
56-55-3	Benzo(a)anthracene	6800	970	
50-32-8	Benzo(a)pyrene	7900	970	
205-99-2	Benzo(b)fluoranthene	7400	970	
191-24-2	Benzo(g,h,i)perylene	8600	970	
207-08-9	Benzo(k)fluoranthene	6500	970	
218-01-9	Chrysene	6700	970	
53-70-3	Dibenz(a,h)anthracene	1700	970	
206-44-0	Fluoranthene	14000	970	
86-73-7	Fluorene	ND	970	
193-39-5	Indeno(1,2,3-cd)pyrene	7100	970	
91-20-3	Naphthalene	ND	970	
85-01-8	Phenanthrene	10000	970	
129-00-0	Pyrene	12000	970	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	130	41 - 106
2-Fluorobiphenyl (SS1)	110	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0390	Lab Sample ID:	AB11586
Date of Collection:	10/13/2010	Matrix:	Soil
Date of Extraction:	10/19/10	Volume Extracted:	N/A
Date of Analysis:	10/26/10	Percent Solids:	88%
Dry Weight Extracted:	5.564 grams	Extract Dilution:	10
Wet Weight Extracted:	6.356 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	900	
208-96-8	Acenaphthylene	2800	900	
120-12-7	Anthracene	7700	900	
56-55-3	Benzo(a)anthracene	28000	900	
50-32-8	Benzo(a)pyrene	30000	900	
205-99-2	Benzo(b)fluoranthene	22000	900	
191-24-2	Benzo(g,h,i)perylene	24000	900	
207-08-9	Benzo(k)fluoranthene	29000	900	
218-01-9	Chrysene	27000	900	
53-70-3	Dibenz(a,h)anthracene	4400	900	
206-44-0	Fluoranthene	50000	900	
86-73-7	Fluorene	1800	900	
193-39-5	Indeno(1,2,3-cd)pyrene	21000	900	
91-20-3	Naphthalene	ND	900	
85-01-8	Phenanthrene	24000	900	
129-00-0	Pyrene	47000	900	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	120	41 - 106
2-Fluorobiphenyl (SS1)	103	39 - 103

Comments:

NEW ENGLAND LABORATORY

Tombarello Site - Lawrence, MA

PAHs in Soil

Client Sample ID: R01-100830MB-0391  
 Date of Collection: 10/13/2010  
 Date of Extraction: 10/19/10  
 Date of Analysis: 10/22/10  
 Dry Weight Extracted: 4.893 grams  
 Wet Weight Extracted: 5.859 grams  
 Final Volume: 1 mL

Lab Sample ID: AB11587  
 Matrix: Soil  
 Volume Extracted: N/A  
 Percent Solids: 84%  
 Extract Dilution: 1  
 pH: N/A  
 GPC Factor: N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	450	100	
208-96-8	Acenaphthylene	360	100	
120-12-7	Anthracene	2100	100	
56-55-3	Benzo(a)anthracene	7800	100	
50-32-8	Benzo(a)pyrene	7700	100	
205-99-2	Benzo(b)fluoranthene	7000	100	
191-24-2	Benzo(g,h,i)perylene	7300	100	
207-08-9	Benzo(k)fluoranthene	7200	100	
218-01-9	Chrysene	8000	100	
53-70-3	Dibenz(a,h)anthracene	1100	100	
206-44-0	Fluoranthene	17000	100	
86-73-7	Fluorene	500	100	
193-39-5	Indeno(1,2,3-cd)pyrene	6100	100	
91-20-3	Naphthalene	360	100	
85-01-8	Phenanthrene	8900	100	
129-00-0	Pyrene	14000	100	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	120	41 - 106
2-Fluorobiphenyl (SS1)	100	39 - 103

Comments:

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**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0392	Lab Sample ID:	AB11588
Date of Collection:	10/13/2010	Matrix:	Soil
Date of Extraction:	10/19/10	Volume Extracted:	N/A
Date of Analysis:	10/26/10	Percent Solids:	88%
Dry Weight Extracted:	5.418 grams	Extract Dilution:	10
Wet Weight Extracted:	6.150 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

<b>CAS Number</b>	<b>Compound</b>	<b>Concentration ug/Kg</b>	<b>RL ug/Kg</b>	<b>Qualifier</b>
83-32-9	Acenaphthene	ND	920	
208-96-8	Acenaphthylene	ND	920	
120-12-7	Anthracene	<b>1400</b>	920	
56-55-3	Benzo(a)anthracene	<b>5700</b>	920	
50-32-8	Benzo(a)pyrene	<b>7100</b>	920	
205-99-2	Benzo(b)fluoranthene	<b>6800</b>	920	
191-24-2	Benzo(g,h,i)perylene	<b>8400</b>	920	
207-08-9	Benzo(k)fluoranthene	<b>4200</b>	920	
218-01-9	Chrysene	<b>5600</b>	920	
53-70-3	Dibenz(a,h)anthracene	ND	920	
206-44-0	Fluoranthene	<b>9900</b>	920	
86-73-7	Fluorene	ND	920	
193-39-5	Indeno(1,2,3-cd)pyrene	<b>6900</b>	920	
91-20-3	Naphthalene	ND	920	
85-01-8	Phenanthrene	<b>4800</b>	920	
129-00-0	Pyrene	<b>9300</b>	920	

<b>Surrogate Compounds</b>	<b>Recoveries (%)</b>	<b>QC Ranges</b>
p-Terphenyl-d14 (SS2)	110	41 - 106
2-Fluorobiphenyl (SS1)	91	39 - 103

Comments:

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0393	Lab Sample ID:	AB11589
Date of Collection:	10/13/2010	Matrix:	Soil
Date of Extraction:	10/19/10	Volume Extracted:	N/A
Date of Analysis:	10/22/10	Percent Solids:	83%
Dry Weight Extracted:	4.654 grams	Extract Dilution:	1
Wet Weight Extracted:	5.639 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	1400	110	
208-96-8	Acenaphthylene	560	110	
120-12-7	Anthracene	3800	110	
56-55-3	Benzo(a)anthracene	13000	110	
50-32-8	Benzo(a)pyrene	13000	110	
205-99-2	Benzo(b)fluoranthene	13000	110	
191-24-2	Benzo(g,h,i)perylene	12000	110	
207-08-9	Benzo(k)fluoranthene	12000	110	
218-01-9	Chrysene	12000	110	
53-70-3	Dibenz(a,h)anthracene	ND	110	
206-44-0	Fluoranthene	24000	110	
86-73-7	Fluorene	1400	110	
193-39-5	Indeno(1,2,3-cd)pyrene	10000	110	
91-20-3	Naphthalene	980	110	
85-01-8	Phenanthrene	15000	110	
129-00-0	Pyrene	21000	110	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	120	41 - 106
2-Fluorobiphenyl (SS1)	100	39 - 103

Comments:

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**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0394	Lab Sample ID:	AB11590
Date of Collection:	10/13/2010	Matrix:	Soil
Date of Extraction:	10/19/10	Volume Extracted:	N/A
Date of Analysis:	10/22/10	Percent Solids:	88%
Dry Weight Extracted:	4.503 grams	Extract Dilution:	1
Wet Weight Extracted:	5.143 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	720	110	
208-96-8	Acenaphthylene	190	110	
120-12-7	Anthracene	2200	110	
56-55-3	Benzo(a)anthracene	4900	110	
50-32-8	Benzo(a)pyrene	4700	110	
205-99-2	Benzo(b)fluoranthene	4300	110	
191-24-2	Benzo(g,h,i)perylene	3800	110	
207-08-9	Benzo(k)fluoranthene	3600	110	
218-01-9	Chrysene	4700	110	
53-70-3	Dibenz(a,h)anthracene	670	110	
206-44-0	Fluoranthene	11000	110	
86-73-7	Fluorene	940	110	
193-39-5	Indeno(1,2,3-cd)pyrene	3300	110	
91-20-3	Naphthalene	780	110	
85-01-8	Phenanthrene	9200	110	
129-00-0	Pyrene	8800	110	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	120	41 - 106
2-Fluorobiphenyl (SS1)	100	39 - 103

Comments:

Tombarello Site - Lawrence, MA

PAHs in Soil

Client Sample ID:	R01-100830MB-0395	Lab Sample ID:	AB11591
Date of Collection:	10/13/2010	Matrix:	Soil
Date of Extraction:	10/19/10	Volume Extracted:	N/A
Date of Analysis:	10/22/10	Percent Solids:	79%
Dry Weight Extracted:	4.355 grams	Extract Dilution:	1
Wet Weight Extracted:	5.536 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	330	120	
208-96-8	Acenaphthylene	480	120	
120-12-7	Anthracene	1400	120	
56-55-3	Benzo(a)anthracene	5600	120	
50-32-8	Benzo(a)pyrene	6100	120	
205-99-2	Benzo(b)fluoranthene	6700	120	
191-24-2	Benzo(g,h,i)perylene	7200	120	
207-08-9	Benzo(k)fluoranthene	5200	120	
218-01-9	Chrysene	5600	120	
53-70-3	Dibenz(a,h)anthracene	ND	120	
206-44-0	Fluoranthene	10000	120	
86-73-7	Fluorene	360	120	
193-39-5	Indeno(1,2,3-cd)pyrene	6000	120	
91-20-3	Naphthalene	330	120	
85-01-8	Phenanthrene	5200	120	
129-00-0	Pyrene	9000	120	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	120	41 - 106
2-Fluorobiphenyl (SS1)	100	39 - 103

Comments:

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**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID: R01-100830MB-0396  
Date of Collection: 10/13/2010  
Date of Extraction: 10/19/10  
Date of Analysis: 10/22/10  
Dry Weight Extracted: 4.804 grams  
Wet Weight Extracted: 5.753 grams  
Final Volume: 1 mL

Lab Sample ID: AB11592  
Matrix: Soil  
Volume Extracted: N/A  
Percent Solids: 84%  
Extract Dilution: 1  
pH: N/A  
GPC Factor: N/A

<b>CAS Number</b>	<b>Compound</b>	<b>Concentration ug/Kg</b>	<b>RL ug/Kg</b>	<b>Qualifier</b>
83-32-9	Acenaphthene	180	100	
208-96-8	Acenaphthylene	350	100	
120-12-7	Anthracene	1200	100	
56-55-3	Benzo(a)anthracene	3800	100	
50-32-8	Benzo(a)pyrene	3800	100	
205-99-2	Benzo(b)fluoranthene	3700	100	
191-24-2	Benzo(g,h,i)perylene	3900	100	
207-08-9	Benzo(k)fluoranthene	3200	100	
218-01-9	Chrysene	3600	100	
53-70-3	Dibenz(a,h)anthracene	ND	100	
206-44-0	Fluoranthene	7900	100	
86-73-7	Fluorene	280	100	
193-39-5	Indeno(1,2,3-cd)pyrene	3300	100	
91-20-3	Naphthalene	ND	100	
85-01-8	Phenanthrene	4500	100	
129-00-0	Pyrene	6500	100	

<b>Surrogate Compounds</b>	<b>Recoveries (%)</b>	<b>QC Ranges</b>
p-Terphenyl-d14 (SS2)	110	41 - 106
2-Fluorobiphenyl (SS1)	96	39 - 103

Comments:

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0397	Lab Sample ID:	AB11593
Date of Collection:	10/13/2010	Matrix:	Soil
Date of Extraction:	10/19/10	Volume Extracted:	N/A
Date of Analysis:	10/26/10	Percent Solids:	81%
Dry Weight Extracted:	5.419 grams	Extract Dilution:	1
Wet Weight Extracted:	6.715 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	240	92	
208-96-8	Acenaphthylene	290	92	
120-12-7	Anthracene	2000	92	
56-55-3	Benzo(a)anthracene	8600	92	
50-32-8	Benzo(a)pyrene	7000	92	
205-99-2	Benzo(b)fluoranthene	7200	92	
191-24-2	Benzo(g,h,i)perylene	6100	92	
207-08-9	Benzo(k)fluoranthene	6200	92	
218-01-9	Chrysene	8600	92	
53-70-3	Dibenz(a,h)anthracene	940	92	
206-44-0	Fluoranthene	17000	92	
86-73-7	Fluorene	340	92	
193-39-5	Indeno(1,2,3-cd)pyrene	5600	92	
91-20-3	Naphthalene	250	92	
85-01-8	Phenanthrene	6500	92	
129-00-0	Pyrene	14000	92	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	100	41 - 106
2-Fluorobiphenyl (SS1)	95	39 - 103

Comments:

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**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID: R01-100830MB-0398  
Date of Collection: 10/13/2010  
Date of Extraction: 10/19/10  
Date of Analysis: 10/26/10  
Dry Weight Extracted: 5.137 grams  
Wet Weight Extracted: 5.753 grams  
Final Volume: 1 mL

Lab Sample ID: AB11594  
Matrix: Soil  
Volume Extracted: N/A  
Percent Solids: 89%  
Extract Dilution: 1  
pH: N/A  
GPC Factor: N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	170	97	
208-96-8	Acenaphthylene	290	97	
120-12-7	Anthracene	850	97	
56-55-3	Benzo(a)anthracene	3700	97	
50-32-8	Benzo(a)pyrene	3600	97	
205-99-2	Benzo(b)fluoranthene	3400	97	
191-24-2	Benzo(g,h,i)perylene	2900	97	
207-08-9	Benzo(k)fluoranthene	3200	97	
218-01-9	Chrysene	3500	97	
53-70-3	Dibenz(a,h)anthracene	560	97	
206-44-0	Fluoranthene	6300	97	
86-73-7	Fluorene	170	97	
193-39-5	Indeno(1,2,3-cd)pyrene	2700	97	
91-20-3	Naphthalene	ND	97	
85-01-8	Phenanthrene	2700	97	
129-00-0	Pyrene	5300	97	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	90	41 - 106
2-Fluorobiphenyl (SS1)	75	39 - 103

Comments:

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**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0399	Lab Sample ID:	AB11595
Date of Collection:	10/13/2010	Matrix:	Soil
Date of Extraction:	10/19/10	Volume Extracted:	N/A
Date of Analysis:	10/26/10	Percent Solids:	86%
Dry Weight Extracted:	5.215 grams	Extract Dilution:	1
Wet Weight Extracted:	6.077 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	510	96	
208-96-8	Acenaphthylene	580	96	
120-12-7	Anthracene	2700	96	
56-55-3	Benzo(a)anthracene	7600	96	
50-32-8	Benzo(a)pyrene	7700	96	
205-99-2	Benzo(b)fluoranthene	7400	96	
191-24-2	Benzo(g,h,i)perylene	7000	96	
207-08-9	Benzo(k)fluoranthene	5400	96	
218-01-9	Chrysene	7100	96	
53-70-3	Dibenz(a,h)anthracene	ND	96	
206-44-0	Fluoranthene	15000	96	
86-73-7	Fluorene	760	96	
193-39-5	Indeno(1,2,3-cd)pyrene	6300	96	
91-20-3	Naphthalene	460	96	
85-01-8	Phenanthrene	9400	96	
129-00-0	Pyrene	12000	96	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	85	41 - 106
2-Fluorobiphenyl (SS1)	68	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID: R01-100830MB-0400  
Date of Collection: 10/13/2010  
Date of Extraction: 10/19/10  
Date of Analysis: 10/22/10  
Dry Weight Extracted: 4.678 grams  
Wet Weight Extracted: 5.951 grams  
Final Volume: 1 mL

Lab Sample ID: AB11596  
Matrix: Soil  
Volume Extracted: N/A  
Percent Solids: 79%  
Extract Dilution: 1  
pH: N/A  
GPC Factor: N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	110	
208-96-8	Acenaphthylene	240	110	
120-12-7	Anthracene	430	110	
56-55-3	Benzo(a)anthracene	1600	110	
50-32-8	Benzo(a)pyrene	1900	110	
205-99-2	Benzo(b)fluoranthene	2200	110	
191-24-2	Benzo(g,h,i)perylene	2900	110	
207-08-9	Benzo(k)fluoranthene	2200	110	
218-01-9	Chrysene	1600	110	
53-70-3	Dibenz(a,h)anthracene	ND	110	
206-44-0	Fluoranthene	2900	110	
86-73-7	Fluorene	110	110	
193-39-5	Indeno(1,2,3-cd)pyrene	2300	110	
91-20-3	Naphthalene	ND	110	
85-01-8	Phenanthrene	1500	110	
129-00-0	Pyrene	2600	110	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	95	41 - 106
2-Fluorobiphenyl (SS1)	80	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID: R01-100830MB-0401  
Date of Collection: 10/13/2010  
Date of Extraction: 10/19/10  
Date of Analysis: 10/22/10  
Dry Weight Extracted: 4.995 grams  
Wet Weight Extracted: 5.303 grams  
Final Volume: 1 mL

Lab Sample ID: AB11597  
Matrix: Soil  
Volume Extracted: N/A  
Percent Solids: 94%  
Extract Dilution: 1  
pH: N/A  
GPC Factor: N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	260	100	
208-96-8	Acenaphthylene	580	100	
120-12-7	Anthracene	1400	100	
56-55-3	Benzo(a)anthracene	5800	100	
50-32-8	Benzo(a)pyrene	7100	100	
205-99-2	Benzo(b)fluoranthene	7500	100	
191-24-2	Benzo(g,h,i)perylene	8000	100	
207-08-9	Benzo(k)fluoranthene	5700	100	
218-01-9	Chrysene	5800	100	
53-70-3	Dibenz(a,h)anthracene	ND	100	
206-44-0	Fluoranthene	9900	100	
86-73-7	Fluorene	330	100	
193-39-5	Indeno(1,2,3-cd)pyrene	6700	100	
91-20-3	Naphthalene	370	100	
85-01-8	Phenanthrene	4400	100	
129-00-0	Pyrene	8700	100	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	100	41 - 106
2-Fluorobiphenyl (SS1)	85	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

PAH MATRIX SPIKE (MS)

Tombarello Site - Lawrence, MA

Sample ID: AB11579

PARAMETER	SPIKE ADDED ug/Kg	SAMPLE CONCENTRATION ug/Kg	MS CONCENTRATION ug/Kg	MS % REC	QC LIMITS (% REC)
Acenaphthene	8500	ND	9000	106	30 - 113
Acenaphthylene	8500	ND	9000	105	28 - 125
Anthracene	8500	1500	12000	118	30 - 129
Benzo(a)anthracene	8500	5500	15000	108	25 - 137
Benzo(a)pyrene	8500	6000	15000	102	26 - 115
Benzo(b)fluoranthene	8500	4900	15000	121	29 - 120
Benzo(g,h,i)perylene	8500	5600	15000	108	26 - 119
Benzo(k)fluoranthene	8500	5300	15000	114	27 - 139
Chrysene	8500	5500	14000	96	31 - 120
Dibenz(a,h)anthracene	8500	ND	11000	125	31 - 125
Fluoranthene	8500	10000	19000	102	21 - 148
Fluorene	8500	ND	9000	106	34 - 121
Indeno(1,2,3-cd)pyrene	8500	4500	14000	106	29 - 125
Naphthalene	8500	ND	8100	95	19 - 107
Phenanthrene	8500	6000	15000	108	26 - 125
Pyrene	8500	9000	17000	91	20 - 142

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Laboratory Duplicate Results**

Tombarello Site - Lawrence, MA

Sample ID: AB11579

PARAMETER	SAMPLE RESULT ug/Kg	SAMPLE DUPLICATE RESULT ug/Kg	PRECISION RPD %	QC LIMITS
Acenaphthene	ND	ND	ND	40
Acenaphthylene	ND	ND	ND	40
Anthracene	1500	1800	20	40
Benzo(a)anthracene	5500	7500	31	40
Benzo(a)pyrene	6000	7800	26	40
Benzo(b)fluoranthene	4900	6600	30	40
Benzo(g,h,i)perylene	5600	6800	20	40
Benzo(k)fluoranthene	5300	7400	33	40
Chrysene	5500	7600	32	40
Dibenz(a,h)anthracene	ND	ND	ND	40
Fluoranthene	10000	15000	42	40
Fluorene	ND	ND	ND	40
Indeno(1,2,3-cd)pyrene	4500	5500	21	40
Naphthalene	ND	ND	ND	40
Phenanthrene	6000	7900	28	40
Pyrene	9000	13000	33	40

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

Laboratory Fortified Blank (LFB) Results

Tombarello Site - Lawrence, MA

PARAMETER	LFB AMOUNT SPIKED ppb	LFB RESULT ppb	LFB RECOVERY %	QC LIMITS %
Acenaphthene	3900	3200	82	26 - 129
Acenaphthylene	3900	3100	81	23 - 141
Anthracene	3900	3800	97	25 - 149
Benzo(a)anthracene	3900	3500	90	27 - 142
Benzo(a)pyrene	3900	3500	90	29 - 123
Benzo(b)fluoranthene	3900	3300	86	22 - 146
Benzo(g,h,i)perylene	3900	3400	86	26 - 134
Benzo(k)fluoranthene	3900	3700	95	32 - 144
Chrysene	3900	3500	89	38 - 121
Dibenz(a,h)anthracene	3900	3400	87	35 - 133
Fluoranthene	3900	3500	90	29 - 154
Fluorene	3900	3300	84	29 - 138
Indeno(1,2,3-cd)pyrene	3900	3300	84	26 - 141
Naphthalene	3900	3000	76	30 - 110
Phenanthrene	3900	3600	92	27 - 140
Pyrene	3900	3400	87	24 - 147

Comments:



United States Environmental Protection Agency  
Office of Environmental Measurement & Evaluation  
60 Westview Street  
Lexington, MA 02421-3185

## Laboratory Report

November 01, 2010

Mike Barry - OSRR02-2  
US EPA New England R1

Project Number: 10100022  
Project: Tombarello Site - Lawrence, MA  
Analysis: PCB's in Soil Field Method (Fixed Lab)  
Analyst: Paul Carroll

### Analytical Procedure:

All samples were received and logged in by the laboratory according to the USEPA New England Laboratory SOP for Sample Log-in.

Sample preparation and analysis was done following the EPA Region I SOP, FLDPCB2.SOP.

Concentrations of PCBs in soil were calculated using an external standard technique.

Analysis for PCB's performed by this field analytical technique is used for tentative identification and semi-quantitation of PCB's in soil, oil, and sediment samples.

Date Samples Received by the Laboratory: 10/14/10

Results relate only to the items tested or to the samples as received by the Laboratory. This analytical report shall not be reproduced except in full, without written approval of the laboratory.

Results for soil samples are reported on a dry weight basis.

If you have any questions please call me at 617-918-8340.

Sincerely,

 11/1/10

Daniel Boudreau

Project # 10100022

## PCB's in Soil Field Method (Fixed Lab)

US ENVIRONMENTAL PROTECTION AGENCY NEW ENGLAND LABORATORY Tombarello Site - Lawrence, MA						
Client Sample ID	R01-100830MB-0382	R01-100830MB-0383	R01-100830MB-0384	R01-100830MB-0385	R01-100830MB-0386	R01-100830MB-0387
Lab Sample ID	AB11578	AB11579	AB11580	AB11581	AB11582	AB11583
Date of Collection	10/13/2010	10/13/2010	10/13/2010	10/13/2010	10/13/2010	10/13/2010
Date of Extraction	10/19/2010	10/19/2010	10/19/2010	10/19/2010	10/19/2010	10/19/2010
Date of Analysis	10/25/2010	10/25/2010	10/25/2010	10/25/2010	10/25/2010	10/25/2010
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Compound	Conc. (RL) mg/Kg					
Aroclor-1242	ND (0.72)	ND (0.76)	ND (0.62)	ND (0.72)	ND (0.66)	ND (0.78)
Aroclor-1248	ND (0.72)	2.2 (0.76)	5.2 (0.62)	ND (0.72)	2.1 (0.66)	0.79 (0.78)
Aroclor-1254	2.6 (0.72) J	2.8 (0.76) J	3.0 (0.62) J	7.7 (0.72) J	4.9 (0.66) J	1.8 (0.78) J
Aroclor-1260	9.8 (0.72)	3.5 (0.76)	3.5 (0.62)	57 (0.72)	12 (0.66)	2.4 (0.78)
Aroclor-1262	ND (0.72)	ND (0.76)	ND (0.62)	ND (0.72)	ND (0.66)	ND (0.78)
Aroclor-1268	ND (0.72)	ND (0.76)	ND (0.62)	ND (0.72)	ND (0.66)	ND (0.78)

**US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY  
Tombarello Site - Lawrence, MA**

	R01-100830MB-0388 AB11584 10/13/2010 10/19/2010 10/25/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0389 AB11585 10/13/2010 10/19/2010 10/25/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0390 AB11586 10/13/2010 10/19/2010 10/25/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0391 AB11587 10/13/2010 10/19/2010 10/25/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0392 AB11588 10/13/2010 10/19/2010 10/25/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0393 AB11589 10/13/2010 10/19/2010 10/26/2010 Soil  Conc. (RL) mg/Kg
Aroclor-1242	ND (0.64)	ND (0.72)	ND (0.64)	ND (0.68)	ND (0.76)	ND (0.7)
Aroclor-1248	1.0 (0.64)	ND (0.72)	1.2 (0.64)	ND (0.68)	4.1 (0.76)	6.9 (0.7)
Aroclor-1254	6.5 (0.64) J	3.1 (0.72) J	1.8 (0.64) J	6.3 (0.68) J	2.7 (0.76) J	4.1 (0.7) J
Aroclor-1260	17 (0.64)	4.4 (0.72)	2.1 (0.64)	4.0 (0.68)	3.3 (0.76)	4.8 (0.7)
Aroclor-1262	ND (0.64)	ND (0.72)	ND (0.64)	ND (0.68)	ND (0.76)	ND (0.7)
Aroclor-1268	ND (0.64)	ND (0.72)	ND (0.64)	ND (0.68)	ND (0.76)	ND (0.7)

**US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY  
Tombarello Site - Lawrence, MA**

	R01-100830MB-0394 AB11590 10/13/2010 10/19/2010 10/26/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0395 AB11591 10/13/2010 10/19/2010 10/26/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0396 AB11592 10/13/2010 10/19/2010 10/26/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0397 AB11593 10/13/2010 10/19/2010 10/26/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0398 AB11594 10/13/2010 10/19/2010 10/26/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0399 AB11595 10/13/2010 10/19/2010 10/26/2010 Soil  Conc. (RL) mg/Kg
Aroclor-1242	ND (0.82)	ND (0.88)	ND (0.84)	ND (0.92)	ND (0.74)	ND (0.8)
Aroclor-1248	ND (0.82)	4.0 (0.88)	1.9 (0.84)	2.2 (0.92)	ND (0.74)	4.5 (0.8)
Aroclor-1254	0.92 (0.82) J	5.0 (0.88) J	5.6 (0.84) J	8.8 (0.92) J	0.97 (0.74) J	7.3 (0.8) J
Aroclor-1260	1.2 (0.82)	5.0 (0.88)	2.0 (0.84)	4.0 (0.92)	1.3 (0.74)	5.2 (0.8)
Aroclor-1262	ND (0.82)	ND (0.88)	ND (0.84)	ND (0.92)	ND (0.74)	ND (0.8)
Aroclor-1268	ND (0.82)	ND (0.88)	ND (0.84)	ND (0.92)	ND (0.74)	ND (0.8)

**US ENVIRONMENTAL PROTECTION  
AGENCY  
NEW ENGLAND LABORATORY**

R01-100830MB-0400 AB11596 10/13/2010 10/19/2010 10/26/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0401 AB11597 10/13/2010 10/19/2010 10/26/2010 Soil  Conc. (RL) mg/Kg
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Aroclor-1242	ND (0.82)	ND (0.74)
Aroclor-1248	6.1 (0.82)	0.91 (0.74)
Aroclor-1254	5.0 (0.82) J	1.9 (0.74) J
Aroclor-1260	4.7 (0.82)	2.6 (0.74)
Aroclor-1262	ND (0.82)	ND (0.74)
Aroclor-1268	ND (0.82)	ND (0.74)

Qualifiers: RL = Reporting limit  
ND = Not Detected above Reporting limit  
NA = Not Applicable due to high sample dilutions or sample interferences  
J = Estimated value  
E = Estimated value exceeds the calibration range  
L = Estimated value is below the calibration range  
B = Analyte is associated with the lab blank or trip blank contamination. Values are qualified when the observed concentration of the contamination in the sample extract is less than 10 times the concentration in the blank.  
P = The confirmation value exceeded 35% difference and is less than 100%. The lower value is reported.  
C = The identification has been confirmed by GC/MS.  
A = Suspected Aldol condensation product.  
N = Tentatively identified compound.



United States Environmental Protection Agency  
Office of Environmental Measurement & Evaluation  
11 Technology Drive  
North Chelmsford, MA 01863

Laboratory Report

November 16, 2010

Mike Barry - OSRR02-2  
US EPA New England R1

Project Number: 10100022

Project: Tombarello Site - Lawrence, MA

Analysis: Field Analysis of Metals by XRF

Analyst: Paul Carroll

*Paul Carroll*  
11.16.10

Analytical Procedure:

All samples were received and logged in by the laboratory according to the USEPA New England Laboratory SOP for Sample Log-in.

Sample preparation and analysis was done following the EPA Region 1 SOP, EIA-FLDXRFN3.

The analysis were performed by the EPA New England Regional Laboratory.

Date Samples Received by the Laboratory: 10/14/10

Results relate only to the items tested or to the samples as received by the Laboratory. This analytical report shall not be reproduced except in full, without written approval of the laboratory.

If you have any questions please call me at 617-918-8340.

Sincerely,

*Dan Boudreau* 11/16/10

Dan Boudreau  
Chemistry Team Leader

Project # 10100022

Field Analysis of Metals by XRF

US ENVIRONMENTAL PROTECTION AGENCY NEW ENGLAND LABORATORY Tombarello Site - Lawrence, MA						
Client Sample ID	R01-100830MB-0382	R01-100830MB-0383	R01-100830MB-0384	R01-100830MB-0385	R01-100830MB-0386	R01-100830MB-0387
Lab Sample ID	AB11578	AB11579	AB11580	AB11581	AB11582	AB11583
Date of Collection	10/13/2010	10/13/2010	10/13/2010	10/13/2010	10/13/2010	10/13/2010
Date of Extraction	11/9/2010	11/9/2010	11/9/2010	11/9/2010	11/9/2010	11/9/2010
Date of Analysis	11/9/2010	11/9/2010	11/9/2010	11/9/2010	11/9/2010	11/9/2010
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Compound	Conc. (RL) mg/Kg					
Arsenic	41 ( 20)	ND ( 53)	ND ( 55)	74 ( 20)	63 ( 20)	74 ( 20)
Cadmium	ND ( 14)	ND ( 20)	49 (8.0)	40 (8.0)	22 (8.0)	ND ( 16)
Chromium	55 ( 20)	250 ( 20)	290 ( 20)	260 ( 20)	120 ( 20)	150 ( 20)
Lead	630 ( 20)	1100 ( 20)	1100 ( 20)	1600 ( 20)	1200 ( 20)	1300 ( 20)

**US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY  
Tombarello Site - Lawrence, MA**

	R01-100830MB-0388 AB11584 10/13/2010 11/9/2010 11/9/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0389 AB11585 10/13/2010 11/9/2010 11/9/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0390 AB11586 10/13/2010 11/9/2010 11/9/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0391 AB11587 10/13/2010 11/9/2010 11/9/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0392 AB11588 10/13/2010 11/9/2010 11/9/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0393 AB11589 10/13/2010 11/9/2010 11/9/2010 Soil  Conc. (RL) mg/Kg
Arsenic	ND ( 59)	75 ( 20)	80 ( 20)	180 ( 20)	63 ( 20)	ND ( 130)
Cadmium	ND ( 13)	22 (8.0)	23 (8.0)	29 (8.0)	26 (8.0)	ND ( 18)
Chromium	110 ( 20)	160 ( 20)	99 ( 20)	150 ( 20)	270 ( 20)	160 ( 20)
Lead	1400 ( 20)	1400 ( 20)	1600 ( 20)	2200 ( 20)	1100 ( 20)	5800 ( 20)

**US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY  
Tombarello Site - Lawrence, MA**

	R01-100830MB-0394 AB11590 10/13/2010 11/9/2010 11/9/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0395 AB11591 10/13/2010 11/9/2010 11/9/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0396 AB11592 10/13/2010 11/9/2010 11/9/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0397 AB11593 10/13/2010 11/9/2010 11/9/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0398 AB11594 10/13/2010 11/9/2010 11/9/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0399 AB11595 10/13/2010 11/9/2010 11/9/2010 Soil  Conc. (RL) mg/Kg
Arsenic	ND ( 45)	120 ( 20)	170 ( 20)	180 ( 20)	36 ( 20)	97 ( 20)
Cadmium	17 (8.0)	20 (8.0)	42 (8.0)	37 (8.0)	ND ( 12)	21 (8.0)
Chromium	130 ( 20)	200 ( 20)	320 ( 20)	290 ( 20)	1300 ( 20)	360 ( 20)
Lead	880 ( 20)	2000 ( 20)	2300 ( 20)	5000 ( 20)	480 ( 20)	1200 ( 20)

**US ENVIRONMENTAL PROTECTION  
AGENCY  
NEW ENGLAND LABORATORY**

R01-100830MB-0400 AB11596 10/13/2010 11/9/2010 11/9/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0401 AB11597 10/13/2010 11/9/2010 11/9/2010 Soil  Conc. (RL) mg/Kg
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Arsenic	97 ( 20)	ND ( 40)
Cadmium	35 (8.0)	ND ( 15)
Chromium	260 ( 20)	180 ( 20)
Lead	1600 ( 20)	730 ( 20)



United States Environmental Protection Agency  
Office of Environmental Measurement & Evaluation  
11 Technology Drive  
North Chelmsford, MA 01863-2431

Laboratory Report

October 27, 2010

Mike Barry - OSRR02-2  
US EPA New England R1

Project Number: 10100023  
Project: Tombarello Site - Lawrence, MA  
Analysis: PAHs in Soil  
Analyst: Dan Boudreau *DB*  
*10/27/10*

Analytical Procedure:

All samples were received and logged in by the laboratory according to the USEPA New England Laboratory SOP for Sample Log-in.

Sample preparation and analysis was done following the EPA Region I SOP, EIASOP-BNAS3.

Samples were analyzed by a quadrapole GC/MS operating in the full-scan mode. The extraction and analysis SOPs are based on SW-846 methods 3545A, 3630C, 8270C, and EIASOP-BNAGCMS7.

Date Samples Received by the Laboratory: 10/14/2010

Data were reviewed in accordance with the internal verification procedures described in the EPA New England OEME Chemistry QA Plan.

Results relate only to the items tested or to the samples as received by the Laboratory. This analytical report shall not be reproduced except in full, without written approval of the laboratory.

Report may contain multiple sections and each section will be numbered independently.

If you have any questions please call me at 617-918-8340 .

Sincerely,

*Daniel N. Boudreau* *11/3/10*  
Daniel N. Boudreau  
Chemistry Team Leader

**Qualifiers:**

RL = Reporting limit

ND = Not Detected above Reporting limit

NA = Not Applicable due to high sample dilutions or sample interferences

NC = Not calculated since analyte concentration is ND.

J = Estimated value

E = Estimated value exceeds the calibration range

L = Estimated value is below the calibration range

B = Analyte is associated with the lab blank or trip blank contamination. Values are qualified when the observed concentration of the contamination in the sample extract is less than 5 times the concentration in the blank.

R = No recovery was calculated since the analyte concentration is greater than four times the spike level.

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0338	Lab Sample ID:	AB11598
Date of Collection:	10/12/2010	Matrix:	Soil
Date of Extraction:	10/19/10	Volume Extracted:	N/A
Date of Analysis:	10/21/10	Percent Solids:	88%
Dry Weight Extracted:	6.216 grams	Extract Dilution:	10
Wet Weight Extracted:	7.053 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	3500	800	
208-96-8	Acenaphthylene	ND	800	
120-12-7	Anthracene	11000	800	
56-55-3	Benzo(a)anthracene	28000	800	
50-32-8	Benzo(a)pyrene	26000	800	
205-99-2	Benzo(b)fluoranthene	20000	800	
191-24-2	Benzo(g,h,i)perylene	18000	800	
207-08-9	Benzo(k)fluoranthene	21000	800	
218-01-9	Chrysene	28000	800	
53-70-3	Dibenz(a,h)anthracene	ND	800	
206-44-0	Fluoranthene	61000	800	
86-73-7	Fluorene	3500	800	
193-39-5	Indeno(1,2,3-cd)pyrene	16000	800	
91-20-3	Naphthalene	ND	800	
85-01-8	Phenanthrene	45000	800	
129-00-0	Pyrene	52000	800	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	130	41 - 106
2-Fluorobiphenyl (SS1)	100	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0340	Lab Sample ID:	AB11600
Date of Collection:	10/12/2010	Matrix:	Soil
Date of Extraction:	10/19/10	Volume Extracted:	N/A
Date of Analysis:	10/21/10	Percent Solids:	100%
Dry Weight Extracted:	10.139 grams	Extract Dilution:	1
Wet Weight Extracted:	10.139 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	49	
208-96-8	Acenaphthylene	ND	49	
120-12-7	Anthracene	ND	49	
56-55-3	Benzo(a)anthracene	ND	49	
50-32-8	Benzo(a)pyrene	ND	49	
205-99-2	Benzo(b)fluoranthene	2200	49	
191-24-2	Benzo(g,h,i)perylene	2100	49	
207-08-9	Benzo(k)fluoranthene	1500	49	
218-01-9	Chrysene	1800	49	
53-70-3	Dibenz(a,h)anthracene	ND	49	
206-44-0	Fluoranthene	ND	49	
86-73-7	Fluorene	ND	49	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	49	
91-20-3	Naphthalene	2200	49	
85-01-8	Phenanthrene	1800	49	
129-00-0	Pyrene	ND	49	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	110	41 - 106
2-Fluorobiphenyl (SS1)	90	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**Laboratory Blank (PAHs)**

Client Sample ID:	N/A	Lab Sample ID:	N/A
Date of Collection:	N/A	Matrix:	Soil
Date of Extraction:	10/19/10	Volume Extracted:	N/A
Date of Analysis:	10/21/10	Percent Solids:	95%
Dry Weight Extracted:	9.518 grams	Extract Dilution:	1
Wet Weight Extracted:	9.969 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	53	
208-96-8	Acenaphthylene	ND	53	
120-12-7	Anthracene	ND	53	
56-55-3	Benzo(a)anthracene	ND	53	
50-32-8	Benzo(a)pyrene	ND	53	
205-99-2	Benzo(b)fluoranthene	ND	53	
191-24-2	Benzo(g,h,i)perylene	ND	53	
207-08-9	Benzo(k)fluoranthene	ND	53	
218-01-9	Chrysene	ND	53	
53-70-3	Dibenz(a,h)anthracene	ND	53	
206-44-0	Fluoranthene	ND	53	
86-73-7	Fluorene	ND	53	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	53	
91-20-3	Naphthalene	ND	53	
85-01-8	Phenanthrene	ND	53	
129-00-0	Pyrene	ND	53	

Surrogate Compounds	Recoveries (%)	QC Ranges
2-Fluorobiphenyl (SS1)	86	31 - 94
p-Terphenyl-d14 (SS2)	100	32 - 96

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID: R01-100830MB-0402  
Date of Collection: 10/13/2010  
Date of Extraction: 10/19/10  
Date of Analysis: 10/21/10  
Dry Weight Extracted: 5.357 grams  
Wet Weight Extracted: 5.899 grams  
Final Volume: 1 mL

Lab Sample ID: AB11602  
Matrix: Soil  
Volume Extracted: N/A  
Percent Solids: 91%  
Extract Dilution: 10  
pH: N/A  
GPC Factor: N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	930	
208-96-8	Acenaphthylene	ND	930	
120-12-7	Anthracene	990	930	
56-55-3	Benzo(a)anthracene	4300	930	
50-32-8	Benzo(a)pyrene	4800	930	
205-99-2	Benzo(b)fluoranthene	6100	930	
191-24-2	Benzo(g,h,i)perylene	5000	930	
207-08-9	Benzo(k)fluoranthene	5500	930	
218-01-9	Chrysene	4100	930	
53-70-3	Dibenz(a,h)anthracene	ND	930	
206-44-0	Fluoranthene	7600	930	
86-73-7	Fluorene	ND	930	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	930	
91-20-3	Naphthalene	ND	930	
85-01-8	Phenanthrene	3400	930	
129-00-0	Pyrene	7100	930	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	100	41 - 106
2-Fluorobiphenyl (SS1)	92	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID: R01-100830MB-0403  
Date of Collection: 10/13/2010  
Date of Extraction: 10/19/10  
Date of Analysis: 10/22/10  
Dry Weight Extracted: 4.924 grams  
Wet Weight Extracted: 5.569 grams  
Final Volume: 1 mL

Lab Sample ID: AB11603  
Matrix: Soil  
Volume Extracted: N/A  
Percent Solids: 88%  
Extract Dilution: 10  
pH: N/A  
GPC Factor: N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	3900	1000	
208-96-8	Acenaphthylene	ND	1000	
120-12-7	Anthracene	12000	1000	
56-55-3	Benzo(a)anthracene	33000	1000	
50-32-8	Benzo(a)pyrene	30000	1000	
205-99-2	Benzo(b)fluoranthene	29000	1000	
191-24-2	Benzo(g,h,i)perylene	20000	1000	
207-08-9	Benzo(k)fluoranthene	24000	1000	
218-01-9	Chrysene	32000	1000	
53-70-3	Dibenz(a,h)anthracene	ND	1000	
206-44-0	Fluoranthene	71000	1000	
86-73-7	Fluorene	4100	1000	
193-39-5	Indeno(1,2,3-cd)pyrene	18000	1000	
91-20-3	Naphthalene	2100	1000	
85-01-8	Phenanthrene	52000	1000	
129-00-0	Pyrene	59000	1000	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	110	41 - 106
2-Fluorobiphenyl (SS1)	94	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0404	Lab Sample ID:	AB11604
Date of Collection:	10/13/2010	Matrix:	Soil
Date of Extraction:	10/19/10	Volume Extracted:	N/A
Date of Analysis:	10/22/10	Percent Solids:	91%
Dry Weight Extracted:	5.046 grams	Extract Dilution:	10
Wet Weight Extracted:	5.567 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	990	
208-96-8	Acenaphthylene	ND	990	
120-12-7	Anthracene	1000	990	
56-55-3	Benzo(a)anthracene	4800	990	
50-32-8	Benzo(a)pyrene	5500	990	
205-99-2	Benzo(b)fluoranthene	5900	990	
191-24-2	Benzo(g,h,i)perylene	5700	990	
207-08-9	Benzo(k)fluoranthene	4400	990	
218-01-9	Chrysene	4900	990	
53-70-3	Dibenz(a,h)anthracene	ND	990	
206-44-0	Fluoranthene	8500	990	
86-73-7	Fluorene	ND	990	
193-39-5	Indeno(1,2,3-cd)pyrene	4900	990	
91-20-3	Naphthalene	ND	990	
85-01-8	Phenanthrene	3800	990	
129-00-0	Pyrene	8000	990	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	110	41 - 106
2-Fluorobiphenyl (SS1)	90	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0405	Lab Sample ID:	AB11605
Date of Collection:	10/13/2010	Matrix:	Soil
Date of Extraction:	10/19/10	Volume Extracted:	N/A
Date of Analysis:	10/22/10	Percent Solids:	91%
Dry Weight Extracted:	6.036 grams	Extract Dilution:	10
Wet Weight Extracted:	6.605 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	830	
208-96-8	Acenaphthylene	ND	830	
120-12-7	Anthracene	1100	830	
56-55-3	Benzo(a)anthracene	3700	830	
50-32-8	Benzo(a)pyrene	4200	830	
205-99-2	Benzo(b)fluoranthene	4600	830	
191-24-2	Benzo(g,h,i)perylene	4300	830	
207-08-9	Benzo(k)fluoranthene	4300	830	
218-01-9	Chrysene	3800	830	
53-70-3	Dibenz(a,h)anthracene	ND	830	
206-44-0	Fluoranthene	6800	830	
86-73-7	Fluorene	ND	830	
193-39-5	Indeno(1,2,3-cd)pyrene	3600	830	
91-20-3	Naphthalene	ND	830	
85-01-8	Phenanthrene	3600	830	
129-00-0	Pyrene	6500	830	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	110	41 - 106
2-Fluorobiphenyl (SS1)	92	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

Tombarello Site - Lawrence, MA

PAHs in Soil

Client Sample ID:	R01-100830MB-0410	Lab Sample ID:	AB11609
Date of Collection:	10/13/2010	Matrix:	Soil
Date of Extraction:	10/19/10	Volume Extracted:	N/A
Date of Analysis:	10/21/10	Percent Solids:	100%
Dry Weight Extracted:	11.734 grams	Extract Dilution:	1
Wet Weight Extracted:	11.734 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	43	
208-96-8	Acenaphthylene	1100	43	
120-12-7	Anthracene	2100	43	
56-55-3	Benzo(a)anthracene	1600	43	
50-32-8	Benzo(a)pyrene	ND	43	
205-99-2	Benzo(b)fluoranthene	ND	43	
191-24-2	Benzo(g,h,i)perylene	2000	43	
207-08-9	Benzo(k)fluoranthene	ND	43	
218-01-9	Chrysene	ND	43	
53-70-3	Dibenz(a,h)anthracene	2000	43	
206-44-0	Fluoranthene	1900	43	
86-73-7	Fluorene	ND	43	
193-39-5	Indeno(1,2,3-cd)pyrene	1900	43	
91-20-3	Naphthalene	2500	43	
85-01-8	Phenanthrene	ND	43	
129-00-0	Pyrene	ND	43	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	100	41 - 106
2-Fluorobiphenyl (SS1)	90	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0411	Lab Sample ID:	AB11610
Date of Collection:	10/13/2010	Matrix:	Soil
Date of Extraction:	10/19/10	Volume Extracted:	N/A
Date of Analysis:	10/21/10	Percent Solids:	100%
Dry Weight Extracted:	9.922 grams	Extract Dilution:	1
Wet Weight Extracted:	9.922 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	1400	50	
208-96-8	Acenaphthylene	ND	50	
120-12-7	Anthracene	ND	50	
56-55-3	Benzo(a)anthracene	ND	50	
50-32-8	Benzo(a)pyrene	ND	50	
205-99-2	Benzo(b)fluoranthene	ND	50	
191-24-2	Benzo(g,h,i)perylene	1900	50	
207-08-9	Benzo(k)fluoranthene	ND	50	
218-01-9	Chrysene	ND	50	
53-70-3	Dibenz(a,h)anthracene	2000	50	
206-44-0	Fluoranthene	ND	50	
86-73-7	Fluorene	1500	50	
193-39-5	Indeno(1,2,3-cd)pyrene	2500	50	
91-20-3	Naphthalene	2300	50	
85-01-8	Phenanthrene	2000	50	
129-00-0	Pyrene	2500	50	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	100	41 - 106
2-Fluorobiphenyl (SS1)	80	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0412	Lab Sample ID:	AB11611
Date of Collection:	10/13/2010	Matrix:	Soil
Date of Extraction:	10/19/10	Volume Extracted:	N/A
Date of Analysis:	10/21/10	Percent Solids:	100%
Dry Weight Extracted:	10.289 grams	Extract Dilution:	1
Wet Weight Extracted:	10.289 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	49	
208-96-8	Acenaphthylene	ND	49	
120-12-7	Anthracene	ND	49	
56-55-3	Benzo(a)anthracene	ND	49	
50-32-8	Benzo(a)pyrene	ND	49	
205-99-2	Benzo(b)fluoranthene	2000	49	
191-24-2	Benzo(g,h,i)perylene	2000	49	
207-08-9	Benzo(k)fluoranthene	1600	49	
218-01-9	Chrysene	1600	49	
53-70-3	Dibenz(a,h)anthracene	ND	49	
206-44-0	Fluoranthene	ND	49	
86-73-7	Fluorene	ND	49	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	49	
91-20-3	Naphthalene	2200	49	
85-01-8	Phenanthrene	1700	49	
129-00-0	Pyrene	ND	49	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	100	41 - 106
2-Fluorobiphenyl (SS1)	85	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**PAH MATRIX SPIKE (MS)**

Tombarello Site - Lawrence, MA

Sample ID: AB11602

PARAMETER	SPIKE ADDED ug/Kg	SAMPLE CONCENTRATION ug/Kg	MS CONCENTRATION ug/Kg	MS % REC	QC LIMITS (% REC)
Acenaphthene	6900	ND	7000	100	30 - 113
Acenaphthylene	6900	ND	6900	99	28 - 125
Anthracene	6900	990	8300	106	30 - 129
Benzo(a)anthracene	6900	4300	10000	82	25 - 137
Benzo(a)pyrene	6900	4800	10000	79	26 - 115
Benzo(b)fluoranthene	6900	6100	11000	65	29 - 120
Benzo(g,h,i)perylene	6900	5000	11000	82	26 - 119
Benzo(k)fluoranthene	6900	5500	10000	66	27 - 139
Chrysene	6900	4100	9900	84	31 - 120
Dibenz(a,h)anthracene	6900	ND	8000	115	31 - 125
Fluoranthene	6900	7600	12000	61	21 - 148
Fluorene	6900	ND	6700	97	34 - 121
Indeno(1,2,3-cd)pyrene	6900	ND	10000	146	29 - 125
Naphthalene	6900	ND	6100	88	19 - 107
Phenanthrene	6900	3400	9500	88	26 - 125
Pyrene	6900	7100	12000	72	20 - 142

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

Laboratory Duplicate Results

Tombarello Site - Lawrence, MA

Sample ID: AB11602

PARAMETER	SAMPLE RESULT ug/Kg	SAMPLE DUPLICATE RESULT ug/Kg	PRECISION RPD %	QC LIMITS
Acenaphthene	ND	ND	ND	40
Acenaphthylene	ND	ND	ND	40
Anthracene	990	1200	22	40
Benzo(a)anthracene	4300	4700	9.73	40
Benzo(a)pyrene	4800	5200	8.57	40
Benzo(b)fluoranthene	6100	5400	12	40
Benzo(g,h,i)perylene	5000	5400	8.25	40
Benzo(k)fluoranthene	5500	4700	17	40
Chrysene	4100	4800	17	40
Dibenz(a,h)anthracene	ND	ND	ND	40
Fluoranthene	7600	8300	8.93	40
Fluorene	ND	ND	ND	40
Indeno(1,2,3-cd)pyrene	ND	ND	ND	40
Naphthalene	ND	ND	ND	40
Phenanthrene	3400	4300	23	40
Pyrene	7100	8000	12	40

US ENVIRONMENTAL PROTECTION AGENCY  
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Laboratory Fortified Blank (LFB) Results

Tombarello Site - Lawrence, MA

PARAMETER	LFB AMOUNT SPIKED ppb	LFB RESULT ppb	LFB RECOVERY %	QC LIMITS %
Acenaphthene	4000	3600	89	26 - 129
Acenaphthylene	4000	3600	89	23 - 141
Anthracene	4000	4100	100	25 - 149
Benzo(a)anthracene	4000	4000	98	27 - 142
Benzo(a)pyrene	4000	3900	97	29 - 123
Benzo(b)fluoranthene	4000	4500	110	22 - 146
Benzo(g,h,i)perylene	4000	3800	95	26 - 134
Benzo(k)fluoranthene	4000	4000	99	32 - 144
Chrysene	4000	3800	94	38 - 121
Dibenz(a,h)anthracene	4000	3800	95	35 - 133
Fluoranthene	4000	3800	93	29 - 154
Fluorene	4000	3600	90	29 - 138
Indeno(1,2,3-cd)pyrene	4000	3700	91	26 - 141
Naphthalene	4000	3400	84	30 - 110
Phenanthrene	4000	4000	100	27 - 140
Pyrene	4000	4000	99	24 - 147

Comments:



United States Environmental Protection Agency  
Office of Environmental Measurement & Evaluation  
60 Westview Street  
Lexington, MA 02421-3185

Laboratory Report

October 31, 2010

Mike Barry - OSRR02-2  
US EPA New England R1

Project Number: 10100023  
Project: Tombarello Site - Lawrence, MA  
Analysis: PCB's in Soil Field Method (Fixed Lab)  
Analyst: Paul Carroll

*Carroll*  
10.31.10

Analytical Procedure:

All samples were received and logged in by the laboratory according to the USEPA New England Laboratory SOP for Sample Log-in.

Sample preparation and analysis was done following the EPA Region I SOP, FLDPCB2.SOP.

Concentrations of PCBs in soil were calculated using an external standard technique.

Analysis for PCB's performed by this field analytical technique is used for tentative identification and semi-quantitation of PCB's in soil, oil, and sediment samples.

Date Samples Received by the Laboratory: 10/14/10

Results relate only to the items tested or to the samples as received by the Laboratory. This analytical report shall not be reproduced except in full, without written approval of the laboratory.

Results for soil samples are reported on a dry weight basis.

If you have any questions please call me at 617-918-8340.

Sincerely,

*Daniel Boudreau 11/1/10*  
Daniel Boudreau

Project # 10100023

**PCB's in Soil Field Method (Fixed Lab)**

US ENVIRONMENTAL PROTECTION AGENCY NEW ENGLAND LABORATORY Tombarello Site - Lawrence, MA						
Client Sample ID	R01-100830MB-0338	R01-100830MB-0339	R01-100830MB-0402	R01-100830MB-0403	R01-100830MB-0404	R01-100830MB-0405
Lab Sample ID	AB11598	AB11599	AB11602	AB11603	AB11604	AB11605
Date of Collection	10/12/2010	10/12/2010	10/13/2010	10/13/2010	10/13/2010	10/13/2010
Date of Extraction	10/21/2010	10/21/2010	10/21/2010	10/21/2010	10/21/2010	10/21/2010
Date of Analysis	10/26/2010	10/26/2010	10/26/2010	10/26/2010	10/26/2010	10/26/2010
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Compound	Conc. (RL) mg/Kg					
Aroclor-1242	ND (0.66)	ND (0.20)	ND (0.72)	ND (0.64)	ND (0.66)	ND (0.72)
Aroclor-1248	ND (0.66)	ND (0.20)	1.5 (0.72)	ND (0.64)	ND (0.66)	ND (0.72)
Aroclor-1254	2.0 (0.66)	1.0 (0.20)	1.0 (0.72)	3.6 (0.64)	2.0 (0.66)	3.2 (0.72)
Aroclor-1260	2.3 (0.66)	ND (0.20)	2.1 (0.72)	3.5 (0.64)	1.8 (0.66)	2.7 (0.72)
Aroclor-1262	ND (0.66)	ND (0.20)	ND (0.72)	ND (0.64)	ND (0.66)	ND (0.72)
Aroclor-1268	ND (0.66)	ND (0.20)	ND (0.72)	ND (0.64)	ND (0.66)	ND (0.72)

**US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY  
Tombarello Site - Lawrence, MA**

	R01-100830MB-0407 AB11606 10/13/2010 10/21/2010 10/26/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0408 AB11607 10/13/2010 10/21/2010 10/26/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0409 AB11608 10/13/2010 10/21/2010 10/26/2010 Soil  Conc. (RL) mg/Kg
Aroclor-1242	ND (0.20)	ND (0.18)	ND (0.18)
Aroclor-1248	ND (0.20)	ND (0.18)	ND (0.18)
Aroclor-1254	0.28 (0.20)	0.40 (0.18)	1.2 (0.18)
Aroclor-1260	ND (0.20)	ND (0.18)	ND (0.18)
Aroclor-1262	ND (0.20)	ND (0.18)	ND (0.18)
Aroclor-1268	ND (0.20)	ND (0.18)	ND (0.18)

Qualifiers: RL = Reporting limit  
ND = Not Detected above Reporting limit  
NA = Not Applicable due to high sample dilutions or sample interferences  
J = Estimated value  
E = Estimated value exceeds the calibration range  
L = Estimated value is below the calibration range  
B = Analyte is associated with the lab blank or trip blank contamination. Values are qualified when the observed concentration of the contamination in the sample extract is less than 10 times the concentration in the blank.  
P = The confirmation value exceeded 35% difference and is less than 100%. The lower value is reported.  
C = The identification has been confirmed by GC/MS.  
A = Suspected Aldol condensation product.  
N = Tentatively identified compound.



United States Environmental Protection Agency  
Office of Environmental Measurement & Evaluation  
11 Technology Drive  
North Chelmsford, MA 01863

Laboratory Report

November 16, 2010

Mike Barry - OSRR02-2  
US EPA New England R1

Project Number: 10100023

Project: Tombarello Site - Lawrence, MA

Analysis: Field Analysis of Metals by XRF

Analyst: Paul Carroll *Handwritten signature and date 11.16.10*

Analytical Procedure:

All samples were received and logged in by the laboratory according to the USEPA New England Laboratory SOP for Sample Log-in.

Sample preparation and analysis was done following the EPA Region I SOP, EIA-FLDXRFN3.

The analysis were performed by the EPA-New England Regional Laboratory.

Date Samples Received by the Laboratory: 10/14/10

Results relate only to the items tested or to the samples as received by the Laboratory. This analytical report shall not be reproduced except in full, without written approval of the laboratory.

If you have any questions please call me at 617-918-8340.

Sincerely,

*Handwritten signature of Dan Boudreau and date 11/16/10*

Dan Boudreau  
Chemistry Team Leader

Qualifiers: RL = Reporting limit  
ND = Not Detected above Reporting limit  
NA = Not Applicable due to low (pH < 4.5)  
J = Estimated value  
E = Estimated value exceeds the calibration range  
L = Estimated value is below the calibration range  
B = Analyte is associated with the lab blank or trip blank contamination. Values are qualified when the observed concentration of the contamination in the sample extract is less than 10 times the concentration in the blank.  
P = The confirmation value exceeded 35% difference and is less than 100%. The lower value is reported.  
C = The identification has been confirmed by GC/MS.  
A = Suspected Aldol condensation product.  
N = Tentatively identified compound.

Project # 10100023

Field Analysis of Metals by XRF

US ENVIRONMENTAL PROTECTION AGENCY NEW ENGLAND LABORATORY Tombarello Site - Lawrence, MA						
Client Sample ID	R01-100830MB-0338	R01-100830MB-0341	R01-100830MB-0402	R01-100830MB-0403	R01-100830MB-0404	R01-100830MB-0405
Lab Sample ID	AB11598	AB11601	AB11602	AB11603	AB11604	AB11605
Date of Collection	10/12/2010	10/12/2010	10/13/2010	10/13/2010	10/13/2010	10/13/2010
Date of Extraction	11/10/2010	11/10/2010	11/10/2010	11/10/2010	11/10/2010	11/10/2010
Date of Analysis	11/10/2010	11/10/2010	11/10/2010	11/10/2010	11/10/2010	11/10/2010
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Compound	Conc. (RL) mg/Kg					
Arsenic	ND ( 39)	41 ( 20)	ND ( 58)	ND ( 23)	ND ( 63)	ND ( 49)
Cadmium	ND ( 38)	ND ( 33)	ND ( 45)	ND ( 31)	ND ( 44)	ND ( 43)
Chromium	140 ( 20)	33 ( 20)	270 ( 20)	38 ( 20)	240 ( 20)	280 ( 20)
Lead	1100 ( 20)	35 ( 20)	1800 ( 20)	510 ( 20)	2200 ( 20)	1400 ( 20)

**US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY  
Tombarello Site - Lawrence, MA**

	R01-100830MB-0413 AB11612 10/13/2010 11/10/2010 11/10/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0414 AB11613 10/13/2010 11/10/2010 11/10/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0415 AB11614 10/13/2010 11/10/2010 11/10/2010 Soil  Conc. (RL) mg/Kg
Arsenic	12 ( 12)	12 (3)	110 ( 20)
Cadmium	ND ( 33)	ND ( 33)	ND ( 34)
Chromium	23 ( 20)	ND ( 13)	16 ( 15)
Lead	11 (2)	27 ( 20)	46 ( 20)

Date	Reading	Sample ID	Cr	Cr +/-	As	As +/-	Cd	Cd +/-	Ba	Ba +/-	Pb	Pb +/-
10-Nov-10	1											
10-Nov-10	2											
10-Nov-10	3	NIST 2709	<b>79</b>	8	<b>24</b>	3	<LOD	36	<b>472</b>	28	<b>15</b>	3
10-Nov-10	4	Lot 241	<b>134</b>	8	<b>155</b>	6	<b>123</b>	12	<b>620</b>	25	<b>154</b>	5
10-Nov-10	5	ab11558	<b>135</b>	10	<LOD	39	<LOD	38	<b>498</b>	30	<b>1129</b>	15
10-Nov-10	6	ab11558rep	<b>137</b>	10	<LOD	39	<LOD	38	<b>474</b>	30	<b>1119</b>	15
10-Nov-10	7	ab11601	<b>33</b>	5	<b>41</b>	3	<LOD	33	<b>393</b>	16	<b>35</b>	3
10-Nov-10	8	ab11602	<b>273</b>	15	<LOD	58	<LOD	45	<b>580</b>	42	<b>1797</b>	25
10-Nov-10	9	ab11603	<b>38</b>	5	<LOD	23	<LOD	31	<b>133</b>	13	<b>512</b>	8
10-Nov-10	10	ab11604	<b>239</b>	14	<LOD	63	<LOD	44	<b>459</b>	39	<b>2178</b>	28
10-Nov-10	11	ab11605	<b>282</b>	15	<LOD	49	<LOD	43	<b>585</b>	41	<b>1394</b>	20
10-Nov-10	12	ab11605rep	<b>276</b>	15	<LOD	50	<LOD	44	<b>507</b>	40	<b>1419</b>	21
10-Nov-10	13	NIST 2710	<b>38</b>	10	<b>574</b>	32	<LOD	42	<b>453</b>	31	<b>5341</b>	55
10-Nov-10	14	Lot 241	<b>45</b>	4	<b>94</b>	4	<b>61</b>	10	<b>273</b>	13	<b>89</b>	4
10-Nov-10	15	ab11612	<b>23</b>	5	<b>12</b>	2	<LOD	33	<b>404</b>	17	<b>11</b>	2
10-Nov-10	16	ab11613	<LOD	13	<b>12</b>	3	<LOD	33	<b>330</b>	15	<b>27</b>	3
10-Nov-10	17	ab11614	<LOD	15	<b>109</b>	4	<LOD	34	<b>459</b>	17	<b>46</b>	3
10-Nov-10	18	ab11614rep	<b>16</b>	5	<b>109</b>	4	<LOD	33	<b>473</b>	18	<b>40</b>	3
10-Nov-10	19	NIST 2709	<b>43</b>	5	<b>7</b>	2	<LOD	31	<b>208</b>	15	<b>10</b>	2
10-Nov-10	20	NIST 2710	<b>34</b>	10	<b>615</b>	31	<LOD	41	<b>394</b>	30	<b>5232</b>	53
10-Nov-10	21	Lot 241	<b>108</b>	8	<b>158</b>	7	<b>132</b>	12	<b>648</b>	25	<b>148</b>	5
10-Nov-10	22	SiO2	<LOD	10	<LOD	5	<LOD	32	<b>28</b>	6	<LOD	5



Laboratory Report

November 10, 2010

Mike Barry - OSRR02-2  
US EPA New England R1

Project Number: 10100024  
Project: Tombarello Site - Lawrence, MA  
Analysis: PAHs in Soil  
Analyst: Dan Boudreau <sup>DB</sup>  
11/10/10

Analytical Procedure:

All samples were received and logged in by the laboratory according to the USEPA New England Laboratory SOP for Sample Log-in.

Sample preparation and analysis was done following the EPA Region I SOP, EIASOP-BNAS3.

Samples were analyzed by a quadrupole GC/MS operating in the full-scan mode. The extraction and analysis SOPs are based on SW-846 methods 3545A, 3630C, 8270C, and EIASOP-BNAGCMS7.

Date Samples Received by the Laboratory: 10/14/2010

Data were reviewed in accordance with the internal verification procedures described in the EPA New England OEME Chemistry QA Plan.

Results relate only to the items tested or to the samples as received by the Laboratory. This analytical report shall not be reproduced except in full, without written approval of the laboratory.

Report may contain multiple sections and each section will be numbered independently.

If you have any questions please call me at 617-918-8340 .

Sincerely,

  
Daniel N. Boudreau  
Chemistry Team Leader  
11/15/10

**Qualifiers:**

RL = Reporting limit

ND = Not Detected above Reporting limit

NA = Not Applicable due to high sample dilutions or sample interferences

NC = Not calculated since analyte concentration is ND.

J = Estimated value

E = Estimated value exceeds the calibration range

L = Estimated value is below the calibration range

B = Analyte is associated with the lab blank or trip blank contamination. Values are qualified when the observed concentration of the contamination in the sample extract is less than 5 times the concentration in the blank.

R = No recovery was calculated since the analyte concentration is greater than four times the spike level.

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID: R01-100830MB-0416  
 Date of Collection: 10/14/2010  
 Date of Extraction: 10/20/10  
 Date of Analysis: 10/28/10  
 Dry Weight Extracted: 4.710 grams  
 Wet Weight Extracted: 5.110 grams  
 Final Volume: 1 mL

Lab Sample ID: AB11615  
 Matrix: Soil  
 Volume Extracted: N/A  
 Percent Solids: 92%  
 Extract Dilution: 10  
 pH: N/A  
 GPC Factor: N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	1100	
208-96-8	Acenaphthylene	ND	1100	
120-12-7	Anthracene	1400	1100	
56-55-3	Benzo(a)anthracene	5500	1100	
50-32-8	Benzo(a)pyrene	6300	1100	
205-99-2	Benzo(b)fluoranthene	6800	1100	
191-24-2	Benzo(g,h,i)perylene	7100	1100	
207-08-9	Benzo(k)fluoranthene	5800	1100	
218-01-9	Chrysene	5900	1100	
53-70-3	Dibenz(a,h)anthracene	2400	1100	
206-44-0	Fluoranthene	11000	1100	
86-73-7	Fluorene	ND	1100	
193-39-5	Indeno(1,2,3-cd)pyrene	6000	1100	
91-20-3	Naphthalene	ND	1100	
85-01-8	Phenanthrene	6100	1100	
129-00-0	Pyrene	9500	1100	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	109	41 - 106
2-Fluorobiphenyl (SS1)	88	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0417	Lab Sample ID:	AB11616
Date of Collection:	10/14/2010	Matrix:	Soil
Date of Extraction:	10/20/10	Volume Extracted:	N/A
Date of Analysis:	10/28/10	Percent Solids:	91%
Dry Weight Extracted:	4.925 grams	Extract Dilution:	10
Wet Weight Extracted:	5.436 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	1000	
208-96-8	Acenaphthylene	ND	1000	
120-12-7	Anthracene	1100	1000	
56-55-3	Benzo(a)anthracene	4700	1000	
50-32-8	Benzo(a)pyrene	5300	1000	
205-99-2	Benzo(b)fluoranthene	6800	1000	
191-24-2	Benzo(g,h,i)perylene	6200	1000	
207-08-9	Benzo(k)fluoranthene	5400	1000	
218-01-9	Chrysene	5100	1000	
53-70-3	Dibenz(a,h)anthracene	ND	1000	
206-44-0	Fluoranthene	9500	1000	
86-73-7	Fluorene	ND	1000	
193-39-5	Indeno(1,2,3-cd)pyrene	5300	1000	
91-20-3	Naphthalene	ND	1000	
85-01-8	Phenanthrene	5200	1000	
129-00-0	Pyrene	7900	1000	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	91	41 - 106
2-Fluorobiphenyl (SS1)	74	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**Laboratory Blank (PAHs)**

Client Sample ID:	N/A	Lab Sample ID:	N/A
Date of Collection:	N/A	Matrix:	Soil
Date of Extraction:	10/20/10	Volume Extracted:	N/A
Date of Analysis:	10/28/10	Percent Solids:	100%
Dry Weight Extracted:	10.191 grams	Extract Dilution:	1
Wet Weight Extracted:	10.193 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	49	
208-96-8	Acenaphthylene	ND	49	
120-12-7	Anthracene	ND	49	
56-55-3	Benzo(a)anthracene	ND	49	
50-32-8	Benzo(a)pyrene	ND	49	
205-99-2	Benzo(b)fluoranthene	ND	49	
191-24-2	Benzo(g,h,i)perylene	ND	49	
207-08-9	Benzo(k)fluoranthene	ND	49	
218-01-9	Chrysene	ND	49	
53-70-3	Dibenz(a,h)anthracene	ND	49	
206-44-0	Fluoranthene	ND	49	
86-73-7	Fluorene	ND	49	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	49	
91-20-3	Naphthalene	ND	49	
85-01-8	Phenanthrene	ND	49	
129-00-0	Pyrene	ND	49	

Surrogate Compounds	Recoveries (%)	QC Ranges
2-Fluorobiphenyl (SS1)	79	39 - 103
p-Terphenyl-d14 (SS2)	90	41 - 106

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0418	Lab Sample ID:	AB11617
Date of Collection:	10/14/2010	Matrix:	Soil
Date of Extraction:	10/20/10	Volume Extracted:	N/A
Date of Analysis:	10/28/10	Percent Solids:	88%
Dry Weight Extracted:	4.783 grams	Extract Dilution:	10
Wet Weight Extracted:	5.448 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	1000	
208-96-8	Acenaphthylene	ND	1000	
120-12-7	Anthracene	1900	1000	
56-55-3	Benzo(a)anthracene	6800	1000	
50-32-8	Benzo(a)pyrene	7300	1000	
205-99-2	Benzo(b)fluoranthene	6900	1000	
191-24-2	Benzo(g,h,i)perylene	8300	1000	
207-08-9	Benzo(k)fluoranthene	6600	1000	
218-01-9	Chrysene	7000	1000	
53-70-3	Dibenz(a,h)anthracene	2800	1000	
206-44-0	Fluoranthene	14000	1000	
86-73-7	Fluorene	ND	1000	
193-39-5	Indeno(1,2,3-cd)pyrene	6600	1000	
91-20-3	Naphthalene	ND	1000	
85-01-8	Phenanthrene	7600	1000	
129-00-0	Pyrene	12000	1000	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	117	41 - 106
2-Fluorobiphenyl (SS1)	94	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID: R01-100830MB-0419  
Date of Collection: 10/14/2010  
Date of Extraction: 10/20/10  
Date of Analysis: 10/28/10  
Dry Weight Extracted: 4.662 grams  
Wet Weight Extracted: 5.489 grams  
Final Volume: 1 mL

Lab Sample ID: AB11618  
Matrix: Soil  
Volume Extracted: N/A  
Percent Solids: 85%  
Extract Dilution: 10  
pH: N/A  
GPC Factor: N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	1100	
208-96-8	Acenaphthylene	ND	1100	
120-12-7	Anthracene	ND	1100	
56-55-3	Benzo(a)anthracene	2900	1100	
50-32-8	Benzo(a)pyrene	3300	1100	
205-99-2	Benzo(b)fluoranthene	3600	1100	
191-24-2	Benzo(g,h,i)perylene	5500	1100	
207-08-9	Benzo(k)fluoranthene	2800	1100	
218-01-9	Chrysene	2800	1100	
53-70-3	Dibenz(a,h)anthracene	ND	1100	
206-44-0	Fluoranthene	5000	1100	
86-73-7	Fluorene	ND	1100	
193-39-5	Indeno(1,2,3-cd)pyrene	4100	1100	
91-20-3	Naphthalene	ND	1100	
85-01-8	Phenanthrene	2600	1100	
129-00-0	Pyrene	4600	1100	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	98	41 - 106
2-Fluorobiphenyl (SS1)	80	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0420	Lab Sample ID:	AB11619
Date of Collection:	10/14/2010	Matrix:	Soil
Date of Extraction:	10/20/10	Volume Extracted:	N/A
Date of Analysis:	10/28/10	Percent Solids:	95%
Dry Weight Extracted:	5.233 grams	Extract Dilution:	10
Wet Weight Extracted:	5.508 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	960	
208-96-8	Acenaphthylene	ND	960	
120-12-7	Anthracene	ND	960	
56-55-3	Benzo(a)anthracene	1300	960	
50-32-8	Benzo(a)pyrene	1500	960	
205-99-2	Benzo(b)fluoranthene	1500	960	
191-24-2	Benzo(g,h,i)perylene	1700	960	
207-08-9	Benzo(k)fluoranthene	1800	960	
218-01-9	Chrysene	1500	960	
53-70-3	Dibenz(a,h)anthracene	ND	960	
206-44-0	Fluoranthene	2500	960	
86-73-7	Fluorene	ND	960	
193-39-5	Indeno(1,2,3-cd)pyrene	1300	960	
91-20-3	Naphthalene	ND	960	
85-01-8	Phenanthrene	1100	960	
129-00-0	Pyrene	2000	960	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	95	41 - 106
2-Fluorobiphenyl (SS1)	76	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID: R01-100830MB-0421  
Date of Collection: 10/14/2010  
Date of Extraction: 10/20/10  
Date of Analysis: 10/28/10  
Dry Weight Extracted: 4.345 grams  
Wet Weight Extracted: 5.412 grams  
Final Volume: 1 mL

Lab Sample ID: AB11620  
Matrix: Soil  
Volume Extracted: N/A  
Percent Solids: 80%  
Extract Dilution: 10  
pH: N/A  
GPC Factor: N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	1200	
208-96-8	Acenaphthylene	ND	1200	
120-12-7	Anthracene	ND	1200	
56-55-3	Benzo(a)anthracene	3700	1200	
50-32-8	Benzo(a)pyrene	4000	1200	
205-99-2	Benzo(b)fluoranthene	3500	1200	
191-24-2	Benzo(g,h,i)perylene	4300	1200	
207-08-9	Benzo(k)fluoranthene	3600	1200	
218-01-9	Chrysene	3700	1200	
53-70-3	Dibenz(a,h)anthracene	1300	1200	
206-44-0	Fluoranthene	7200	1200	
86-73-7	Fluorene	ND	1200	
193-39-5	Indeno(1,2,3-cd)pyrene	3300	1200	
91-20-3	Naphthalene	ND	1200	
85-01-8	Phenanthrene	4200	1200	
129-00-0	Pyrene	5900	1200	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	92	41 - 106
2-Fluorobiphenyl (SS1)	71	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0422	Lab Sample ID:	AB11621
Date of Collection:	10/14/2010	Matrix:	Soil
Date of Extraction:	10/20/10	Volume Extracted:	N/A
Date of Analysis:	10/28/10	Percent Solids:	89%
Dry Weight Extracted:	4.878 grams	Extract Dilution:	50
Wet Weight Extracted:	5.453 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	5100	
208-96-8	Acenaphthylene	ND	5100	
120-12-7	Anthracene	ND	5100	
56-55-3	Benzo(a)anthracene	7700	5100	
50-32-8	Benzo(a)pyrene	9400	5100	
205-99-2	Benzo(b)fluoranthene	11000	5100	
191-24-2	Benzo(g,h,i)perylene	12000	5100	
207-08-9	Benzo(k)fluoranthene	6800	5100	
218-01-9	Chrysene	8000	5100	
53-70-3	Dibenz(a,h)anthracene	ND	5100	
206-44-0	Fluoranthene	14000	5100	
86-73-7	Fluorene	ND	5100	
193-39-5	Indeno(1,2,3-cd)pyrene	9600	5100	
91-20-3	Naphthalene	ND	5100	
85-01-8	Phenanthrene	6600	5100	
129-00-0	Pyrene	12000	5100	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	108	41 - 106
2-Fluorobiphenyl (SS1)	92	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID: R01-100830MB-0423  
Date of Collection: 10/14/2010  
Date of Extraction: 10/20/10  
Date of Analysis: 10/28/10  
Dry Weight Extracted: 4.947 grams  
Wet Weight Extracted: 5.503 grams  
Final Volume: 1 mL

Lab Sample ID: AB11622  
Matrix: Soil  
Volume Extracted: N/A  
Percent Solids: 90%  
Extract Dilution: 50  
pH: N/A  
GPC Factor: N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	5100	
208-96-8	Acenaphthylene	ND	5100	
120-12-7	Anthracene	ND	5100	
56-55-3	Benzo(a)anthracene	10000	5100	
50-32-8	Benzo(a)pyrene	11000	5100	
205-99-2	Benzo(b)fluoranthene	9700	5100	
191-24-2	Benzo(g,h,i)perylene	10000	5100	
207-08-9	Benzo(k)fluoranthene	9200	5100	
218-01-9	Chrysene	9700	5100	
53-70-3	Dibenz(a,h)anthracene	ND	5100	
206-44-0	Fluoranthene	19000	5100	
86-73-7	Fluorene	ND	5100	
193-39-5	Indeno(1,2,3-cd)pyrene	8100	5100	
91-20-3	Naphthalene	ND	5100	
85-01-8	Phenanthrene	9500	5100	
129-00-0	Pyrene	15000	5100	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	93	41 - 106
2-Fluorobiphenyl (SS1)	86	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0424	Lab Sample ID:	AB11623
Date of Collection:	10/14/2010	Matrix:	Soil
Date of Extraction:	10/20/10	Volume Extracted:	N/A
Date of Analysis:	10/28/10	Percent Solids:	82%
Dry Weight Extracted:	4.474 grams	Extract Dilution:	10
Wet Weight Extracted:	5.457 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	1600	1100	
208-96-8	Acenaphthylene	ND	1100	
120-12-7	Anthracene	6600	1100	
56-55-3	Benzo(a)anthracene	15000	1100	
50-32-8	Benzo(a)pyrene	13000	1100	
205-99-2	Benzo(b)fluoranthene	11000	1100	
191-24-2	Benzo(g,h,i)perylene	10000	1100	
207-08-9	Benzo(k)fluoranthene	12000	1100	
218-01-9	Chrysene	14000	1100	
53-70-3	Dibenz(a,h)anthracene	ND	1100	
206-44-0	Fluoranthene	33000	1100	
86-73-7	Fluorene	2100	1100	
193-39-5	Indeno(1,2,3-cd)pyrene	8700	1100	
91-20-3	Naphthalene	1200	1100	
85-01-8	Phenanthrene	27000	1100	
129-00-0	Pyrene	27000	1100	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	103	41 - 106
2-Fluorobiphenyl (SS1)	85	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID: R01-100830MB-0425  
Date of Collection: 10/14/2010  
Date of Extraction: 10/20/10  
Date of Analysis: 10/28/10  
Dry Weight Extracted: 4.794 grams  
Wet Weight Extracted: 5.390 grams  
Final Volume: 1 mL

Lab Sample ID: AB11624  
Matrix: Soil  
Volume Extracted: N/A  
Percent Solids: 89%  
Extract Dilution: 10  
pH: N/A  
GPC Factor: N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	1000	
208-96-8	Acenaphthylene	ND	1000	
120-12-7	Anthracene	ND	1000	
56-55-3	Benzo(a)anthracene	4100	1000	
50-32-8	Benzo(a)pyrene	4900	1000	
205-99-2	Benzo(b)fluoranthene	5000	1000	
191-24-2	Benzo(g,h,i)perylene	6000	1000	
207-08-9	Benzo(k)fluoranthene	3600	1000	
218-01-9	Chrysene	3900	1000	
53-70-3	Dibenz(a,h)anthracene	ND	1000	
206-44-0	Fluoranthene	6700	1000	
86-73-7	Fluorene	ND	1000	
193-39-5	Indeno(1,2,3-cd)pyrene	4900	1000	
91-20-3	Naphthalene	ND	1000	
85-01-8	Phenanthrene	2300	1000	
129-00-0	Pyrene	6100	1000	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	102	41 - 106
2-Fluorobiphenyl (SS1)	87	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0426	Lab Sample ID:	AB11625
Date of Collection:	10/14/2010	Matrix:	Soil
Date of Extraction:	10/20/10	Volume Extracted:	N/A
Date of Analysis:	10/28/10	Percent Solids:	87%
Dry Weight Extracted:	4.711 grams	Extract Dilution:	10
Wet Weight Extracted:	5.390 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	1100	
208-96-8	Acenaphthylene	ND	1100	
120-12-7	Anthracene	ND	1100	
56-55-3	Benzo(a)anthracene	2900	1100	
50-32-8	Benzo(a)pyrene	3900	1100	
205-99-2	Benzo(b)fluoranthene	3900	1100	
191-24-2	Benzo(g,h,i)perylene	6100	1100	
207-08-9	Benzo(k)fluoranthene	3400	1100	
218-01-9	Chrysene	3100	1100	
53-70-3	Dibenz(a,h)anthracene	ND	1100	
206-44-0	Fluoranthene	5500	1100	
86-73-7	Fluorene	ND	1100	
193-39-5	Indeno(1,2,3-cd)pyrene	4400	1100	
91-20-3	Naphthalene	ND	1100	
85-01-8	Phenanthrene	2400	1100	
129-00-0	Pyrene	5000	1100	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	105	41 - 106
2-Fluorobiphenyl (SS1)	81	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID: R01-100830MB-0427  
Date of Collection: 10/14/2010  
Date of Extraction: 10/20/10  
Date of Analysis: 10/28/10  
Dry Weight Extracted: 4.817 grams  
Wet Weight Extracted: 5.358 grams  
Final Volume: 1 mL

Lab Sample ID: AB11626  
Matrix: Soil  
Volume Extracted: N/A  
Percent Solids: 90%  
Extract Dilution: 10  
pH: N/A  
GPC Factor: N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	1000	
208-96-8	Acenaphthylene	ND	1000	
120-12-7	Anthracene	ND	1000	
56-55-3	Benzo(a)anthracene	1800	1000	
50-32-8	Benzo(a)pyrene	2600	1000	
205-99-2	Benzo(b)fluoranthene	2100	1000	
191-24-2	Benzo(g,h,i)perylene	3200	1000	
207-08-9	Benzo(k)fluoranthene	2400	1000	
218-01-9	Chrysene	1900	1000	
53-70-3	Dibenz(a,h)anthracene	ND	1000	
206-44-0	Fluoranthene	3100	1000	
86-73-7	Fluorene	ND	1000	
193-39-5	Indeno(1,2,3-cd)pyrene	2700	1000	
91-20-3	Naphthalene	ND	1000	
85-01-8	Phenanthrene	1200	1000	
129-00-0	Pyrene	2900	1000	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	20	41 - 106
2-Fluorobiphenyl (SS1)	17	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0428	Lab Sample ID:	AB11627
Date of Collection:	10/14/2010	Matrix:	Soil
Date of Extraction:	10/20/10	Volume Extracted:	N/A
Date of Analysis:	10/28/10	Percent Solids:	88%
Dry Weight Extracted:	4.657 grams	Extract Dilution:	10
Wet Weight Extracted:	5.307 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	1100	1100	
208-96-8	Acenaphthylene	ND	1100	
120-12-7	Anthracene	5000	1100	
56-55-3	Benzo(a)anthracene	17000	1100	
50-32-8	Benzo(a)pyrene	19000	1100	
205-99-2	Benzo(b)fluoranthene	16000	1100	
191-24-2	Benzo(g,h,i)perylene	17000	1100	
207-08-9	Benzo(k)fluoranthene	15000	1100	
218-01-9	Chrysene	16000	1100	
53-70-3	Dibenz(a,h)anthracene	6200	1100	
206-44-0	Fluoranthene	34000	1100	
86-73-7	Fluorene	1200	1100	
193-39-5	Indeno(1,2,3-cd)pyrene	13000	1100	
91-20-3	Naphthalene	ND	1100	
85-01-8	Phenanthrene	15000	1100	
129-00-0	Pyrene	28000	1100	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	111	41 - 106
2-Fluorobiphenyl (SS1)	93	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0429	Lab Sample ID:	AB11628
Date of Collection:	10/14/2010	Matrix:	Soil
Date of Extraction:	10/20/10	Volume Extracted:	N/A
Date of Analysis:	10/28/10	Percent Solids:	90%
Dry Weight Extracted:	4.876 grams	Extract Dilution:	50
Wet Weight Extracted:	5.391 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

<b>CAS Number</b>	<b>Compound</b>	<b>Concentration ug/Kg</b>	<b>RL ug/Kg</b>	<b>Qualifier</b>
83-32-9	Acenaphthene	ND	5100	
208-96-8	Acenaphthylene	ND	5100	
120-12-7	Anthracene	10000	5100	
56-55-3	Benzo(a)anthracene	41000	5100	
50-32-8	Benzo(a)pyrene	42000	5100	
205-99-2	Benzo(b)fluoranthene	40000	5100	
191-24-2	Benzo(g,h,i)perylene	32000	5100	
207-08-9	Benzo(k)fluoranthene	39000	5100	
218-01-9	Chrysene	38000	5100	
53-70-3	Dibenz(a,h)anthracene	11000	5100	
206-44-0	Fluoranthene	80000	5100	
86-73-7	Fluorene	ND	5100	
193-39-5	Indeno(1,2,3-cd)pyrene	29000	5100	
91-20-3	Naphthalene	ND	5100	
85-01-8	Phenanthrene	38000	5100	
129-00-0	Pyrene	64000	5100	

<b>Surrogate Compounds</b>	<b>Recoveries (%)</b>	<b>QC Ranges</b>
p-Terphenyl-d14 (SS2)	113	41 - 106
2-Fluorobiphenyl (SS1)	85	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
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**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0430	Lab Sample ID:	AB11629
Date of Collection:	10/14/2010	Matrix:	Soil
Date of Extraction:	10/20/10	Volume Extracted:	N/A
Date of Analysis:	10/28/10	Percent Solids:	92%
Dry Weight Extracted:	4.971 grams	Extract Dilution:	10
Wet Weight Extracted:	5.407 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	1000	
208-96-8	Acenaphthylene	ND	1000	
120-12-7	Anthracene	1100	1000	
56-55-3	Benzo(a)anthracene	5100	1000	
50-32-8	Benzo(a)pyrene	5800	1000	
205-99-2	Benzo(b)fluoranthene	6600	1000	
191-24-2	Benzo(g,h,i)perylene	7500	1000	
207-08-9	Benzo(k)fluoranthene	5200	1000	
218-01-9	Chrysene	5200	1000	
53-70-3	Dibenz(a,h)anthracene	1900	1000	
206-44-0	Fluoranthene	9500	1000	
86-73-7	Fluorene	ND	1000	
193-39-5	Indeno(1,2,3-cd)pyrene	6100	1000	
91-20-3	Naphthalene	ND	1000	
85-01-8	Phenanthrene	3700	1000	
129-00-0	Pyrene	8400	1000	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	97	41 - 106
2-Fluorobiphenyl (SS1)	76	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
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Tombarello Site - Lawrence, MA

PAHs in Soil

Client Sample ID: R01-100830MB-0431  
Date of Collection: 10/14/2010  
Date of Extraction: 10/20/10  
Date of Analysis: 10/28/10  
Dry Weight Extracted: 4.372 grams  
Wet Weight Extracted: 5.374 grams  
Final Volume: 1 mL

Lab Sample ID: AB11630  
Matrix: Soil  
Volume Extracted: N/A  
Percent Solids: 81%  
Extract Dilution: 10  
pH: N/A  
GPC Factor: N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	2900	1100	
208-96-8	Acenaphthylene	ND	1100	
120-12-7	Anthracene	7000	1100	
56-55-3	Benzo(a)anthracene	22000	1100	
50-32-8	Benzo(a)pyrene	20000	1100	
205-99-2	Benzo(b)fluoranthene	16000	1100	
191-24-2	Benzo(g,h,i)perylene	15000	1100	
207-08-9	Benzo(k)fluoranthene	16000	1100	
218-01-9	Chrysene	21000	1100	
53-70-3	Dibenz(a,h)anthracene	ND	1100	
206-44-0	Fluoranthene	48000	1100	
86-73-7	Fluorene	2500	1100	
193-39-5	Indeno(1,2,3-cd)pyrene	14000	1100	
91-20-3	Naphthalene	ND	1100	
85-01-8	Phenanthrene	30000	1100	
129-00-0	Pyrene	37000	1100	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	110	41 - 106
2-Fluorobiphenyl (SS1)	88	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
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**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0432	Lab Sample ID:	AB11631
Date of Collection:	10/14/2010	Matrix:	Soil
Date of Extraction:	10/20/10	Volume Extracted:	N/A
Date of Analysis:	10/28/10	Percent Solids:	89%
Dry Weight Extracted:	4.706 grams	Extract Dilution:	50
Wet Weight Extracted:	5.268 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

<u>CAS Number</u>	<u>Compound</u>	<u>Concentration ug/Kg</u>	<u>RL ug/Kg</u>	<u>Qualifier</u>
83-32-9	Acenaphthene	ND	5300	
208-96-8	Acenaphthylene	ND	5300	
120-12-7	Anthracene	ND	5300	
56-55-3	Benzo(a)anthracene	16000	5300	
50-32-8	Benzo(a)pyrene	17000	5300	
205-99-2	Benzo(b)fluoranthene	18000	5300	
191-24-2	Benzo(g,h,i)perylene	12000	5300	
207-08-9	Benzo(k)fluoranthene	14000	5300	
218-01-9	Chrysene	15000	5300	
53-70-3	Dibenz(a,h)anthracene	ND	5300	
206-44-0	Fluoranthene	30000	5300	
86-73-7	Fluorene	ND	5300	
193-39-5	Indeno(1,2,3-cd)pyrene	11000	5300	
91-20-3	Naphthalene	ND	5300	
85-01-8	Phenanthrene	15000	5300	
129-00-0	Pyrene	26000	5300	

<b>Surrogate Compounds</b>	<b>Recoveries (%)</b>	<b>QC Ranges</b>
p-Terphenyl-d14 (SS2)	88	41 - 106
2-Fluorobiphenyl (SS1)	83	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
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**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID: R01-100830MB-0433  
 Date of Collection: 10/14/2010  
 Date of Extraction: 10/20/10  
 Date of Analysis: 10/28/10  
 Dry Weight Extracted: 4.828 grams  
 Wet Weight Extracted: 5.444 grams  
 Final Volume: 1 mL

Lab Sample ID: AB11632  
 Matrix: Soil  
 Volume Extracted: N/A  
 Percent Solids: 89%  
 Extract Dilution: 10  
 pH: N/A  
 GPC Factor: N/A

<u>CAS Number</u>	<u>Compound</u>	<u>Concentration ug/Kg</u>	<u>RL ug/Kg</u>	<u>Qualifier</u>
83-32-9	Acenaphthene	2700	1000	
208-96-8	Acenaphthylene	ND	1000	
120-12-7	Anthracene	8100	1000	
56-55-3	Benzo(a)anthracene	39000	1000	
50-32-8	Benzo(a)pyrene	44000	1000	
205-99-2	Benzo(b)fluoranthene	40000	1000	
191-24-2	Benzo(g,h,i)perylene	34000	1000	
207-08-9	Benzo(k)fluoranthene	39000	1000	
218-01-9	Chrysene	41000	1000	
53-70-3	Dibenz(a,h)anthracene	15000	1000	
206-44-0	Fluoranthene	79000	1000	
86-73-7	Fluorene	1700	1000	
193-39-5	Indeno(1,2,3-cd)pyrene	32000	1000	
91-20-3	Naphthalene	ND	1000	
85-01-8	Phenanthrene	35000	1000	
129-00-0	Pyrene	65000	1000	

<b>Surrogate Compounds</b>	<b>Recoveries (%)</b>	<b>QC Ranges</b>
p-Terphenyl-d14 (SS2)	118	41 - 106
2-Fluorobiphenyl (SS1)	93	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
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**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0434	Lab Sample ID:	AB11633
Date of Collection:	10/14/2010	Matrix:	Soil
Date of Extraction:	10/20/10	Volume Extracted:	N/A
Date of Analysis:	10/28/10	Percent Solids:	94%
Dry Weight Extracted:	5.121 grams	Extract Dilution:	50
Wet Weight Extracted:	5.472 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	4900	
208-96-8	Acenaphthylene	ND	4900	
120-12-7	Anthracene	ND	4900	
56-55-3	Benzo(a)anthracene	5400	4900	
50-32-8	Benzo(a)pyrene	6100	4900	
205-99-2	Benzo(b)fluoranthene	6900	4900	
191-24-2	Benzo(g,h,i)perylene	5600	4900	
207-08-9	Benzo(k)fluoranthene	ND	4900	
218-01-9	Chrysene	5300	4900	
53-70-3	Dibenz(a,h)anthracene	ND	4900	
206-44-0	Fluoranthene	8900	4900	
86-73-7	Fluorene	ND	4900	
193-39-5	Indeno(1,2,3-cd)pyrene	5000	4900	
91-20-3	Naphthalene	ND	4900	
85-01-8	Phenanthrene	ND	4900	
129-00-0	Pyrene	8100	4900	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	98	41 - 106
2-Fluorobiphenyl (SS1)	85	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
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**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID: R01-100830MB-0435  
Date of Collection: 10/14/2010  
Date of Extraction: 10/20/10  
Date of Analysis: 10/29/10  
Dry Weight Extracted: 4.782 grams  
Wet Weight Extracted: 5.314 grams  
Final Volume: 1 mL

Lab Sample ID: AB11634  
Matrix: Soil  
Volume Extracted: N/A  
Percent Solids: 90%  
Extract Dilution: 10  
pH: N/A  
GPC Factor: N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	1000	
208-96-8	Acenaphthylene	ND	1000	
120-12-7	Anthracene	ND	1000	
56-55-3	Benzo(a)anthracene	4700	1000	
50-32-8	Benzo(a)pyrene	5100	1000	
205-99-2	Benzo(b)fluoranthene	5200	1000	
191-24-2	Benzo(g,h,i)perylene	5200	1000	
207-08-9	Benzo(k)fluoranthene	4100	1000	
218-01-9	Chrysene	4900	1000	
53-70-3	Dibenz(a,h)anthracene	ND	1000	
206-44-0	Fluoranthene	8200	1000	
86-73-7	Fluorene	ND	1000	
193-39-5	Indeno(1,2,3-cd)pyrene	4200	1000	
91-20-3	Naphthalene	ND	1000	
85-01-8	Phenanthrene	3900	1000	
129-00-0	Pyrene	7300	1000	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	100	41 - 106
2-Fluorobiphenyl (SS1)	80	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
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**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID: R01-100830MB-0436  
Date of Collection: 10/14/2010  
Date of Extraction: 10/20/10  
Date of Analysis: 10/29/10  
Dry Weight Extracted: 4.521 grams  
Wet Weight Extracted: 5.391 grams  
Final Volume: 1 mL

Lab Sample ID: AB11635  
Matrix: Soil  
Volume Extracted: N/A  
Percent Solids: 84%  
Extract Dilution: 10  
pH: N/A  
GPC Factor: N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	1100	
208-96-8	Acenaphthylene	1400	1100	
120-12-7	Anthracene	7200	1100	
56-55-3	Benzo(a)anthracene	36000	1100	
50-32-8	Benzo(a)pyrene	38000	1100	
205-99-2	Benzo(b)fluoranthene	33000	1100	
191-24-2	Benzo(g,h,i)perylene	27000	1100	
207-08-9	Benzo(k)fluoranthene	31000	1100	
218-01-9	Chrysene	33000	1100	
53-70-3	Dibenz(a,h)anthracene	5100	1100	
206-44-0	Fluoranthene	72000	1100	
86-73-7	Fluorene	1400	1100	
193-39-5	Indeno(1,2,3-cd)pyrene	24000	1100	
91-20-3	Naphthalene	ND	1100	
85-01-8	Phenanthrene	23000	1100	
129-00-0	Pyrene	58000	1100	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	93	41 - 106
2-Fluorobiphenyl (SS1)	85	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
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**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0438	Lab Sample ID:	AB11637
Date of Collection:	10/14/2010	Matrix:	Soil
Date of Extraction:	10/20/10	Volume Extracted:	N/A
Date of Analysis:	11/9/10	Percent Solids:	100%
Dry Weight Extracted:	10.109 grams	Extract Dilution:	1
Wet Weight Extracted:	10.109 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	49	
208-96-8	Acenaphthylene	ND	49	
120-12-7	Anthracene	ND	49	
56-55-3	Benzo(a)anthracene	ND	49	
50-32-8	Benzo(a)pyrene	ND	49	
205-99-2	Benzo(b)fluoranthene	1900	49	
191-24-2	Benzo(g,h,i)perylene	1700	49	
207-08-9	Benzo(k)fluoranthene	1200	49	
218-01-9	Chrysene	1500	49	
53-70-3	Dibenz(a,h)anthracene	ND	49	
206-44-0	Fluoranthene	ND	49	
86-73-7	Fluorene	ND	49	
193-39-5	Indeno(1,2,3-cd)pyrene	1500	49	
91-20-3	Naphthalene	1200	49	
85-01-8	Phenanthrene	1400	49	
129-00-0	Pyrene	ND	49	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	80	41 - 106
2-Fluorobiphenyl (SS1)	65	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

PAH MATRIX SPIKE (MS)

Tombarello Site - Lawrence, MA

Sample ID: AB11617

PARAMETER	SPIKE ADDED ug/Kg	SAMPLE CONCENTRATION ug/Kg	MS CONCENTRATION ug/Kg	MS % REC	QC LIMITS (% REC)
Acenaphthene	8200	ND	6500	79	30 - 113
Acenaphthylene	8200	ND	6500	79	28 - 125
Anthracene	8200	1900	8400	79	30 - 129
Benzo(a)anthracene	8200	6800	13000	73	25 - 137
Benzo(a)pyrene	8200	7300	13000	69	26 - 115
Benzo(b)fluoranthene	8200	6900	14000	82	29 - 120
Benzo(g,h,i)perylene	8200	8300	14000	71	26 - 119
Benzo(k)fluoranthene	8200	6600	12000	60	27 - 139
Chrysene	8200	7000	13000	69	31 - 120
Dibenz(a,h)anthracene	8200	2800	9300	80	31 - 125
Fluoranthene	8200	14000	18000	49	21 - 148
Fluorene	8200	ND	6800	83	34 - 121
Indeno(1,2,3-cd)pyrene	8200	6600	12000	69	29 - 125
Naphthalene	8200	ND	6200	75	19 - 107
Phenanthrene	8200	7600	13000	63	26 - 125
Pyrene	8200	12000	16000	49	20 - 142

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

Laboratory Duplicate Results

Tombarello Site - Lawrence, MA

Sample ID: AB11617

PARAMETER	SAMPLE RESULT ug/Kg	SAMPLE DUPLICATE RESULT ug/Kg	PRECISION RPD %	QC LIMITS
Acenaphthene	ND	ND	ND	40
Acenaphthylene	ND	ND	ND	40
Anthracene	1900	1300	41	40
Benzo(a)anthracene	6800	5700	18	40
Benzo(a)pyrene	7300	5700	25	40
Benzo(b)fluoranthene	6900	6300	8.93	40
Benzo(g,h,i)perylene	8300	6400	26	40
Benzo(k)fluoranthene	6600	6200	6.73	40
Chrysene	7000	5700	21	40
Dibenz(a,h)anthracene	2800	ND	ND	40
Fluoranthene	14000	11000	26	40
Fluorene	ND	ND	ND	40
Indeno(1,2,3-cd)pyrene	6600	5300	22	40
Naphthalene	ND	ND	ND	40
Phenanthrene	7600	6100	22	40
Pyrene	12000	9300	25	40

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Laboratory Fortified Blank (LFB) Results**

Tombarello Site - Lawrence, MA

PARAMETER	LFB AMOUNT SPIKED ppb	LFB RESULT ppb	LFB RECOVERY %	QC LIMITS %
Acenaphthene	3900	3100	80	26 - 129
Acenaphthylene	3900	3100	79	23 - 141
Anthracene	3900	3600	94	25 - 149
Benzo(a)anthracene	3900	3500	91	27 - 142
Benzo(a)pyrene	3900	3600	93	29 - 123
Benzo(b)fluoranthene	3900	3500	90	22 - 146
Benzo(g,h,i)perylene	3900	3500	90	26 - 134
Benzo(k)fluoranthene	3900	3500	91	32 - 144
Chrysene	3900	3400	88	38 - 121
Dibenz(a,h)anthracene	3900	3600	93	35 - 133
Fluoranthene	3900	3500	89	29 - 154
Fluorene	3900	3200	82	29 - 138
Indeno(1,2,3-cd)pyrene	3900	3500	89	26 - 141
Naphthalene	3900	2900	75	30 - 110
Phenanthrene	3900	3500	90	27 - 140
Pyrene	3900	3300	85	24 - 147

Comments:



United States Environmental Protection Agency  
Office of Environmental Measurement & Evaluation  
60 Westview Street  
Lexington, MA 02421-3185

Laboratory Report

November 01, 2010

Mike Barry - OSRR02-2  
US EPA New England R1

Project Number: 10100024  
Project: Tombarello Site - Lawrence, MA  
Analysis: PCB's in Soil Field Method (Fixed Lab)  
Analyst: Paul Carroll

*Paul Carroll*  
11.1.10

Analytical Procedure:

All samples were received and logged in by the laboratory according to the USEPA New England Laboratory SOP for Sample Log-in.

Sample preparation and analysis was done following the EPA Region I SOP, FLDPCB2.SOP.

Concentrations of PCBs in soil were calculated using an external standard technique.

Analysis for PCB's performed by this field analytical technique is used for tentative identification and semi-quantitation of PCB's in soil, oil, and sediment samples.

Date Samples Received by the Laboratory: 10/14/10

Results relate only to the items tested or to the samples as received by the Laboratory. This analytical report shall not be reproduced except in full, without written approval of the laboratory.

Results for soil samples are reported on a dry weight basis.

If you have any questions please call me at 617-918-8340.

Sincerely,

*Daniel Boudreau* 11/1/10

Daniel Boudreau

Project # 10100024

**PCB's in Soil Field Method (Fixed Lab)**

US ENVIRONMENTAL PROTECTION AGENCY NEW ENGLAND LABORATORY Tombarello Site - Lawrence, MA						
Client Sample ID	R01-100830MB-0416	R01-100830MB-0417	R01-100830MB-0418	R01-100830MB-0419	R01-100830MB-0420	R01-100830MB-0421
Lab Sample ID	AB11615	AB11616	AB11617	AB11618	AB11619	AB11620
Date of Collection	10/14/2010	10/14/2010	10/14/2010	10/14/2010	10/14/2010	10/14/2010
Date of Extraction	10/21/2010	10/21/2010	10/21/2010	10/21/2010	10/21/2010	10/21/2010
Date of Analysis	10/27/2010	10/27/2010	10/27/2010	10/27/2010	10/27/2010	10/27/2010
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Compound	Conc. (RL) mg/Kg					
Aroclor-1242	ND (0.66)	ND (0.74)	ND (0.7)	ND (0.6)	ND (0.6)	ND (0.76)
Aroclor-1248	ND (0.66)	ND (0.74)	ND (0.7)	5.7 (0.6)	ND (0.6)	7.2 (0.76)
Aroclor-1254	ND (0.66)	ND (0.74)	ND (0.7)	14 (0.6)	1.1 (0.6)	4.8 (0.76)
Aroclor-1260	16 (0.66)	15 (0.74)	25 (0.7)	6.6 (0.6)	1.8 (0.6)	4.2 (0.76)
Aroclor-1262	ND (0.66)	ND (0.74)	ND (0.7)	ND (0.6)	ND (0.6)	ND (0.76)
Aroclor-1268	ND (0.66)	ND (0.74)	ND (0.7)	ND (0.6)	ND (0.6)	ND (0.76)

**US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY  
Tombarello Site - Lawrence, MA**

	R01-100830MB-0422 AB11621 10/14/2010 10/21/2010 10/27/2010 Soil	R01-100830MB-0423 AB11622 10/14/2010 10/21/2010 10/27/2010 Soil	R01-100830MB-0424 AB11623 10/14/2010 10/21/2010 10/27/2010 Soil	R01-100830MB-0425 AB11624 10/14/2010 10/21/2010 10/27/2010 Soil	R01-100830MB-0426 AB11625 10/14/2010 10/21/2010 10/27/2010 Soil	R01-100830MB-0427 AB11626 10/14/2010 10/21/2010 10/27/2010 Soil
	Conc. (RL) mg/Kg					
Aroclor-1242	ND (0.7)	ND (0.7)	ND (0.66)	ND (0.64)	ND (0.74)	ND (0.6)
Aroclor-1248	1.2 (0.7)	ND (0.7)	11 (0.66)	ND (0.64)	ND (0.74)	ND (0.6)
Aroclor-1254	7.5 (0.7)	2.0 (0.7)	18 (0.66)	1.4 (0.64)	1.5 (0.74)	9.9 (0.6)
Aroclor-1260	6.4 (0.7)	3.5 (0.7)	46 (0.66)	2.2 (0.64)	2.2 (0.74)	5.9 (0.6)
Aroclor-1262	ND (0.7)	ND (0.7)	ND (0.66)	ND (0.64)	ND (0.74)	ND (0.6)
Aroclor-1268	ND (0.7)	ND (0.7)	ND (0.66)	ND (0.64)	ND (0.74)	ND (0.6)

**US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY  
Tombarello Site - Lawrence, MA**

	R01-100830MB-0428 AB11627 10/14/2010 10/21/2010 10/27/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0429 AB11628 10/14/2010 10/21/2010 10/27/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0430 AB11629 10/14/2010 10/21/2010 10/27/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0431 AB11630 10/14/2010 10/21/2010 10/27/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0432 AB11631 10/14/2010 10/21/2010 10/27/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0433 AB11632 10/14/2010 10/21/2010 10/27/2010 Soil  Conc. (RL) mg/Kg
Aroclor-1242	ND (0.64)	ND (0.64)	ND (0.68)	ND (0.7)	ND (0.78)	ND (0.7)
Aroclor-1248	ND (0.64)	5.1 (0.64)	0.92 (0.68)	ND (0.7)	ND (0.78)	ND (0.7)
Aroclor-1254	11 (0.64)	7.1 (0.64)	2.5 (0.68)	ND (0.7)	2.0 (0.78)	2.6 (0.7)
Aroclor-1260	15 (0.64)	4.8 (0.64)	3.5 (0.68)	26 (0.7)	3.7 (0.78)	4.2 (0.7)
Aroclor-1262	ND (0.64)	ND (0.64)	ND (0.68)	ND (0.7)	ND (0.78)	ND (0.7)
Aroclor-1268	ND (0.64)	ND (0.64)	ND (0.68)	ND (0.7)	ND (0.78)	ND (0.7)

**US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY  
Tombarello Site - Lawrence, MA**

	R01-100830MB-0434 AB11633 10/14/2010 10/21/2010 10/27/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0435 AB11634 10/14/2010 10/21/2010 10/27/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0436 AB11635 10/14/2010 10/21/2010 10/27/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0437 AB11636 10/14/2010 10/21/2010 10/27/2010 Soil  Conc. (RL) mg/Kg
Aroclor-1242	ND (0.58)	ND (0.62)	ND (0.74)	ND (0.18)
Aroclor-1248	ND (0.58)	ND (0.62)	ND (0.74)	ND (0.18)
Aroclor-1254	ND (0.58)	1.8 (0.62)	ND (0.74)	0.33 (0.18)
Aroclor-1260	4.2 (0.58)	3.4 (0.62)	ND (0.74)	ND (0.18)
Aroclor-1262	ND (0.58)	ND (0.62)	ND (0.74)	ND (0.18)
Aroclor-1268	ND (0.58)	ND (0.62)	ND (0.74)	ND (0.18)

Qualifiers: RL = Reporting limit  
ND = Not Detected above Reporting limit  
NA = Not Applicable due to high sample dilutions or sample interferences  
J = Estimated value  
E = Estimated value exceeds the calibration range  
L = Estimated value is below the calibration range  
B = Analyte is associated with the lab blank or trip blank contamination. Values are qualified when the observed concentration of the contamination in the sample extract is less than 10 times the concentration in the blank.  
P = The confirmation value exceeded 35% difference and is less than 100%. The lower value is reported.  
C = The identification has been confirmed by GC/MS.  
A = Suspected Aldol condensation product.  
N = Tentatively identified compound.



United States Environmental Protection Agency  
Office of Environmental Measurement & Evaluation  
11 Technology Drive  
North Chelmsford, MA 01863

Laboratory Report

November 16, 2010

Mike Barry - OSRR02-2

US EPA New England R1

Project Number: 10100024

Project: Tombarello Site - Lawrence, MA

Analysis: Field Analysis of Metals by XRF

Analyst: Paul Carroll

*Paul Carroll*  
11.16.10

Analytical Procedure:

All samples were received and logged in by the laboratory according to the USEPA New England Laboratory SOP for Sample Log-in.

Sample preparation and analysis was done following the EPA Region I SOP, EIA-FLDXRFN3.

The analysis were performed by the EPA New England Regional Laboratory.

Date Samples Received by the Laboratory: 10/14/10

Results relate only to the items tested or to the samples as received by the Laboratory. This analytical report shall not be reproduced except in full, without written approval of the laboratory.

If you have any questions please call me at 617-918-8340.

Sincerely,

*Dan Boudreau* 11/18/10  
Dan Boudreau  
Chemistry Team Leader

Project # 10100024

**Field Analysis of Metals by XRF**

US ENVIRONMENTAL PROTECTION AGENCY NEW ENGLAND LABORATORY Tombarello Site - Lawrence, MA						
Client Sample ID	R01-100830MB-0416	R01-100830MB-0417	R01-100830MB-0418	R01-100830MB-0419	R01-100830MB-0420	R01-100830MB-0421
Lab Sample ID	AB11615	AB11616	AB11617	AB11618	AB11619	AB11620
Date of Collection	10/14/2010	10/14/2010	10/14/2010	10/14/2010	10/14/2010	10/14/2010
Date of Extraction	11/9/2010	11/9/2010	11/9/2010	11/9/2010	11/9/2010	11/9/2010
Date of Analysis	11/9/2010	11/9/2010	11/9/2010	11/9/2010	11/9/2010	11/9/2010
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Compound	Conc. (RL) mg/Kg					
Arsenic	87 ( 20)	ND ( 61)	57 ( 20)	61 ( 20)	ND ( 46)	48 ( 20)
Cadmium	ND ( 12)	ND ( 11)	ND ( 15)	15 (8.0)	17 (8.0)	ND ( 12)
Chromium	110 ( 20)	100 ( 20)	90 ( 20)	220 ( 20)	190 ( 20)	150 ( 20)
Lead	820 ( 20)	1900 ( 20)	550 ( 20)	1100 ( 20)	990 ( 20)	1100 ( 20)

**US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY  
Tombarello Site - Lawrence, MA**

	R01-100830MB-0422 AB11621 10/14/2010 11/9/2010 11/9/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0423 AB11622 10/14/2010 11/9/2010 11/9/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0424 AB11623 10/14/2010 11/9/2010 11/9/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0425 AB11624 10/14/2010 11/10/2010 11/10/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0426 AB11625 10/14/2010 11/10/2010 11/10/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0427 AB11626 10/14/2010 11/10/2010 11/10/2010 Soil  Conc. (RL) mg/Kg
Arsenic	77 ( 20)	ND ( 28)	89 ( 20)	34 ( 20)	ND ( 24)	ND ( 60)
Cadmium	15 (8.0)	ND ( 11)	35 (8.0)	ND ( 14)	ND ( 18)	16 (8.0)
Chromium	410 ( 20)	76 ( 20)	140 ( 20)	73 ( 20)	77 ( 20)	120 ( 20)
Lead	520 ( 20)	400 ( 20)	1600 ( 20)	380 ( 20)	310 ( 20)	1900 ( 20)

**US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY  
Tombarello Site - Lawrence, MA**

	R01-100830MB-0428 AB11627 10/14/2010 11/10/2010 11/10/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0429 AB11628 10/14/2010 11/10/2010 11/10/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0430 AB11629 10/14/2010 11/10/2010 11/10/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0431 AB11630 10/14/2010 11/10/2010 11/10/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0432 AB11631 10/14/2010 11/10/2010 11/10/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0433 AB11632 10/14/2010 11/10/2010 11/10/2010 Soil  Conc. (RL) mg/Kg
Arsenic	53 ( 20)	ND ( 26)	ND ( 61)	ND ( 34)	ND ( 23)	45 ( 20)
Cadmium	ND ( 14)	18 (8.0)	ND ( 15)	ND ( 11)	ND ( 10)	ND ( 11)
Chromium	100 ( 20)	57 ( 20)	190 ( 20)	65 ( 20)	160 ( 20)	300 ( 20)
Lead	770 ( 20)	370 ( 20)	2300 ( 20)	610 ( 20)	280 ( 20)	340 ( 20)

**US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY  
Tombarello Site - Lawrence, MA**

	R01-100830MB-0434 AB11633 10/14/2010 11/10/2010 11/10/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0435 AB11634 10/14/2010 11/10/2010 11/10/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0436 AB11635 10/14/2010 11/10/2010 11/10/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0439 AB11638 10/14/2010 11/16/2010 11/16/2010 Soil  Conc. (RL) mg/Kg
Arsenic	ND ( 28)	33 ( 20)	ND ( 33)	12 (3)
Cadmium	ND ( 11)	ND ( 19)	13 (8.0)	ND ( 34)
Chromium	75 ( 20)	61 ( 20)	64 ( 20)	ND ( 34)
Lead	380 ( 20)	430 ( 20)	560 ( 20)	14 (2)

Qualifiers: RL = Reporting limit  
ND = Not Detected above Reporting limit  
NA = Not Applicable due to low (pH < 4.5)  
J = Estimated value  
E = Estimated value exceeds the calibration range  
L = Estimated value is below the calibration range  
B = Analyte is associated with the lab blank or trip blank contamination. Values are qualified when the observed concentration of the contamination in the sample extract is less than 10 times the concentration in the blank.  
P = The confirmation value exceeded 35% difference and is less than 100%. The lower value is reported.  
C = The identification has been confirmed by GC/MS.  
A = Suspected Aldol condensation product.  
N = Tentatively identified compound.



United States Environmental Protection Agency  
Office of Environmental Measurement & Evaluation  
11 Technology Drive  
North Chelmsford, MA 01863-2431

Laboratory Report

November 22, 2010

Mike Barry - OSRR02-2  
US EPA New England RI

Project Number: 10100033  
Project: Tombarello Site - Lawrence, MA  
Analysis: PAHs in Soil  
Analyst: Bhavita Patel

*BP. 11/22/10*

Analytical Procedure:

All samples were received and logged in by the laboratory according to the USEPA New England Laboratory SOP for Sample Log-in.

Sample preparation and analysis was done following the EPA Region I SOP, EIASOP-BNAS3.

Samples were analyzed by a quadrupole GC/MS operating in the full-scan mode. The extraction and analysis SOPs are based on SW-846 methods 3545A, 3630C, 8270C, and EIASOP-BNAGCMS7.

Date Samples Received by the Laboratory: 10/21/2010

Data were reviewed in accordance with the internal verification procedures described in the EPA New England OEME Chemistry QA Plan.

Results relate only to the items tested or to the samples as received by the Laboratory. This analytical report shall not be reproduced except in full, without written approval of the laboratory.

Report may contain multiple sections and each section will be numbered independently.

If you have any questions please call me at 617-918-8340 .

Sincerely,

*Daniel N. Boudreau 11/22/10*

Daniel N. Boudreau  
Chemistry Team Leader

**Qualifiers:**

RL = Reporting limit

ND = Not Detected above Reporting limit

NA = Not Applicable due to high sample dilutions or sample interferences

NC = Not calculated since analyte concentration is ND.

J = Estimated value

E = Estimated value exceeds the calibration range

L = Estimated value is below the calibration range

B = Analyte is associated with the lab blank or trip blank contamination. Values are qualified when the observed concentration of the contamination in the sample extract is less than 5 times the concentration in the blank.

R = No recovery was calculated since the analyte concentration is greater than four times the spike level.

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

Tombarello Site - Lawrence, MA

PAHs in Soil

Client Sample ID: R01-100830MB-0440  
Date of Collection: 10/20/2010  
Date of Extraction: 10/25/10  
Date of Analysis: 10/29/10  
Dry Weight Extracted: 4.805 grams  
Wet Weight Extracted: 5.70 grams  
Final Volume: 1 mL

Lab Sample ID: AB11722  
Matrix: Soil  
Volume Extracted: N/A  
Percent Solids: 84%  
Extract Dilution: 10  
pH: N/A  
GPC Factor: N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	1000	
208-96-8	Acenaphthylene	ND	1000	
120-12-7	Anthracene	1200	1000	
56-55-3	Benzo(a)anthracene	5100	1000	
50-32-8	Benzo(a)pyrene	5700	1000	
205-99-2	Benzo(b)fluoranthene	5000	1000	
191-24-2	Benzo(g,h,i)perylene	6000	1000	
207-08-9	Benzo(k)fluoranthene	4800	1000	
218-01-9	Chrysene	4900	1000	
53-70-3	Dibenz(a,h)anthracene	ND	1000	
206-44-0	Fluoranthene	9900	1000	
86-73-7	Fluorene	ND	1000	
193-39-5	Indeno(1,2,3-cd)pyrene	4700	1000	
91-20-3	Naphthalene	ND	1000	
85-01-8	Phenanthrene	4400	1000	
129-00-0	Pyrene	8300	1000	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	90	41 - 106
2-Fluorobiphenyl (SS1)	75	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**Laboratory Blank (PAHs)**

Client Sample ID:	N/A	Lab Sample ID:	N/A
Date of Collection:	N/A	Matrix:	Soil
Date of Extraction:	10/25/10	Volume Extracted:	N/A
Date of Analysis:	10/29/10	Percent Solids:	100%
Dry Weight Extracted:	9.823 grams	Extract Dilution:	1
Wet Weight Extracted:	9.810 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	51	
208-96-8	Acenaphthylene	ND	51	
120-12-7	Anthracene	ND	51	
56-55-3	Benzo(a)anthracene	ND	51	
50-32-8	Benzo(a)pyrene	ND	51	
205-99-2	Benzo(b)fluoranthene	ND	51	
191-24-2	Benzo(g,h,i)perylene	ND	51	
207-08-9	Benzo(k)fluoranthene	ND	51	
218-01-9	Chrysene	ND	51	
53-70-3	Dibenz(a,h)anthracene	ND	51	
206-44-0	Fluoranthene	ND	51	
86-73-7	Fluorene	ND	51	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	51	
91-20-3	Naphthalene	ND	51	
85-01-8	Phenanthrene	ND	51	
129-00-0	Pyrene	ND	51	

Surrogate Compounds	Recoveries (%)	QC Ranges
2-Fluorobiphenyl (SS1)	74.0	39 - 103
p-Terphenyl-d14 (SS2)	91.0	41 - 106

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID: R01-100830MB-0441  
Date of Collection: 10/20/2010  
Date of Extraction: 10/25/10  
Date of Analysis: 10/29/10  
Dry Weight Extracted: 5.673 grams  
Wet Weight Extracted: 6.735 grams  
Final Volume: 1 mL

Lab Sample ID: AB11723  
Matrix: Soil  
Volume Extracted: N/A  
Percent Solids: 84%  
Extract Dilution: 10  
pH: N/A  
GPC Factor: N/A

<u>CAS Number</u>	<u>Compound</u>	<u>Concentration ug/Kg</u>	<u>RL ug/Kg</u>	<u>Qualifier</u>
83-32-9	Acenaphthene	ND	880	
208-96-8	Acenaphthylene	ND	880	
120-12-7	Anthracene	2300	880	
56-55-3	Benzo(a)anthracene	11000	880	
50-32-8	Benzo(a)pyrene	11000	880	
205-99-2	Benzo(b)fluoranthene	12000	880	
191-24-2	Benzo(g,h,i)perylene	8900	880	
207-08-9	Benzo(k)fluoranthene	9200	880	
218-01-9	Chrysene	10000	880	
53-70-3	Dibenz(a,h)anthracene	ND	880	
206-44-0	Fluoranthene	22000	880	
86-73-7	Fluorene	ND	880	
193-39-5	Indeno(1,2,3-cd)pyrene	7300	880	
91-20-3	Naphthalene	ND	880	
85-01-8	Phenanthrene	8100	880	
129-00-0	Pyrene	18000	880	

<b>Surrogate Compounds</b>	<b>Recoveries (%)</b>	<b>QC Ranges</b>
p-Terphenyl-d14 (SS2)	110	41 - 106
2-Fluorobiphenyl (SS1)	85	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0442	Lab Sample ID:	AB11724
Date of Collection:	10/20/2010	Matrix:	Soil
Date of Extraction:	10/25/10	Volume Extracted:	N/A
Date of Analysis:	10/29/10	Percent Solids:	77%
Dry Weight Extracted:	5.493 grams	Extract Dilution:	10
Wet Weight Extracted:	7.145 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	910	
208-96-8	Acenaphthylene	ND	910	
120-12-7	Anthracene	3500	910	
56-55-3	Benzo(a)anthracene	18000	910	
50-32-8	Benzo(a)pyrene	6100	910	
205-99-2	Benzo(b)fluoranthene	19000	910	
191-24-2	Benzo(g,h,i)perylene	16000	910	
207-08-9	Benzo(k)fluoranthene	14000	910	
218-01-9	Chrysene	17000	910	
53-70-3	Dibenz(a,h)anthracene	ND	910	
206-44-0	Fluoranthene	34000	910	
86-73-7	Fluorene	930	910	
193-39-5	Indeno(1,2,3-cd)pyrene	13000	910	
91-20-3	Naphthalene	ND	910	
85-01-8	Phenanthrene	13000	910	
129-00-0	Pyrene	30000	910	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	110	41 - 106
2-Fluorobiphenyl (SS1)	85	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0443	Lab Sample ID:	AB11725
Date of Collection:	10/20/2010	Matrix:	Soil
Date of Extraction:	10/25/10	Volume Extracted:	N/A
Date of Analysis:	10/29/10	Percent Solids:	89%
Dry Weight Extracted:	6.693 grams	Extract Dilution:	10
Wet Weight Extracted:	7.493 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	750	
208-96-8	Acenaphthylene	ND	750	
120-12-7	Anthracene	ND	750	
56-55-3	Benzo(a)anthracene	2100	750	
50-32-8	Benzo(a)pyrene	2400	750	
205-99-2	Benzo(b)fluoranthene	2400	750	
191-24-2	Benzo(g,h,i)perylene	3700	750	
207-08-9	Benzo(k)fluoranthene	1900	750	
218-01-9	Chrysene	2200	750	
53-70-3	Dibenz(a,h)anthracene	ND	750	
206-44-0	Fluoranthene	3800	750	
86-73-7	Fluorene	ND	750	
193-39-5	Indeno(1,2,3-cd)pyrene	2800	750	
91-20-3	Naphthalene	ND	750	
85-01-8	Phenanthrene	1700	750	
129-00-0	Pyrene	3400	750	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	120	41 - 106
2-Fluorobiphenyl (SS1)	90	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

Tombarello Site - Lawrence, MA

PAHs in Soil

Client Sample ID:	R01-100830MB-0444	Lab Sample ID:	AB11726
Date of Collection:	10/20/2010	Matrix:	Soil
Date of Extraction:	10/25/10	Volume Extracted:	N/A
Date of Analysis:	10/29/10	Percent Solids:	88%
Dry Weight Extracted:	6.514 grams	Extract Dilution:	10
Wet Weight Extracted:	7.390 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	5800	770	
208-96-8	Acenaphthylene	1600	770	
120-12-7	Anthracene	24000	770	
56-55-3	Benzo(a)anthracene	26000	770	
50-32-8	Benzo(a)pyrene	18000	770	
205-99-2	Benzo(b)fluoranthene	16000	770	
191-24-2	Benzo(g,h,i)perylene	8700	770	
207-08-9	Benzo(k)fluoranthene	15000	770	
218-01-9	Chrysene	23000	770	
53-70-3	Dibenz(a,h)anthracene	ND	770	
206-44-0	Fluoranthene	77000	770	
86-73-7	Fluorene	11000	770	
193-39-5	Indeno(1,2,3-cd)pyrene	8800	770	
91-20-3	Naphthalene	1300	770	
85-01-8	Phenanthrene	83000	770	
129-00-0	Pyrene	49000	770	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	95	41 - 106
2-Fluorobiphenyl (SS1)	80	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID: R01-100830MB-0445  
Date of Collection: 10/20/2010  
Date of Extraction: 10/25/10  
Date of Analysis: 10/29/10  
Dry Weight Extracted: 5.407 grams  
Wet Weight Extracted: 6.343 grams  
Final Volume: 1 mL

Lab Sample ID: AB11727  
Matrix: Soil  
Volume Extracted: N/A  
Percent Solids: 85%  
Extract Dilution: 10  
pH: N/A  
GPC Factor: N/A

<b>CAS Number</b>	<b>Compound</b>	<b>Concentration ug/Kg</b>	<b>RL ug/Kg</b>	<b>Qualifier</b>
83-32-9	Acenaphthene	ND	920	
208-96-8	Acenaphthylene	ND	920	
120-12-7	Anthracene	940	920	
56-55-3	Benzo(a)anthracene	3200	920	
50-32-8	Benzo(a)pyrene	3100	920	
205-99-2	Benzo(b)fluoranthene	3000	920	
191-24-2	Benzo(g,h,i)perylene	2600	920	
207-08-9	Benzo(k)fluoranthene	2300	920	
218-01-9	Chrysene	3000	920	
53-70-3	Dibenz(a,h)anthracene	ND	920	
206-44-0	Fluoranthene	6800	920	
86-73-7	Fluorene	ND	920	
193-39-5	Indeno(1,2,3-cd)pyrene	2300	920	
91-20-3	Naphthalene	ND	920	
85-01-8	Phenanthrene	3400	920	
129-00-0	Pyrene	5200	920	

<b>Surrogate Compounds</b>	<b>Recoveries (%)</b>	<b>QC Ranges</b>
p-Terphenyl-d14 (SS2)	95	41 - 106
2-Fluorobiphenyl (SS1)	75	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0446	Lab Sample ID:	AB11728
Date of Collection:	10/20/2010	Matrix:	Soil
Date of Extraction:	10/25/10	Volume Extracted:	N/A
Date of Analysis:	10/29/10	Percent Solids:	85%
Dry Weight Extracted:	5.913 grams	Extract Dilution:	50
Wet Weight Extracted:	6.946 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	4200	
208-96-8	Acenaphthylene	ND	4200	
120-12-7	Anthracene	7800	4200	J
56-55-3	Benzo(a)anthracene	24000	4200	J
50-32-8	Benzo(a)pyrene	26000	4200	
205-99-2	Benzo(b)fluoranthene	20000	4200	
191-24-2	Benzo(g,h,i)perylene	29000	4200	
207-08-9	Benzo(k)fluoranthene	19000	4200	
218-01-9	Chrysene	24000	4200	J
53-70-3	Dibenz(a,h)anthracene	ND	4200	
206-44-0	Fluoranthene	50000	4200	J
86-73-7	Fluorene	ND	4200	
193-39-5	Indeno(1,2,3-cd)pyrene	23000	4200	
91-20-3	Naphthalene	ND	4200	
85-01-8	Phenanthrene	31000	4200	J
129-00-0	Pyrene	40000	4200	J

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	100	41 - 106
2-Fluorobiphenyl (SS1)	80	39 - 103

Comments: Internal standard recovery is out of spec.

US ENVIRONMENTAL PROTECTION AGENCY  
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**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID: R01-100830MB-0447  
Date of Collection: 10/20/2010  
Date of Extraction: 10/25/10  
Date of Analysis: 10/29/10  
Dry Weight Extracted: 6.320 grams  
Wet Weight Extracted: 7.345 grams  
Final Volume: 1 mL

Lab Sample ID: AB11729  
Matrix: Soil  
Volume Extracted: N/A  
Percent Solids: 86%  
Extract Dilution: 10  
pH: N/A  
GPC Factor: N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	790	
208-96-8	Acenaphthylene	ND	790	
120-12-7	Anthracene	1500	790	
56-55-3	Benzo(a)anthracene	7100	790	J
50-32-8	Benzo(a)pyrene	7600	790	
205-99-2	Benzo(b)fluoranthene	7600	790	
191-24-2	Benzo(g,h,i)perylene	6400	790	
207-08-9	Benzo(k)fluoranthene	5600	790	
218-01-9	Chrysene	7100	790	J
53-70-3	Dibenz(a,h)anthracene	ND	790	
206-44-0	Fluoranthene	15000	790	
86-73-7	Fluorene	ND	790	
193-39-5	Indeno(1,2,3-cd)pyrene	5800	790	
91-20-3	Naphthalene	ND	790	
85-01-8	Phenanthrene	6000	790	
129-00-0	Pyrene	12000	790	J

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	100	41 - 106
2-Fluorobiphenyl (SS1)	85	39 - 103

Comments: Internal standard recovery is out of spec.

US ENVIRONMENTAL PROTECTION AGENCY  
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**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0448	Lab Sample ID:	AB11730
Date of Collection:	10/20/2010	Matrix:	Soil
Date of Extraction:	10/25/10	Volume Extracted:	N/A
Date of Analysis:	11/19/10	Percent Solids:	82%
Dry Weight Extracted:	5.214 grams	Extract Dilution:	10
Wet Weight Extracted:	6.370 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	960	
208-96-8	Acenaphthylene	ND	960	
120-12-7	Anthracene	ND	960	
56-55-3	Benzo(a)anthracene	ND	960	
50-32-8	Benzo(a)pyrene	ND	960	
205-99-2	Benzo(b)fluoranthene	ND	960	
191-24-2	Benzo(g,h,i)perylene	ND	960	
207-08-9	Benzo(k)fluoranthene	ND	960	
218-01-9	Chrysene	ND	960	
53-70-3	Dibenz(a,h)anthracene	ND	960	
206-44-0	Fluoranthene	<b>1100</b>	960	
86-73-7	Fluorene	ND	960	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	960	
91-20-3	Naphthalene	ND	960	
85-01-8	Phenanthrene	ND	960	
129-00-0	Pyrene	ND	960	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	85	41 - 106
2-Fluorobiphenyl (SS1)	75	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
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**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID: R01-100830MB-0449  
Date of Collection: 10/20/2010  
Date of Extraction: 10/25/10  
Date of Analysis: 10/29/10  
Dry Weight Extracted: 6.455 grams  
Wet Weight Extracted: 7.694 grams  
Final Volume: 1 mL

Lab Sample ID: AB11731  
Matrix: Soil  
Volume Extracted: N/A  
Percent Solids: 84%  
Extract Dilution: 10  
pH: N/A  
GPC Factor: N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	770	
208-96-8	Acenaphthylene	ND	770	
120-12-7	Anthracene	800	770	
56-55-3	Benzo(a)anthracene	3200	770	J
50-32-8	Benzo(a)pyrene	3300	770	
205-99-2	Benzo(b)fluoranthene	3500	770	
191-24-2	Benzo(g,h,i)perylene	2900	770	
207-08-9	Benzo(k)fluoranthene	2100	770	
218-01-9	Chrysene	2900	770	J
53-70-3	Dibenz(a,h)anthracene	1100	770	
206-44-0	Fluoranthene	6100	770	
86-73-7	Fluorene	ND	770	
193-39-5	Indeno(1,2,3-cd)pyrene	2500	770	
91-20-3	Naphthalene	ND	770	
85-01-8	Phenanthrene	2700	770	
129-00-0	Pyrene	4900	770	J

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	95	41 - 106
2-Fluorobiphenyl (SS1)	75	39 - 103

Comments: Internal standard recovery is out of spec.

US ENVIRONMENTAL PROTECTION AGENCY  
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**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0450	Lab Sample ID:	AB11732
Date of Collection:	10/20/2010	Matrix:	Soil
Date of Extraction:	10/25/10	Volume Extracted:	N/A
Date of Analysis:	11/19/10	Percent Solids:	85%
Dry Weight Extracted:	6.649 grams	Extract Dilution:	10
Wet Weight Extracted:	7.793 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	750	
208-96-8	Acenaphthylene	ND	750	
120-12-7	Anthracene	ND	750	
56-55-3	Benzo(a)anthracene	1800	750	
50-32-8	Benzo(a)pyrene	2000	750	
205-99-2	Benzo(b)fluoranthene	3500	750	
191-24-2	Benzo(g,h,i)perylene	2300	750	
207-08-9	Benzo(k)fluoranthene	4000	750	
218-01-9	Chrysene	1800	750	
53-70-3	Dibenz(a,h)anthracene	ND	750	
206-44-0	Fluoranthene	3400	750	
86-73-7	Fluorene	ND	750	
193-39-5	Indeno(1,2,3-cd)pyrene	960	750	
91-20-3	Naphthalene	ND	750	
85-01-8	Phenanthrene	1400	750	
129-00-0	Pyrene	2600	750	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	100	41 - 106
2-Fluorobiphenyl (SS1)	85	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
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**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID: R01-100830MB-0451  
Date of Collection: 10/20/2010  
Date of Extraction: 10/25/10  
Date of Analysis: 11/19/10  
Dry Weight Extracted: 5.891 grams  
Wet Weight Extracted: 6.900 grams  
Final Volume: 1 mL

Lab Sample ID: AB11733  
Matrix: Soil  
Volume Extracted: N/A  
Percent Solids: 85%  
Extract Dilution: 10  
pH: N/A  
GPC Factor: N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	850	
208-96-8	Acenaphthylene	ND	850	
120-12-7	Anthracene	920	850	
56-55-3	Benzo(a)anthracene	4200	850	
50-32-8	Benzo(a)pyrene	4200	850	
205-99-2	Benzo(b)fluoranthene	7100	850	
191-24-2	Benzo(g,h,i)perylene	4200	850	
207-08-9	Benzo(k)fluoranthene	8200	850	
218-01-9	Chrysene	4200	850	
53-70-3	Dibenz(a,h)anthracene	1600	850	
206-44-0	Fluoranthene	8400	850	
86-73-7	Fluorene	ND	850	
193-39-5	Indeno(1,2,3-cd)pyrene	3500	850	
91-20-3	Naphthalene	ND	850	
85-01-8	Phenanthrene	4900	850	
129-00-0	Pyrene	6900	850	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	110	41 - 106
2-Fluorobiphenyl (SS1)	95	39 - 103

Comments:

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Tombarello Site - Lawrence, MA

PAHs in Soil

Client Sample ID:	R01-100830MB-0452	Lab Sample ID:	AB11734
Date of Collection:	10/20/2010	Matrix:	Soil
Date of Extraction:	10/25/10	Volume Extracted:	N/A
Date of Analysis:	11/19/10	Percent Solids:	87%
Dry Weight Extracted:	6.903 grams	Extract Dilution:	10
Wet Weight Extracted:	7.955 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	720	
208-96-8	Acenaphthylene	ND	720	
120-12-7	Anthracene	1200	720	
56-55-3	Benzo(a)anthracene	6200	720	
50-32-8	Benzo(a)pyrene	6000	720	
205-99-2	Benzo(b)fluoranthene	7000	720	
191-24-2	Benzo(g,h,i)perylene	5400	720	
207-08-9	Benzo(k)fluoranthene	5600	720	
218-01-9	Chrysene	6200	720	
53-70-3	Dibenz(a,h)anthracene	1000	720	
206-44-0	Fluoranthene	11000	720	
86-73-7	Fluorene	ND	720	
193-39-5	Indeno(1,2,3-cd)pyrene	4700	720	
91-20-3	Naphthalene	ND	720	
85-01-8	Phenanthrene	4400	720	
129-00-0	Pyrene	9500	720	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	100	41 - 106
2-Fluorobiphenyl (SS1)	85	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

Tombarello Site - Lawrence, MA

PAHs in Soil

Client Sample ID: R01-100830MB-0453  
Date of Collection: 10/20/2010  
Date of Extraction: 10/25/10  
Date of Analysis: 11/19/10  
Dry Weight Extracted: 5.969 grams  
Wet Weight Extracted: 6.991 grams  
Final Volume: 1 mL

Lab Sample ID: AB11735  
Matrix: Soil  
Volume Extracted: N/A  
Percent Solids: 85%  
Extract Dilution: 10  
pH: N/A  
GPC Factor: N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	840	
208-96-8	Acenaphthylene	ND	840	
120-12-7	Anthracene	4000	840	
56-55-3	Benzo(a)anthracene	8600	840	
50-32-8	Benzo(a)pyrene	8000	840	
205-99-2	Benzo(b)fluoranthene	8900	840	
191-24-2	Benzo(g,h,i)perylene	6400	840	
207-08-9	Benzo(k)fluoranthene	5000	840	
218-01-9	Chrysene	8400	840	
53-70-3	Dibenz(a,h)anthracene	1300	840	
206-44-0	Fluoranthene	16000	840	
86-73-7	Fluorene	1000	840	
193-39-5	Indeno(1,2,3-cd)pyrene	4500	840	
91-20-3	Naphthalene	ND	840	
85-01-8	Phenanthrene	10000	840	
129-00-0	Pyrene	13000	840	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	100	41 - 106
2-Fluorobiphenyl (SS1)	90	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0454	Lab Sample ID:	AB11736
Date of Collection:	10/20/2010	Matrix:	Soil
Date of Extraction:	10/25/10	Volume Extracted:	N/A
Date of Analysis:	10/29/10	Percent Solids:	87%
Dry Weight Extracted:	6.949 grams	Extract Dilution:	50
Wet Weight Extracted:	7.974 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	3600	
208-96-8	Acenaphthylene	ND	3600	
120-12-7	Anthracene	ND	3600	
56-55-3	Benzo(a)anthracene	<b>6700</b>	3600	
50-32-8	Benzo(a)pyrene	<b>7100</b>	3600	
205-99-2	Benzo(b)fluoranthene	<b>9300</b>	3600	
191-24-2	Benzo(g,h,i)perylene	<b>7200</b>	3600	
207-08-9	Benzo(k)fluoranthene	<b>4100</b>	3600	
218-01-9	Chrysene	<b>7300</b>	3600	
53-70-3	Dibenz(a,h)anthracene	ND	3600	
206-44-0	Fluoranthene	<b>14000</b>	3600	
86-73-7	Fluorene	ND	3600	
193-39-5	Indeno(1,2,3-cd)pyrene	<b>6200</b>	3600	
91-20-3	Naphthalene	ND	3600	
85-01-8	Phenanthrene	<b>6900</b>	3600	
129-00-0	Pyrene	<b>12000</b>	3600	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	75	41 - 106
2-Fluorobiphenyl (SS1)	72	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

Tombarello Site - Lawrence, MA

PAHs in Soil

Client Sample ID:	R01-100830MB-0455	Lab Sample ID:	AB11737
Date of Collection:	10/20/2010	Matrix:	Soil
Date of Extraction:	10/25/10	Volume Extracted:	N/A
Date of Analysis:	10/29/10	Percent Solids:	89%
Dry Weight Extracted:	9.051 grams	Extract Dilution:	50
Wet Weight Extracted:	10.145 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	2900	2800	
208-96-8	Acenaphthylene	ND	2800	
120-12-7	Anthracene	7500	2800	
56-55-3	Benzo(a)anthracene	35000	2800	
50-32-8	Benzo(a)pyrene	38000	2800	
205-99-2	Benzo(b)fluoranthene	33000	2800	
191-24-2	Benzo(g,h,i)perylene	40000	2800	
207-08-9	Benzo(k)fluoranthene	38000	2800	
218-01-9	Chrysene	36000	2800	
53-70-3	Dibenz(a,h)anthracene	6600	2800	
206-44-0	Fluoranthene	71000	2800	
86-73-7	Fluorene	ND	2800	
193-39-5	Indeno(1,2,3-cd)pyrene	32000	2800	
91-20-3	Naphthalene	ND	2800	
85-01-8	Phenanthrene	35000	2800	
129-00-0	Pyrene	61000	2800	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	120	41 - 106
2-Fluorobiphenyl (SS1)	90	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0456	Lab Sample ID:	AB11738
Date of Collection:	10/20/2010	Matrix:	Soil
Date of Extraction:	10/25/10	Volume Extracted:	N/A
Date of Analysis:	10/29/10	Percent Solids:	84%
Dry Weight Extracted:	5.805 grams	Extract Dilution:	10
Wet Weight Extracted:	6.895 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	950	860	
208-96-8	Acenaphthylene	ND	860	
120-12-7	Anthracene	3000	860	
56-55-3	Benzo(a)anthracene	11000	860	
50-32-8	Benzo(a)pyrene	11000	860	
205-99-2	Benzo(b)fluoranthene	11000	860	
191-24-2	Benzo(g,h,i)perylene	9500	860	
207-08-9	Benzo(k)fluoranthene	9000	860	
218-01-9	Chrysene	11000	860	
53-70-3	Dibenz(a,h)anthracene	ND	860	
206-44-0	Fluoranthene	21000	860	
86-73-7	Fluorene	870	860	
193-39-5	Indeno(1,2,3-cd)pyrene	8600	860	
91-20-3	Naphthalene	ND	860	
85-01-8	Phenanthrene	11000	860	
129-00-0	Pyrene	18000	860	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	120	41 - 106
2-Fluorobiphenyl (SS1)	90	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

Tombarello Site - Lawrence, MA

PAHs in Soil

Client Sample ID:	R01-100830MB-0457	Lab Sample ID:	AB11739
Date of Collection:	10/20/2010	Matrix:	Soil
Date of Extraction:	10/25/10	Volume Extracted:	N/A
Date of Analysis:	10/29/10	Percent Solids:	87%
Dry Weight Extracted:	6.690 grams	Extract Dilution:	10
Wet Weight Extracted:	7.674 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	770	750	
208-96-8	Acenaphthylene	ND	750	
120-12-7	Anthracene	5000	750	
56-55-3	Benzo(a)anthracene	22000	750	
50-32-8	Benzo(a)pyrene	23000	750	
205-99-2	Benzo(b)fluoranthene	22000	750	
191-24-2	Benzo(g,h,i)perylene	17000	750	
207-08-9	Benzo(k)fluoranthene	16000	750	
218-01-9	Chrysene	20000	750	
53-70-3	Dibenz(a,h)anthracene	3200	750	
206-44-0	Fluoranthene	42000	750	
86-73-7	Fluorene	950	750	
193-39-5	Indeno(1,2,3-cd)pyrene	15000	750	
91-20-3	Naphthalene	ND	750	
85-01-8	Phenanthrene	15000	750	
129-00-0	Pyrene	36000	750	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	110	41 - 106
2-Fluorobiphenyl (SS1)	90	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0458	Lab Sample ID:	AB11740
Date of Collection:	10/20/2010	Matrix:	Soil
Date of Extraction:	10/25/10	Volume Extracted:	N/A
Date of Analysis:	10/29/10	Percent Solids:	89%
Dry Weight Extracted:	5.803 grams	Extract Dilution:	10
Wet Weight Extracted:	6.530 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	860	
208-96-8	Acenaphthylene	ND	860	
120-12-7	Anthracene	1200	860	
56-55-3	Benzo(a)anthracene	5300	860	
50-32-8	Benzo(a)pyrene	6100	860	
205-99-2	Benzo(b)fluoranthene	5100	860	
191-24-2	Benzo(g,h,i)perylene	6700	860	
207-08-9	Benzo(k)fluoranthene	5000	860	
218-01-9	Chrysene	5200	860	
53-70-3	Dibenz(a,h)anthracene	2200	860	
206-44-0	Fluoranthene	9900	860	
86-73-7	Fluorene	ND	860	
193-39-5	Indeno(1,2,3-cd)pyrene	5300	860	
91-20-3	Naphthalene	ND	860	
85-01-8	Phenanthrene	4100	860	
129-00-0	Pyrene	8700	860	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	100	41 - 106
2-Fluorobiphenyl (SS1)	80	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

Tombarello Site - Lawrence, MA

PAHs in Soil

Client Sample ID:	R01-100830MB-0459	Lab Sample ID:	AB11741
Date of Collection:	10/20/2010	Matrix:	Soil
Date of Extraction:	10/25/10	Volume Extracted:	N/A
Date of Analysis:	10/29/10	Percent Solids:	91%
Dry Weight Extracted:	7.236 grams	Extract Dilution:	10
Wet Weight Extracted:	7.979 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	690	
208-96-8	Acenaphthylene	ND	690	
120-12-7	Anthracene	1900	690	
56-55-3	Benzo(a)anthracene	7500	690	
50-32-8	Benzo(a)pyrene	8200	690	
205-99-2	Benzo(b)fluoranthene	6700	690	
191-24-2	Benzo(g,h,i)perylene	9100	690	
207-08-9	Benzo(k)fluoranthene	7000	690	
218-01-9	Chrysene	7300	690	
53-70-3	Dibenz(a,h)anthracene	3000	690	
206-44-0	Fluoranthene	14000	690	
86-73-7	Fluorene	ND	690	
193-39-5	Indeno(1,2,3-cd)pyrene	6900	690	
91-20-3	Naphthalene	ND	690	
85-01-8	Phenanthrene	6000	690	
129-00-0	Pyrene	13000	690	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	110	41 - 106
2-Fluorobiphenyl (SS1)	95	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

PAH MATRIX SPIKE (MS)

Tombarello Site - Lawrence, MA

Sample ID: AB11723

PARAMETER	SPIKE ADDED ug/Kg	SAMPLE CONCENTRATION ug/Kg	MS CONCENTRATION ug/Kg	MS % REC	QC LIMITS (% REC)
Acenaphthene	7700	ND	6500	85	30 - 113
Acenaphthylene	7700	ND	6100	80	28 - 125
Anthracene	7700	2300	8400	80	30 - 129
Benzo(a)anthracene	7700	11000	14000	40	25 - 137
Benzo(a)pyrene	7700	11000	14000	42	26 - 115
Benzo(b)fluoranthene	7700	12000	15000	33	29 - 120
Benzo(g,h,i)perylene	7700	8900	13000	53	26 - 119
Benzo(k)fluoranthene	7700	9200	11000	23	27 - 139
Chrysene	7700	10000	14000	46	31 - 120
Dibenz(a,h)anthracene	7700	ND	9000	117	31 - 125
Fluoranthene	7700	22000	22000	-7	21 - 148
Fluorene	7700	ND	6700	87	34 - 121
Indeno(1,2,3-cd)pyrene	7700	7300	12000	59	29 - 125
Naphthalene	7700	ND	6000	78	19 - 107
Phenanthrene	7700	8100	12000	48	26 - 125
Pyrene	7700	18000	17000	-9	20 - 142

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

Laboratory Duplicate Results

Tombarello Site - Lawrence, MA

Sample ID: AB11723

PARAMETER	SAMPLE RESULT ug/Kg	SAMPLE DUPLICATE RESULT ug/Kg	PRECISION RPD %	QC LIMITS
Acenaphthene	ND	ND	ND	40
Acenaphthylene	ND	ND	ND	40
Anthracene	2300	2200	4.90	40
Benzo(a)anthracene	11000	11000	0.00	40
Benzo(a)pyrene	11000	11000	1.83	40
Benzo(b)fluoranthene	12000	11000	5.13	40
Benzo(g,h,i)perylene	8900	8700	2.62	40
Benzo(k)fluoranthene	9200	7100	26	40
Chrysene	10000	10000	3.92	40
Dibenz(a,h)anthracene	ND	3500	200	40
Fluoranthene	22000	21000	3.23	40
Fluorene	ND	ND	ND	40
Indeno(1,2,3-cd)pyrene	7300	7000	3.91	40
Naphthalene	ND	ND	ND	40
Phenanthrene	8100	6800	18	40
Pyrene	18000	17000	5.71	40

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

Laboratory Fortified Blank (LFB) Results

Tombarello Site - Lawrence, MA

PARAMETER	LFB AMOUNT SPIKED ppb	LFB RESULT ppb	LFB RECOVERY %	QC LIMITS %
Acenaphthene	3800	3300	86	26 - 129
Acenaphthylene	3800	3200	83	23 - 141
Anthracene	3800	3800	100	25 - 149
Benzo(a)anthracene	3800	3700	95	27 - 142
Benzo(a)pyrene	3800	3700	96	29 - 123
Benzo(b)fluoranthene	3800	3500	91	22 - 146
Benzo(g,h,i)perylene	3800	3400	89	26 - 134
Benzo(k)fluoranthene	3800	3800	100	32 - 144
Chrysene	3800	3600	93	38 - 121
Dibenz(a,h)anthracene	3800	3600	93	35 - 133
Fluoranthene	3800	3700	96	29 - 154
Fluorene	3800	3400	88	29 - 138
Indeno(1,2,3-cd)pyrene	3800	3400	89	26 - 141
Naphthalene	3800	3000	78	30 - 110
Phenanthrene	3800	3700	96	27 - 140
Pyrene	3800	3600	93	24 - 147

Comments:



United States Environmental Protection Agency  
Office of Environmental Measurement & Evaluation  
60 Westview Street  
Lexington, MA 02421-3185

## Laboratory Report

November 01, 2010

Mike Barry - OSRR02-2  
US EPA New England R1

Project Number: 10100033  
Project: Tombarello Site - Lawrence, MA  
Analysis: PCB's in Soil Field Method (Fixed Lab)  
Analyst: Paul Carroll

A handwritten signature in black ink, appearing to read "Carroll".

### Analytical Procedure:

All samples were received and logged in by the laboratory according to the USEPA New England Laboratory SOP for Sample Log-in.

Sample preparation and analysis was done following the EPA Region I SOP, FLDPCB2.SOP.

Concentrations of PCBs in soil were calculated using an external standard technique.

Analysis for PCB's performed by this field analytical technique is used for tentative identification and semi-quantitation of PCB's in soil, oil, and sediment samples.

Date Samples Received by the Laboratory: 10/21/10

Results relate only to the items tested or to the samples as received by the Laboratory. This analytical report shall not be reproduced except in full, without written approval of the laboratory.

Results for soil samples are reported on a dry weight basis.

If you have any questions please call me at 617-918-8340.

Sincerely,

A handwritten signature in black ink, appearing to read "Daniel Boudreau".  
11/8/10

Daniel Boudreau

Project # 10100033

**PCB's in Soil Field Method (Fixed Lab)**

US ENVIRONMENTAL PROTECTION AGENCY NEW ENGLAND LABORATORY Tombarello Site - Lawrence, MA						
Client Sample ID	R01-100830MB-0440	R01-100830MB-0441	R01-100830MB-0442	R01-100830MB-0443	R01-100830MB-0444	R01-100830MB-0445
Lab Sample ID	AB11722	AB11723	AB11724	AB11725	AB11726	AB11727
Date of Collection	10/20/2010	10/20/2010	10/20/2010	10/20/2010	10/20/2010	10/20/2010
Date of Extraction	10/25/2010	10/25/2010	10/25/2010	10/25/2010	10/25/2010	10/25/2010
Date of Analysis	10/29/2010	10/29/2010	10/29/2010	10/29/2010	10/29/2010	10/29/2010
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Compound	Conc. (RL) mg/Kg					
Aroclor-1242	ND (0.84)	ND (0.88)	ND (0.92)	ND (0.84)	ND (0.8)	ND (0.94)
Aroclor-1248	ND (0.84)	ND (0.88)	ND (0.92)	ND (0.84)	ND (0.8)	ND (0.94)
Aroclor-1254	18 (0.84)	ND (0.88)	ND (0.92)	ND (0.84)	ND (0.8)	10 (0.94)
Aroclor-1260	5.2 (0.84)	1.3 (0.88)	1.6 (0.92)	11 (0.84)	8.9 (0.8)	16 (0.94)
Aroclor-1262	ND (0.84)	ND (0.88)	ND (0.92)	ND (0.84)	ND (0.8)	ND (0.94)
Aroclor-1268	ND (0.84)	ND (0.88)	ND (0.92)	ND (0.84)	ND (0.8)	ND (0.94)

**US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY  
Tombarello Site - Lawrence, MA**

	R01-100830MB-0446 AB11728 10/20/2010 10/25/2010 10/29/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0447 AB11729 10/20/2010 10/25/2010 10/29/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0448 AB11730 10/20/2010 10/25/2010 10/29/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0449 AB11731 10/20/2010 10/25/2010 10/29/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0450 AB11732 10/20/2010 10/25/2010 10/29/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0451 AB11733 10/20/2010 10/25/2010 10/29/2010 Soil  Conc. (RL) mg/Kg
Aroclor-1242	ND (0.74)	ND (0.7)	ND (0.7)	ND (0.8)	ND (0.74)	ND (0.76)
Aroclor-1248	1.1 (0.74)	ND (0.7)	ND (0.7)	ND (0.8)	ND (0.74)	ND (0.76)
Aroclor-1254	2.3 (0.74)	1.9 (0.7)	ND (0.7)	1.8 (0.8)	26 (0.74)	17 (0.76)
Aroclor-1260	2.2 (0.74)	0.86 (0.7)	ND (0.7)	0.83 (0.8)	ND (0.74)	3.1 (0.76)
Aroclor-1262	ND (0.74)	ND (0.7)	ND (0.7)	ND (0.8)	ND (0.74)	ND (0.76)
Aroclor-1268	ND (0.74)	ND (0.7)	ND (0.7)	ND (0.8)	ND (0.74)	ND (0.76)

**US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY  
Tombarello Site - Lawrence, MA**

	R01-100830MB-0452 AB11734 10/20/2010 10/25/2010 10/29/2010 Soil	R01-100830MB-0453 AB11735 10/20/2010 10/25/2010 10/29/2010 Soil	R01-100830MB-0454 AB11736 10/20/2010 10/25/2010 10/29/2010 Soil	R01-100830MB-0455 AB11737 10/20/2010 10/25/2010 10/29/2010 Soil	R01-100830MB-0456 AB11738 10/20/2010 10/25/2010 10/29/2010 Soil	R01-100830MB-0457 AB11739 10/20/2010 10/25/2010 10/29/2010 Soil
	Conc. (RL) mg/Kg					
Aroclor-1242	ND (0.82)	ND (0.88)	ND (0.76)	ND (0.68)	ND (0.78)	ND (0.82)
Aroclor-1248	ND (0.82)	ND (0.88)	ND (0.76)	ND (0.68)	ND (0.78)	ND (0.82)
Aroclor-1254	11 (0.82)	9.0 (0.88)	2.6 (0.76)	1.9 (0.68)	4.0 (0.78)	3.2 (0.82)
Aroclor-1260	3.0 (0.82)	2.5 (0.88)	3.7 (0.76)	2.6 (0.68)	4.0 (0.78)	3.4 (0.82)
Aroclor-1262	ND (0.82)	ND (0.88)	ND (0.76)	ND (0.68)	ND (0.78)	ND (0.82)
Aroclor-1268	ND (0.82)	ND (0.88)	ND (0.76)	ND (0.68)	ND (0.78)	ND (0.82)

**US ENVIRONMENTAL PROTECTION  
AGENCY  
NEW ENGLAND LABORATORY**

R01-100830MB-0458 AB11740 10/20/2010 10/25/2010 10/29/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0459 AB11741 10/20/2010 10/25/2010 10/29/2010 Soil  Conc. (RL) mg/Kg
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Aroclor-1242	ND (0.76)	ND (0.84)
Aroclor-1248	ND (0.76)	ND (0.84)
Aroclor-1254	ND (0.76)	ND (0.84)
Aroclor-1260	3.6 (0.76)	1.1 (0.84)
Aroclor-1262	ND (0.76)	ND (0.84)
Aroclor-1268	ND (0.76)	ND (0.84)

Qualifiers: RL = Reporting limit  
ND = Not Detected above Reporting limit  
NA = Not Applicable due to high sample dilutions or sample interferences  
J = Estimated value  
E = Estimated value exceeds the calibration range  
L = Estimated value is below the calibration range  
B = Analyte is associated with the lab blank or trip blank contamination. Values are qualified when the observed concentration of the contamination in the sample extract is less than 10 times the concentration in the blank.  
P = The confirmation value exceeded 35% difference and is less than 100%. The lower value is reported.  
C = The identification has been confirmed by GC/MS.  
A = Suspected Aldol condensation product.  
N = Tentatively identified compound.



United States Environmental Protection Agency  
Office of Environmental Measurement & Evaluation  
11 Technology Drive  
North Chelmsford, MA 01863

Laboratory Report

November 17, 2010

Mike Barry - OSRR02-2  
US EPA New England R1

Project Number: 10100033

Project: Tombarello Site - Lawrence, MA

Analysis: Field Analysis of Metals by XRF

Analyst: Paul Carroll *Paul Carroll*  
*11.17.10*

Analytical Procedure:

All samples were received and logged in by the laboratory according to the USEPA New England Laboratory SOP for Sample Log-in.

Sample preparation and analysis was done following the EPA Region I SOP, EIA-FLDXRFN3.

The analysis were performed by the EPA New England Regional Laboratory.

Date Samples Received by the Laboratory: 10/21/10

Results relate only to the items tested or to the samples as received by the Laboratory. This analytical report shall not be reproduced except in full, without written approval of the laboratory.

If you have any questions please call me at 617-918-8340.

Sincerely,

*Dan Boudreau* *11/18/10*  
Dan Boudreau  
Chemistry Team Leader

Project # 10100033

**Field Analysis of Metals by XRF**

US ENVIRONMENTAL PROTECTION AGENCY NEW ENGLAND LABORATORY Tombarello Site - Lawrence, MA						
Client Sample ID	R01-100830MB-0440	R01-100830MB-0441	R01-100830MB-0442	R01-100830MB-0443	R01-100830MB-0444	R01-100830MB-0445
Lab Sample ID	AB11722	AB11723	AB11724	AB11725	AB11726	AB11727
Date of Collection	10/20/2010	10/20/2010	10/20/2010	10/20/2010	10/20/2010	10/20/2010
Date of Extraction	11/10/2010	11/10/2010	11/10/2010	11/10/2010	11/10/2010	11/10/2010
Date of Analysis	11/10/2010	11/10/2010	11/10/2010	11/10/2010	11/10/2010	11/10/2010
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Compound	Conc. (RL) mg/Kg					
Arsenic	ND ( 39)	ND ( 22)	ND ( 34)	270 ( 20)	ND ( 27)	ND ( 33)
Cadmium	ND ( 11)	58 (8.0)	ND ( 11)	ND ( 15)	ND ( 12)	ND ( 13)
Chromium	150 ( 20)	ND ( 42)	48 ( 20)	180 ( 20)	64 ( 20)	94 ( 20)
Lead	720 ( 20)	240 ( 20)	600 ( 20)	1300 ( 20)	490 ( 20)	610 ( 20)

**US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY  
Tombarello Site - Lawrence, MA**

	R01-100830MB-0446 AB11728 10/20/2010 11/10/2010 11/10/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0447 AB11729 10/20/2010 11/10/2010 11/10/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0448 AB11730 10/20/2010 11/10/2010 11/10/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0449 AB11731 10/20/2010 11/10/2010 11/10/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0450 AB11732 10/20/2010 11/10/2010 11/10/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0451 AB11733 10/20/2010 11/10/2010 11/10/2010 Soil  Conc. (RL) mg/Kg
Arsenic	75 ( 20)	120 ( 20)	150 ( 20)	110 ( 20)	100 ( 20)	ND ( 95)
Cadmium	ND ( 15)	ND ( 18)	40 (8.0)	41 (8.0)	34 (8.0)	51 (8.0)
Chromium	100 ( 20)	370 ( 20)	240 ( 20)	360 ( 20)	260 ( 20)	360 ( 20)
Lead	910 ( 20)	2200 ( 20)	1900 ( 20)	1900 ( 20)	2200 ( 20)	3300 ( 20)

**US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY  
Tombarello Site - Lawrence, MA**

	R01-100830MB-0452 AB11734 10/20/2010 11/10/2010 11/10/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0453 AB11735 10/20/2010 11/10/2010 11/10/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0454 AB11736 10/20/2010 11/10/2010 11/10/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0455 AB11737 10/20/2010 11/10/2010 11/10/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0456 AB11738 10/20/2010 11/10/2010 11/10/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0457 AB11739 10/20/2010 11/10/2010 11/10/2010 Soil  Conc. (RL) mg/Kg
Arsenic	240 ( 20)	140 ( 20)	ND ( 31)	ND ( 39)	41 ( 20)	ND ( 31)
Cadmium	31 (8.0)	32 (8.0)	ND ( 17)	ND ( 14)	ND ( 11)	ND ( 14)
Chromium	220 ( 20)	240 ( 20)	71 ( 20)	140 ( 20)	62 ( 20)	54 ( 20)
Lead	4300 ( 20)	3100 ( 20)	490 ( 20)	730 ( 20)	520 ( 20)	480 ( 20)

**US ENVIRONMENTAL PROTECTION  
AGENCY  
NEW ENGLAND LABORATORY**

R01-100830MB-0458 AB11740 10/20/2010 11/10/2010 11/10/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0459 AB11741 10/20/2010 11/10/2010 11/10/2010 Soil  Conc. (RL) mg/Kg
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Arsenic	ND ( 31)	ND ( 30)
Cadmium	ND ( 15)	ND ( 14)
Chromium	64 ( 20)	84 ( 20)
Lead	420 ( 20)	410 ( 20)

Qualifiers: RL = Reporting limit  
ND = Not Detected above Reporting limit  
NA = Not Applicable due to low (pH < 4.5)  
J = Estimated value  
E = Estimated value exceeds the calibration range  
L = Estimated value is below the calibration range  
B = Analyte is associated with the lab blank or trip blank contamination. Values are qualified when the observed concentration of the contamination in the sample extract is less than 10 times the concentration in the blank.  
P = The confirmation value exceeded 35% difference and is less than 100%. The lower value is reported.  
C = The identification has been confirmed by GC/MS.  
A = Suspected Aldol condensation product.  
N = Tentatively identified compound.



United States Environmental Protection Agency  
Office of Environmental Measurement & Evaluation  
11 Technology Drive  
North Chelmsford, MA 01863-2431

Laboratory Report

November 16, 2010

Mike Barry - OSRR02-2  
US EPA New England R1

Project Number: 10100034

Project: Tombarello Site - Lawrence, MA

Analysis: PAHs in Soil

Analyst: Inna Germansderfer *IG 11/22/10*

Analytical Procedure:

All samples were received and logged in by the laboratory according to the USEPA New England Laboratory SOP for Sample Log-in.

Sample preparation and analysis was done following the EPA Region I SOP, EIASOP-BNAS3.

Samples were analyzed by a quadrapole GC/MS operating in the full-scan mode. The extraction and analysis SOPs are based on SW-846 methods 3545A, 3630C, 8270C, and EIASOP-BNAGCMS7.

Date Samples Received by the Laboratory: 10/21/2010

Data were reviewed in accordance with the internal verification procedures described in the EPA New England OEME Chemistry QA Plan.

Results relate only to the items tested or to the samples as received by the Laboratory. This analytical report shall not be reproduced except in full, without written approval of the laboratory.

Report may contain multiple sections and each section will be numbered independently.

If you have any questions please call me at 617-918-8340 .

Sincerely,

*Daniel N. Boudreau 11/20/10*  
Daniel N. Boudreau  
Chemistry Team Leader

**Qualifiers:**

RL = Reporting limit

ND = Not Detected above Reporting limit

NA = Not Applicable due to high sample dilutions or sample interferences

NC = Not calculated since analyte concentration is ND.

J = Estimated value

E = Estimated value exceeds the calibration range

L = Estimated value is below the calibration range

B = Analyte is associated with the lab blank or trip blank contamination. Values are qualified when the observed concentration of the contamination in the sample extract is less than 5 times the concentration in the blank.

R = No recovery was calculated since the analyte concentration is greater than four times the spike level.

US ENVIRONMENTAL PROTECTION AGENCY  
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**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0460	Lab Sample ID:	AB11742
Date of Collection:	10/20/2010	Matrix:	Soil
Date of Extraction:	10/25/10	Volume Extracted:	N/A
Date of Analysis:	11/3/10	Percent Solids:	89%
Dry Weight Extracted:	6.181 grams	Extract Dilution:	10
Wet Weight Extracted:	6.965 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	810	
208-96-8	Acenaphthylene	ND	810	
120-12-7	Anthracene	ND	810	
56-55-3	Benzo(a)anthracene	4200	810	
50-32-8	Benzo(a)pyrene	4500	810	
205-99-2	Benzo(b)fluoranthene	4900	810	
191-24-2	Benzo(g,h,i)perylene	4400	810	
207-08-9	Benzo(k)fluoranthene	4600	810	
218-01-9	Chrysene	4200	810	
53-70-3	Dibenz(a,h)anthracene	ND	810	
206-44-0	Fluoranthene	8800	810	
86-73-7	Fluorene	ND	810	
193-39-5	Indeno(1,2,3-cd)pyrene	3900	810	
91-20-3	Naphthalene	ND	810	
85-01-8	Phenanthrene	2900	810	
129-00-0	Pyrene	5900	810	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	67	41 - 106
2-Fluorobiphenyl (SS1)	61	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

Tombarello Site - Lawrence, MA

PAHs in Soil

Client Sample ID:	R01-100830MB-0461	Lab Sample ID:	AB11743
Date of Collection:	10/20/2010	Matrix:	Soil
Date of Extraction:	10/25/10	Volume Extracted:	N/A
Date of Analysis:	11/1/10	Percent Solids:	93%
Dry Weight Extracted:	7.999 grams	Extract Dilution:	50
Wet Weight Extracted:	8.635 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	3100	
208-96-8	Acenaphthylene	ND	3100	
120-12-7	Anthracene	ND	3100	
56-55-3	Benzo(a)anthracene	14000	3100	
50-32-8	Benzo(a)pyrene	13000	3100	
205-99-2	Benzo(b)fluoranthene	9700	3100	
191-24-2	Benzo(g,h,i)perylene	9800	3100	
207-08-9	Benzo(k)fluoranthene	15000	3100	
218-01-9	Chrysene	14000	3100	
53-70-3	Dibenz(a,h)anthracene	4700	3100	
206-44-0	Fluoranthene	29000	3100	
86-73-7	Fluorene	ND	3100	
193-39-5	Indeno(1,2,3-cd)pyrene	8300	3100	
91-20-3	Naphthalene	ND	3100	
85-01-8	Phenanthrene	14000	3100	
129-00-0	Pyrene	21000	3100	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	95	41 - 106
2-Fluorobiphenyl (SS1)	82	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID: R01-100830MB-0462  
Date of Collection: 10/20/2010  
Date of Extraction: 10/25/10  
Date of Analysis: 11/1/10  
Dry Weight Extracted: 6.810 grams  
Wet Weight Extracted: 7.608 grams  
Final Volume: 1 mL

Lab Sample ID: AB11744  
Matrix: Soil  
Volume Extracted: N/A  
Percent Solids: 90%  
Extract Dilution: 50  
pH: N/A  
GPC Factor: N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	3700	
208-96-8	Acenaphthylene	ND	3700	
120-12-7	Anthracene	ND	3700	
56-55-3	Benzo(a)anthracene	6800	3700	
50-32-8	Benzo(a)pyrene	7000	3700	
205-99-2	Benzo(b)fluoranthene	6800	3700	
191-24-2	Benzo(g,h,i)perylene	5400	3700	
207-08-9	Benzo(k)fluoranthene	5700	3700	
218-01-9	Chrysene	6800	3700	
53-70-3	Dibenz(a,h)anthracene	ND	3700	
206-44-0	Fluoranthene	13000	3700	
86-73-7	Fluorene	ND	3700	
193-39-5	Indeno(1,2,3-cd)pyrene	5100	3700	
91-20-3	Naphthalene	ND	3700	
85-01-8	Phenanthrene	8800	3700	
129-00-0	Pyrene	9800	3700	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	82	41 - 106
2-Fluorobiphenyl (SS1)	70	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

Tombarello Site - Lawrence, MA

PAHs in Soil

Client Sample ID:	R01-100830MB-0463	Lab Sample ID:	AB11745
Date of Collection:	10/20/2010	Matrix:	Soil
Date of Extraction:	10/25/10	Volume Extracted:	N/A
Date of Analysis:	11/1/10	Percent Solids:	88%
Dry Weight Extracted:	7.656 grams	Extract Dilution:	50
Wet Weight Extracted:	8.673 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	3300	
208-96-8	Acenaphthylene	ND	3300	
120-12-7	Anthracene	ND	3300	
56-55-3	Benzo(a)anthracene	4700	3300	
50-32-8	Benzo(a)pyrene	5400	3300	
205-99-2	Benzo(b)fluoranthene	4200	3300	
191-24-2	Benzo(g,h,i)perylene	4500	3300	
207-08-9	Benzo(k)fluoranthene	5000	3300	
218-01-9	Chrysene	4400	3300	
53-70-3	Dibenz(a,h)anthracene	ND	3300	
206-44-0	Fluoranthene	8900	3300	
86-73-7	Fluorene	ND	3300	
193-39-5	Indeno(1,2,3-cd)pyrene	3900	3300	
91-20-3	Naphthalene	ND	3300	
85-01-8	Phenanthrene	5000	3300	
129-00-0	Pyrene	7000	3300	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	85	41 - 106
2-Fluorobiphenyl (SS1)	72	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID: R01-100830MB-0464  
Date of Collection: 10/20/2010  
Date of Extraction: 10/25/10  
Date of Analysis: 11/1/10  
Dry Weight Extracted: 8.795 grams  
Wet Weight Extracted: 10.149 grams  
Final Volume: 1 mL

Lab Sample ID: AB11746  
Matrix: Soil  
Volume Extracted: N/A  
Percent Solids: 87%  
Extract Dilution: 50  
pH: N/A  
GPC Factor: N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	2800	
208-96-8	Acenaphthylene	ND	2800	
120-12-7	Anthracene	ND	2800	
56-55-3	Benzo(a)anthracene	3100	2800	J
50-32-8	Benzo(a)pyrene	3200	2800	
205-99-2	Benzo(b)fluoranthene	3000	2800	
191-24-2	Benzo(g,h,i)perylene	3600	2800	
207-08-9	Benzo(k)fluoranthene	3100	2800	
218-01-9	Chrysene	2900	2800	J
53-70-3	Dibenz(a,h)anthracene	ND	2800	
206-44-0	Fluoranthene	6000	2800	
86-73-7	Fluorene	ND	2800	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	2800	
91-20-3	Naphthalene	ND	2800	
85-01-8	Phenanthrene	4300	2800	
129-00-0	Pyrene	4700	2800	J

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	80	41 - 106
2-Fluorobiphenyl (SS1)	62	39 - 103

Comments: The response for the internal standard was low.

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

Tombarello Site - Lawrence, MA

PAHs in Soil

Client Sample ID: R01-100830MB-0465  
Date of Collection: 10/20/2010  
Date of Extraction: 10/25/10  
Date of Analysis: 11/1/10  
Dry Weight Extracted: 6.405 grams  
Wet Weight Extracted: 7.197 grams  
Final Volume: 1 mL

Lab Sample ID: AB11747  
Matrix: Soil  
Volume Extracted: N/A  
Percent Solids: 89%  
Extract Dilution: 50  
pH: N/A  
GPC Factor: N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	3900	
208-96-8	Acenaphthylene	ND	3900	
120-12-7	Anthracene	7100	3900	
56-55-3	Benzo(a)anthracene	11000	3900	J
50-32-8	Benzo(a)pyrene	9800	3900	
205-99-2	Benzo(b)fluoranthene	13000	3900	
191-24-2	Benzo(g,h,i)perylene	7700	3900	
207-08-9	Benzo(k)fluoranthene	5300	3900	
218-01-9	Chrysene	11000	3900	J
53-70-3	Dibenz(a,h)anthracene	ND	3900	
206-44-0	Fluoranthene	28000	3900	
86-73-7	Fluorene	ND	3900	
193-39-5	Indeno(1,2,3-cd)pyrene	6400	3900	
91-20-3	Naphthalene	ND	3900	
85-01-8	Phenanthrene	32000	3900	
129-00-0	Pyrene	21000	3900	J

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	82	41 - 106
2-Fluorobiphenyl (SS1)	78	39 - 103

Comments: The response for the internal standard was low.

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

Tombarello Site - Lawrence, MA

Laboratory Blank (PAHs)

Client Sample ID:	N/A	Lab Sample ID:	N/A
Date of Collection:	N/A	Matrix:	Soil
Date of Extraction:	10/25/10	Volume Extracted:	N/A
Date of Analysis:	11/1/10	Percent Solids:	100%
Dry Weight Extracted:	11.047 grams	Extract Dilution:	1
Wet Weight Extracted:	11.092 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	45	
208-96-8	Acenaphthylene	ND	45	
120-12-7	Anthracene	ND	45	
56-55-3	Benzo(a)anthracene	ND	45	
50-32-8	Benzo(a)pyrene	ND	45	
205-99-2	Benzo(b)fluoranthene	ND	45	
191-24-2	Benzo(g,h,i)perylene	ND	45	
207-08-9	Benzo(k)fluoranthene	ND	45	
218-01-9	Chrysene	ND	45	
53-70-3	Dibenz(a,h)anthracene	ND	45	
206-44-0	Fluoranthene	ND	45	
86-73-7	Fluorene	ND	45	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	45	
91-20-3	Naphthalene	ND	45	
85-01-8	Phenanthrene	ND	45	
129-00-0	Pyrene	ND	45	

Surrogate Compounds	Recoveries (%)	QC Ranges
2-Fluorobiphenyl (SS1)	81	39 - 103
p-Terphenyl-d14 (SS2)	102	41 - 106

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0466	Lab Sample ID:	AB11748
Date of Collection:	10/20/2010	Matrix:	Soil
Date of Extraction:	10/25/10	Volume Extracted:	N/A
Date of Analysis:	11/1/10	Percent Solids:	90%
Dry Weight Extracted:	8.678 grams	Extract Dilution:	50
Wet Weight Extracted:	9.605 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	2900	
208-96-8	Acenaphthylene	ND	2900	
120-12-7	Anthracene	ND	2900	
56-55-3	Benzo(a)anthracene	3100	2900	
50-32-8	Benzo(a)pyrene	3300	2900	
205-99-2	Benzo(b)fluoranthene	ND	2900	
191-24-2	Benzo(g,h,i)perylene	3500	2900	
207-08-9	Benzo(k)fluoranthene	3200	2900	
218-01-9	Chrysene	2900	2900	
53-70-3	Dibenz(a,h)anthracene	ND	2900	
206-44-0	Fluoranthene	5300	2900	
86-73-7	Fluorene	ND	2900	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	2900	
91-20-3	Naphthalene	ND	2900	
85-01-8	Phenanthrene	ND	2900	
129-00-0	Pyrene	4200	2900	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	95	41 - 106
2-Fluorobiphenyl (SS1)	72	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID: R01-100830MB-0467  
Date of Collection: 10/20/2010  
Date of Extraction: 10/25/10  
Date of Analysis: 11/1/10  
Dry Weight Extracted: 9.175 grams  
Wet Weight Extracted: 10.231 grams  
Final Volume: 1 mL

Lab Sample ID: AB11749  
Matrix: Soil  
Volume Extracted: N/A  
Percent Solids: 90%  
Extract Dilution: 50  
pH: N/A  
GPC Factor: N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	2700	
208-96-8	Acenaphthylene	ND	2700	
120-12-7	Anthracene	ND	2700	
56-55-3	Benzo(a)anthracene	6700	2700	J
50-32-8	Benzo(a)pyrene	7400	2700	
205-99-2	Benzo(b)fluoranthene	8300	2700	
191-24-2	Benzo(g,h,i)perylene	5800	2700	
207-08-9	Benzo(k)fluoranthene	5900	2700	
218-01-9	Chrysene	6500	2700	J
53-70-3	Dibenz(a,h)anthracene	ND	2700	
206-44-0	Fluoranthene	13000	2700	
86-73-7	Fluorene	ND	2700	
193-39-5	Indeno(1,2,3-cd)pyrene	4900	2700	
91-20-3	Naphthalene	ND	2700	
85-01-8	Phenanthrene	6200	2700	
129-00-0	Pyrene	10000	2700	J

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	85	41 - 106
2-Fluorobiphenyl (SS1)	70	39 - 103

Comments: The response for the internal standard was low.

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0468	Lab Sample ID:	AB11750
Date of Collection:	10/20/2010	Matrix:	Soil
Date of Extraction:	10/25/10	Volume Extracted:	N/A
Date of Analysis:	11/3/10	Percent Solids:	92%
Dry Weight Extracted:	8.436 grams	Extract Dilution:	10
Wet Weight Extracted:	9.127 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	590	
208-96-8	Acenaphthylene	ND	590	
120-12-7	Anthracene	ND	590	
56-55-3	Benzo(a)anthracene	2300	590	
50-32-8	Benzo(a)pyrene	2700	590	
205-99-2	Benzo(b)fluoranthene	3000	590	
191-24-2	Benzo(g,h,i)perylene	3200	590	
207-08-9	Benzo(k)fluoranthene	2500	590	
218-01-9	Chrysene	2600	590	
53-70-3	Dibenz(a,h)anthracene	620	590	
206-44-0	Fluoranthene	5100	590	
86-73-7	Fluorene	ND	590	
193-39-5	Indeno(1,2,3-cd)pyrene	2600	590	
91-20-3	Naphthalene	ND	590	
85-01-8	Phenanthrene	2000	590	
129-00-0	Pyrene	3600	590	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	93	41 - 106
2-Fluorobiphenyl (SS1)	82	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

Tombarello Site - Lawrence, MA

PAHs in Soil

Client Sample ID: R01-100830MB-0469  
Date of Collection: 10/20/2010  
Date of Extraction: 10/25/10  
Date of Analysis: 11/3/10  
Dry Weight Extracted: 6.140 grams  
Wet Weight Extracted: 6.841 grams  
Final Volume: 1 mL

Lab Sample ID: AB11751  
Matrix: Soil  
Volume Extracted: N/A  
Percent Solids: 90%  
Extract Dilution: 10  
pH: N/A  
GPC Factor: N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	810	
208-96-8	Acenaphthylene	ND	810	
120-12-7	Anthracene	1200	810	
56-55-3	Benzo(a)anthracene	5400	810	
50-32-8	Benzo(a)pyrene	6100	810	
205-99-2	Benzo(b)fluoranthene	5400	810	
191-24-2	Benzo(g,h,i)perylene	5900	810	
207-08-9	Benzo(k)fluoranthene	4700	810	
218-01-9	Chrysene	5600	810	
53-70-3	Dibenz(a,h)anthracene	ND	810	
206-44-0	Fluoranthene	12000	810	
86-73-7	Fluorene	ND	810	
193-39-5	Indeno(1,2,3-cd)pyrene	5100	810	
91-20-3	Naphthalene	ND	810	
85-01-8	Phenanthrene	4100	810	
129-00-0	Pyrene	8400	810	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	84	41 - 106
2-Fluorobiphenyl (SS1)	74	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0470	Lab Sample ID:	AB11752
Date of Collection:	10/20/2010	Matrix:	Soil
Date of Extraction:	10/25/10	Volume Extracted:	N/A
Date of Analysis:	11/2/10	Percent Solids:	87%
Dry Weight Extracted:	5.351 grams	Extract Dilution:	50
Wet Weight Extracted:	6.175 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	4700	
208-96-8	Acenaphthylene	ND	4700	
120-12-7	Anthracene	ND	4700	
56-55-3	Benzo(a)anthracene	5200	4700	J
50-32-8	Benzo(a)pyrene	5400	4700	
205-99-2	Benzo(b)fluoranthene	4800	4700	
191-24-2	Benzo(g,h,i)perylene	5000	4700	
207-08-9	Benzo(k)fluoranthene	4400	4700	
218-01-9	Chrysene	5900	4700	J
53-70-3	Dibenz(a,h)anthracene	ND	4700	
206-44-0	Fluoranthene	10000	4700	
86-73-7	Fluorene	ND	4700	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	4700	
91-20-3	Naphthalene	ND	4700	
85-01-8	Phenanthrene	6400	4700	
129-00-0	Pyrene	8000	4700	J

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	85	41 - 106
2-Fluorobiphenyl (SS1)	75	39 - 103

Comments: Surrogate recoveries are below spec.

US ENVIRONMENTAL PROTECTION AGENCY  
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**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID: R01-100830MB-0471  
Date of Collection: 10/20/2010  
Date of Extraction: 10/25/10  
Date of Analysis: 11/2/10  
Dry Weight Extracted: 8.953 grams  
Wet Weight Extracted: 10.098 grams  
Final Volume: 1 mL

Lab Sample ID: AB11753  
Matrix: Soil  
Volume Extracted: N/A  
Percent Solids: 89%  
Extract Dilution: 50  
pH: N/A  
GPC Factor: N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	2800	
208-96-8	Acenaphthylene	ND	2800	
120-12-7	Anthracene	4700	2800	
56-55-3	Benzo(a)anthracene	21000	2800	J
50-32-8	Benzo(a)pyrene	19000	2800	
205-99-2	Benzo(b)fluoranthene	17000	2800	
191-24-2	Benzo(g,h,i)perylene	14000	2800	
207-08-9	Benzo(k)fluoranthene	17000	2800	
218-01-9	Chrysene	19000	2800	J
53-70-3	Dibenz(a,h)anthracene	4800	2800	
206-44-0	Fluoranthene	37000	2800	
86-73-7	Fluorene	ND	2800	
193-39-5	Indeno(1,2,3-cd)pyrene	13000	2800	
91-20-3	Naphthalene	ND	2800	
85-01-8	Phenanthrene	17000	2800	
129-00-0	Pyrene	30000	2800	J

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	92	41 - 106
2-Fluorobiphenyl (SS1)	72	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

Tombarello Site - Lawrence, MA

PAHs in Soil

Client Sample ID:	R01-100830MB-0472	Lab Sample ID:	AB11754
Date of Collection:	10/20/2010	Matrix:	Soil
Date of Extraction:	10/25/10	Volume Extracted:	N/A
Date of Analysis:	11/3/10	Percent Solids:	88%
Dry Weight Extracted:	6.176 grams	Extract Dilution:	10
Wet Weight Extracted:	7.029 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	810	
208-96-8	Acenaphthylene	ND	810	
120-12-7	Anthracene	1700	810	
56-55-3	Benzo(a)anthracene	6600	810	
50-32-8	Benzo(a)pyrene	7300	810	
205-99-2	Benzo(b)fluoranthene	6100	810	
191-24-2	Benzo(g,h,i)perylene	8200	810	
207-08-9	Benzo(k)fluoranthene	6100	810	
218-01-9	Chrysene	6400	810	
53-70-3	Dibenz(a,h)anthracene	ND	810	
206-44-0	Fluoranthene	15000	810	
86-73-7	Fluorene	ND	810	
193-39-5	Indeno(1,2,3-cd)pyrene	7000	810	
91-20-3	Naphthalene	ND	810	
85-01-8	Phenanthrene	5600	810	
129-00-0	Pyrene	11000	810	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	91	41 - 106
2-Fluorobiphenyl (SS1)	81	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
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**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID: R01-100830MB-0473  
 Date of Collection: 10/20/2010  
 Date of Extraction: 10/25/10  
 Date of Analysis: 11/3/10  
 Dry Weight Extracted: 6.369 grams  
 Wet Weight Extracted: 7.114 grams  
 Final Volume: 1 mL

Lab Sample ID: AB11755  
 Matrix: Soil  
 Volume Extracted: N/A  
 Percent Solids: 90%  
 Extract Dilution: 10  
 pH: N/A  
 GPC Factor: N/A

<u>CAS Number</u>	<u>Compound</u>	<u>Concentration ug/Kg</u>	<u>RL ug/Kg</u>	<u>Qualifier</u>
83-32-9	Acenaphthene	1100	790	
208-96-8	Acenaphthylene	ND	790	
120-12-7	Anthracene	2900	790	
56-55-3	Benzo(a)anthracene	11000	790	
50-32-8	Benzo(a)pyrene	10000	790	
205-99-2	Benzo(b)fluoranthene	8000	790	
191-24-2	Benzo(g,h,i)perylene	7400	790	
207-08-9	Benzo(k)fluoranthene	7900	790	
218-01-9	Chrysene	11000	790	
53-70-3	Dibenz(a,h)anthracene	1500	790	
206-44-0	Fluoranthene	26000	790	
86-73-7	Fluorene	950	790	
193-39-5	Indeno(1,2,3-cd)pyrene	6600	790	
91-20-3	Naphthalene	ND	790	
85-01-8	Phenanthrene	13000	790	
129-00-0	Pyrene	18000	790	

<b>Surrogate Compounds</b>	<b>Recoveries (%)</b>	<b>QC Ranges</b>
p-Terphenyl-d14 (SS2)	91	41 - 106
2-Fluorobiphenyl (SS1)	84	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0474	Lab Sample ID:	AB11756
Date of Collection:	10/20/2010	Matrix:	Soil
Date of Extraction:	10/25/10	Volume Extracted:	N/A
Date of Analysis:	11/3/10	Percent Solids:	88%
Dry Weight Extracted:	6.330 grams	Extract Dilution:	10
Wet Weight Extracted:	7.185 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	790	
208-96-8	Acenaphthylene	ND	790	
120-12-7	Anthracene	1900	790	
56-55-3	Benzo(a)anthracene	7400	790	
50-32-8	Benzo(a)pyrene	7100	790	
205-99-2	Benzo(b)fluoranthene	4400	790	
191-24-2	Benzo(g,h,i)perylene	5600	790	
207-08-9	Benzo(k)fluoranthene	6900	790	
218-01-9	Chrysene	7000	790	
53-70-3	Dibenz(a,h)anthracene	ND	790	
206-44-0	Fluoranthene	17000	790	
86-73-7	Fluorene	ND	790	
193-39-5	Indeno(1,2,3-cd)pyrene	4900	790	
91-20-3	Naphthalene	ND	790	
85-01-8	Phenanthrene	7500	790	
129-00-0	Pyrene	12000	790	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	90	41 - 106
2-Fluorobiphenyl (SS1)	80	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

Tombarello Site - Lawrence, MA

PAHs in Soil

Client Sample ID: R01-100830MB-0475  
Date of Collection: 10/20/2010  
Date of Extraction: 10/25/10  
Date of Analysis: 11/3/10  
Dry Weight Extracted: 8.189 grams  
Wet Weight Extracted: 8.998 grams  
Final Volume: 1 mL

Lab Sample ID: AB11757  
Matrix: Soil  
Volume Extracted: N/A  
Percent Solids: 91%  
Extract Dilution: 10  
pH: N/A  
GPC Factor: N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	610	
208-96-8	Acenaphthylene	ND	610	
120-12-7	Anthracene	810	610	
56-55-3	Benzo(a)anthracene	3300	610	
50-32-8	Benzo(a)pyrene	3200	610	
205-99-2	Benzo(b)fluoranthene	2800	610	
191-24-2	Benzo(g,h,i)perylene	2400	610	
207-08-9	Benzo(k)fluoranthene	2900	610	
218-01-9	Chrysene	3300	610	
53-70-3	Dibenz(a,h)anthracene	ND	610	
206-44-0	Fluoranthene	7600	610	
86-73-7	Fluorene	ND	610	
193-39-5	Indeno(1,2,3-cd)pyrene	2100	610	
91-20-3	Naphthalene	ND	610	
85-01-8	Phenanthrene	3200	610	
129-00-0	Pyrene	5300	610	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	96	41 - 106
2-Fluorobiphenyl (SS1)	86	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0476	Lab Sample ID:	AB11758
Date of Collection:	10/20/2010	Matrix:	Soil
Date of Extraction:	10/25/10	Volume Extracted:	N/A
Date of Analysis:	11/3/10	Percent Solids:	87%
Dry Weight Extracted:	8.689 grams	Extract Dilution:	10
Wet Weight Extracted:	9.944 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	1100	580	
208-96-8	Acenaphthylene	ND	580	
120-12-7	Anthracene	4400	580	
56-55-3	Benzo(a)anthracene	11000	580	
50-32-8	Benzo(a)pyrene	10000	580	
205-99-2	Benzo(b)fluoranthene	9400	580	
191-24-2	Benzo(g,h,i)perylene	6400	580	
207-08-9	Benzo(k)fluoranthene	8000	580	
218-01-9	Chrysene	10000	580	
53-70-3	Dibenz(a,h)anthracene	1400	580	
206-44-0	Fluoranthene	27000	580	
86-73-7	Fluorene	1800	580	
193-39-5	Indeno(1,2,3-cd)pyrene	6000	580	
91-20-3	Naphthalene	ND	580	
85-01-8	Phenanthrene	15000	580	
129-00-0	Pyrene	19000	580	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	20	41 - 106
2-Fluorobiphenyl (SS1)	16	39 - 103

Comments: Surrogate recoveries are below spec.

US ENVIRONMENTAL PROTECTION AGENCY  
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**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID: R01-100830MB-0477  
 Date of Collection: 10/20/2010  
 Date of Extraction: 10/25/10  
 Date of Analysis: 11/3/10  
 Dry Weight Extracted: 5.088 grams  
 Wet Weight Extracted: 6.272 grams  
 Final Volume: 1 mL

Lab Sample ID: AB11759  
 Matrix: Soil  
 Volume Extracted: N/A  
 Percent Solids: 81%  
 Extract Dilution: 10  
 pH: N/A  
 GPC Factor: N/A

<u>CAS Number</u>	<u>Compound</u>	<u>Concentration ug/Kg</u>	<u>RL ug/Kg</u>	<u>Qualifier</u>
83-32-9	Acenaphthene	ND	980	
208-96-8	Acenaphthylene	ND	980	
120-12-7	Anthracene	2800	980	
56-55-3	Benzo(a)anthracene	7300	980	
50-32-8	Benzo(a)pyrene	6400	980	
205-99-2	Benzo(b)fluoranthene	5900	980	
191-24-2	Benzo(g,h,i)perylene	3900	980	
207-08-9	Benzo(k)fluoranthene	5100	980	
218-01-9	Chrysene	7100	980	
53-70-3	Dibenz(a,h)anthracene	ND	980	
206-44-0	Fluoranthene	19000	980	
86-73-7	Fluorene	1200	980	
193-39-5	Indeno(1,2,3-cd)pyrene	3800	980	
91-20-3	Naphthalene	ND	980	
85-01-8	Phenanthrene	13000	980	
129-00-0	Pyrene	13000	980	

<b>Surrogate Compounds</b>	<b>Recoveries (%)</b>	<b>QC Ranges</b>
p-Terphenyl-d14 (SS2)	22	41 - 106
2-Fluorobiphenyl (SS1)	19	39 - 103

Comments: Surrogate recoveries are below spec.

US ENVIRONMENTAL PROTECTION AGENCY  
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**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0478	Lab Sample ID:	AB11760
Date of Collection:	10/20/2010	Matrix:	Soil
Date of Extraction:	10/25/10	Volume Extracted:	N/A
Date of Analysis:	11/3/10	Percent Solids:	84%
Dry Weight Extracted:	8.127 grams	Extract Dilution:	10
Wet Weight Extracted:	9.709 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	620	
208-96-8	Acenaphthylene	ND	620	
120-12-7	Anthracene	860	620	
56-55-3	Benzo(a)anthracene	3000	620	
50-32-8	Benzo(a)pyrene	2800	620	
205-99-2	Benzo(b)fluoranthene	2500	620	
191-24-2	Benzo(g,h,i)perylene	2100	620	
207-08-9	Benzo(k)fluoranthene	2200	620	
218-01-9	Chrysene	2800	620	
53-70-3	Dibenz(a,h)anthracene	ND	620	
206-44-0	Fluoranthene	6900	620	
86-73-7	Fluorene	ND	620	
193-39-5	Indeno(1,2,3-cd)pyrene	1800	620	
91-20-3	Naphthalene	ND	620	
85-01-8	Phenanthrene	2900	620	
129-00-0	Pyrene	4800	620	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	18	41 - 106
2-Fluorobiphenyl (SS1)	17	39 - 103

Comments: Surrogate recoveries are below spec.

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID: R01-100830MB-0479  
Date of Collection: 10/20/2010  
Date of Extraction: 10/25/10  
Date of Analysis: 11/2/10  
Dry Weight Extracted: 5.357 grams  
Wet Weight Extracted: 7.617 grams  
Final Volume: 1 mL

Lab Sample ID: AB11761  
Matrix: Soil  
Volume Extracted: N/A  
Percent Solids: 70%  
Extract Dilution: 50  
pH: N/A  
GPC Factor: N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	4700	
208-96-8	Acenaphthylene	ND	4700	
120-12-7	Anthracene	ND	4700	
56-55-3	Benzo(a)anthracene	<b>10000</b>	4700	J
50-32-8	Benzo(a)pyrene	<b>12000</b>	4700	
205-99-2	Benzo(b)fluoranthene	<b>11000</b>	4700	
191-24-2	Benzo(g,h,i)perylene	<b>7400</b>	4700	
207-08-9	Benzo(k)fluoranthene	<b>6900</b>	4700	
218-01-9	Chrysene	<b>10000</b>	4700	J
53-70-3	Dibenz(a,h)anthracene	ND	4700	
206-44-0	Fluoranthene	<b>19000</b>	4700	
86-73-7	Fluorene	ND	4700	
193-39-5	Indeno(1,2,3-cd)pyrene	<b>6500</b>	4700	
91-20-3	Naphthalene	ND	4700	
85-01-8	Phenanthrene	<b>8400</b>	4700	
129-00-0	Pyrene	<b>17000</b>	4700	J

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	78	41 - 106
2-Fluorobiphenyl (SS1)	68	39 - 103

Comments: Surrogate recoveries are below spec.

US ENVIRONMENTAL PROTECTION AGENCY  
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PAH MATRIX SPIKE (MS)

Tombarello Site - Lawrence, MA

Sample ID: AB11748

PARAMETER	SPIKE ADDED ug/Kg	SAMPLE CONCENTRATION ug/Kg	MS CONCENTRATION ug/Kg	MS % REC	QC LIMITS (% REC)
Acenaphthene	5500	ND	3800	69	30 - 113
Acenaphthylene	5500	ND	4200	77	28 - 125
Anthracene	5500	ND	4900	89	30 - 129
Benzo(a)anthracene	5500	3100	7500	80	25 - 137
Benzo(a)pyrene	5500	3300	7000	67	26 - 115
Benzo(b)fluoranthene	5500	ND	6100	111	29 - 120
Benzo(g,h,i)perylene	5500	3500	6500	55	26 - 119
Benzo(k)fluoranthene	5500	3200	7000	69	27 - 139
Chrysene	5500	2900	6400	64	31 - 120
Dibenz(a,h)anthracene	5500	ND	4300	78	31 - 125
Fluoranthene	5500	5300	9300	73	21 - 148
Fluorene	5500	ND	4200	77	34 - 121
Indeno(1,2,3-cd)pyrene	5500	ND	6100	111	29 - 125
Naphthalene	5500	ND	4100	75	19 - 107
Phenanthrene	5500	ND	6800	124	26 - 125
Pyrene	5500	4200	7900	67	20 - 142

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

Laboratory Duplicate Results

Tombarello Site - Lawrence, MA

Sample ID: AB11748

PARAMETER	SAMPLE RESULT	SAMPLE DUPLICATE RESULT	PRECISION RPD	QC LIMITS
	ug/Kg	ug/Kg	%	
Acenaphthene	ND	ND	ND	40
Acenaphthylene	ND	ND	ND	40
Anthracene	ND	ND	ND	40
Benzo(a)anthracene	3100	2300	28	40
Benzo(a)pyrene	3300	2300	36	40
Benzo(b)fluoranthene	ND	ND	ND	40
Benzo(g,h,i)perylene	3500	2400	37	40
Benzo(k)fluoranthene	3200	1800	54	40
Chrysene	2900	1800	46	40
Dibenz(a,h)anthracene	ND	ND	ND	40
Fluoranthene	5300	3700	36	40
Fluorene	ND	ND	ND	40
Indeno(1,2,3-cd)pyrene	ND	ND	ND	40
Naphthalene	ND	ND	ND	40
Phenanthrene	ND	ND	ND	40
Pyrene	4200	3300	25	40

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

Laboratory Fortified Blank (LFB) Results

Tombarello Site - Lawrence, MA

PARAMETER	LFB AMOUNT SPIKED ppb	LFB RESULT ppb	LFB RECOVERY %	QC LIMITS %
Acenaphthene	4400	3100	70	26 - 129
Acenaphthylene	4400	3000	68	23 - 141
Anthracene	4400	3700	84	25 - 149
Benzo(a)anthracene	4400	3600	83	27 - 142
Benzo(a)pyrene	4400	3600	82	29 - 123
Benzo(b)fluoranthene	4400	3200	73	22 - 146
Benzo(g,h,i)perylene	4400	3300	75	26 - 134
Benzo(k)fluoranthene	4400	4000	91	32 - 144
Chrysene	4400	3500	79	38 - 121
Dibenz(a,h)anthracene	4400	3500	79	35 - 133
Fluoranthene	4400	3700	83	29 - 154
Fluorene	4400	3200	72	29 - 138
Indeno(1,2,3-cd)pyrene	4400	3400	76	26 - 141
Naphthalene	4400	2900	65	30 - 110
Phenanthrene	4400	3600	81	27 - 140
Pyrene	4400	3300	76	24 - 147

Comments:



United States Environmental Protection Agency  
Office of Environmental Measurement & Evaluation  
60 Westview Street  
Lexington, MA 02421-3185

Laboratory Report

November 02, 2010

Mike Barry - OSRR02-2  
US EPA New England R1

Project Number: 10100034  
Project: Tombarello Site - Lawrence, MA  
Analysis: PCB's in Soil Field Method (Fixed Lab)  
Analyst: Paul Carroll

*Carroll*  
11.2.10

Analytical Procedure:

All samples were received and logged in by the laboratory according to the USEPA New England Laboratory SOP for Sample Log-in.

Sample preparation and analysis was done following the EPA Region I SOP, FLDPCB2.SOP.

Concentrations of PCBs in soil were calculated using an external standard technique.

Analysis for PCB's performed by this field analytical technique is used for tentative identification and semi-quantitation of PCB's in soil, oil, and sediment samples.

Date Samples Received by the Laboratory: 10/21/10

Results relate only to the items tested or to the samples as received by the Laboratory. This analytical report shall not be reproduced except in full, without written approval of the laboratory.

Results for soil samples are reported on a dry weight basis.

If you have any questions please call me at 617-918-8340.

Sincerely,

*Daniel W Boudreau* 11/8/10  
Daniel Boudreau

Project # 10100034

**PCB's in Soil Field Method (Fixed Lab)**

US ENVIRONMENTAL PROTECTION AGENCY NEW ENGLAND LABORATORY Tombarello Site - Lawrence, MA						
Client Sample ID	R01-100830MB-0460	R01-100830MB-0461	R01-100830MB-0462	R01-100830MB-0463	R01-100830MB-0464	R01-100830MB-0465
Lab Sample ID	AB11742	AB11743	AB11744	AB11745	AB11746	AB11747
Date of Collection	10/20/2010	10/20/2010	10/20/2010	10/20/2010	10/20/2010	10/20/2010
Date of Extraction	10/26/2010	10/26/2010	10/26/2010	10/26/2010	10/26/2010	10/26/2010
Date of Analysis	10/29/2010	10/29/2010	10/29/2010	10/29/2010	10/29/2010	10/29/2010
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Compound	Conc. (RL) mg/Kg					
Aroclor-1242	ND (0.26)	ND (0.76)	ND (0.78)	ND (0.7)	ND (0.72)	ND (0.88)
Aroclor-1248	ND (0.26)	ND (0.76)	ND (0.78)	ND (0.7)	1.0 (0.72)	2.3 (0.88)
Aroclor-1254	0.93 (0.26)	1.5 (0.76)	1.8 (0.78)	2.1 (0.7)	2.7 (0.72)	2.2 (0.88)
Aroclor-1260	1.2 (0.26)	1.4 (0.76)	2.0 (0.78)	6.5 (0.7)	3.9 (0.72)	2.1 (0.88)
Aroclor-1262	ND (0.26)	ND (0.76)	ND (0.78)	ND (0.7)	ND (0.72)	ND (0.88)
Aroclor-1268	ND (0.26)	ND (0.76)	ND (0.78)	ND (0.7)	ND (0.72)	ND (0.88)

**US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY  
Tombarello Site - Lawrence, MA**

	R01-100830MB-0466 AB11748 10/20/2010 10/26/2010 10/29/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0467 AB11749 10/20/2010 10/26/2010 10/29/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0468 AB11750 10/20/2010 10/26/2010 10/29/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0469 AB11751 10/20/2010 10/26/2010 10/29/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0470 AB11752 10/20/2010 10/26/2010 10/29/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0471 AB11753 10/20/2010 10/26/2010 10/29/2010 Soil  Conc. (RL) mg/Kg
Aroclor-1242	ND (0.68)	ND (0.9)	ND (0.84)	ND (0.68)	ND (0.74)	ND (0.98)
Aroclor-1248	ND (0.68)	ND (0.9)	1.3 (0.84)	ND (0.68)	ND (0.74)	ND (0.98)
Aroclor-1254	2.6 (0.68)	4.6 (0.9)	6.0 (0.84)	ND (0.68)	2.0 (0.74)	1.5 (0.98)
Aroclor-1260	5.1 (0.68)	5.2 (0.9)	3.2 (0.84)	24 (0.68)	1.9 (0.74)	1.6 (0.98)
Aroclor-1262	ND (0.68)	ND (0.9)	ND (0.84)	ND (0.68)	ND (0.74)	ND (0.98)
Aroclor-1268	ND (0.68)	ND (0.9)	ND (0.84)	ND (0.68)	ND (0.74)	ND (0.98)

**US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY  
Tombarello Site - Lawrence, MA**

	R01-100830MB-0472 AB11754 10/20/2010 10/26/2010 10/29/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0473 AB11755 10/20/2010 10/26/2010 10/29/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0474 AB11756 10/20/2010 10/26/2010 10/29/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0475 AB11757 10/20/2010 10/26/2010 10/29/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0476 AB11758 10/20/2010 10/26/2010 10/29/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0477 AB11759 10/20/2010 10/26/2010 10/29/2010 Soil  Conc. (RL) mg/Kg
Aroclor-1242	ND (0.96)	ND (0.96)	ND (0.82)	ND (0.88)	ND (0.88)	ND (0.96)
Aroclor-1248	ND (0.96)	ND (0.96)	ND (0.82)	ND (0.88)	ND (0.88)	ND (0.96)
Aroclor-1254	1.4 (0.96)	4.1 (0.96)	3.7 (0.82)	2.8 (0.88)	5.0 (0.88)	1.5 (0.96)
Aroclor-1260	1.2 (0.96)	6.5 (0.96)	6.6 (0.82)	2.6 (0.88)	2.2 (0.88)	3.3 (0.96)
Aroclor-1262	ND (0.96)	ND (0.96)	ND (0.82)	ND (0.88)	ND (0.88)	ND (0.96)
Aroclor-1268	ND (0.96)	ND (0.96)	ND (0.82)	ND (0.88)	ND (0.88)	ND (0.96)

**US ENVIRONMENTAL PROTECTION  
AGENCY  
NEW ENGLAND LABORATORY**

R01-100830MB-0478 AB11760 10/20/2010 10/26/2010 10/29/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0479 AB11761 10/20/2010 10/26/2010 10/29/2010 Soil  Conc. (RL) mg/Kg
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Aroclor-1242	ND (0.98)	ND (0.9)
Aroclor-1248	ND (0.98)	ND (0.9)
Aroclor-1254	1.8 (0.98)	ND (0.9)
Aroclor-1260	2.6 (0.98)	0.98 (0.9)
Aroclor-1262	ND (0.98)	ND (0.9)
Aroclor-1268	ND (0.98)	ND (0.9)

Qualifiers: RL = Reporting limit  
ND = Not Detected above Reporting limit  
NA = Not Applicable due to high sample dilutions or sample interferences  
J = Estimated value  
E = Estimated value exceeds the calibration range  
L = Estimated value is below the calibration range  
B = Analyte is associated with the lab blank or trip blank contamination. Values are qualified when the observed concentration of the contamination in the sample extract is less than 10 times the concentration in the blank.  
P = The confirmation value exceeded 35% difference and is less than 100%. The lower value is reported.  
C = The identification has been confirmed by GC/MS.  
A = Suspected Aldol condensation product.  
N = Tentatively identified compound.



United States Environmental Protection Agency  
Office of Environmental Measurement & Evaluation  
11 Technology Drive  
North Chelmsford, MA 01863

Laboratory Report

November 17, 2010

Mike Barry - OSRR02-2  
US EPA New England R1

Project Number: 10100034

Project: Tombarello Site - Lawrence, MA  
Analysis: Field Analysis of Metals by XRF

Analyst: Paul Carroll *Maxwell*  
*11.17.10*

Analytical Procedure:

All samples were received and logged in by the laboratory according to the USEPA New England Laboratory SOP for Sample Log-in.

Sample preparation and analysis was done following the EPA Region I SOP, EIA-FLDXRFN3.

The analysis were performed by the EPA New England Regional Laboratory.

Date Samples Received by the Laboratory: 10/21/10

Results relate only to the items tested or to the samples as received by the Laboratory. This analytical report shall not be reproduced except in full, without written approval of the laboratory.

If you have any questions please call me at 617-918-8340.

Sincerely,

*Dan Boudreau* 11/18/10  
Dan Boudreau  
Chemistry Team Leader

Project # 10100034

Field Analysis of Metals by XRF

US ENVIRONMENTAL PROTECTION AGENCY NEW ENGLAND LABORATORY Tombarello Site - Lawrence, MA						
Client Sample ID	R01-100830MB-0460	R01-100830MB-0461	R01-100830MB-0462	R01-100830MB-0463	R01-100830MB-0464	R01-100830MB-0465
Lab Sample ID	AB11742	AB11743	AB11744	AB11745	AB11746	AB11747
Date of Collection	10/20/2010	10/20/2010	10/20/2010	10/20/2010	10/20/2010	10/20/2010
Date of Extraction	11/10/2010	11/10/2010	11/10/2010	11/10/2010	11/10/2010	11/10/2010
Date of Analysis	11/10/2010	11/10/2010	11/10/2010	11/10/2010	11/10/2010	11/10/2010
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Compound	Conc. (RL) mg/Kg					
Arsenic	ND ( 30)	40 ( 20)	54 ( 20)	ND ( 51)	ND ( 90)	48 ( 20)
Cadmium	ND ( 15)	ND ( 11)	ND ( 11)	18 (8.0)	ND ( 13)	ND ( 16)
Chromium	87 ( 20)	87 ( 20)	190 ( 20)	120 ( 20)	100 ( 20)	110 ( 20)
Lead	370 ( 20)	450 ( 20)	570 ( 20)	1100 ( 20)	3500 ( 20)	900 ( 20)

**US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY  
Tombarello Site - Lawrence, MA**

	R01-100830MB-0466 AB11748 10/20/2010 11/10/2010 11/10/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0467 AB11749 10/20/2010 11/10/2010 11/10/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0468 AB11750 10/20/2010 11/10/2010 11/10/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0469 AB11751 10/20/2010 11/12/2010 11/12/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0470 AB11752 10/20/2010 11/12/2010 11/12/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0471 AB11753 10/20/2010 11/12/2010 11/12/2010 Soil  Conc. (RL) mg/Kg
Arsenic	47 ( 20)	ND ( 46)	ND ( 43)	79 ( 20)	64 ( 20)	ND ( 34)
Cadmium	16 (8.0)	ND ( 19)	ND ( 14)	18 (8.0)	ND ( 13)	ND ( 14)
Chromium	100 ( 20)	81 ( 20)	130 ( 20)	220 ( 20)	41 ( 20)	74 ( 20)
Lead	920 ( 20)	950 ( 20)	900 ( 20)	1600 ( 20)	1200 ( 20)	530 ( 20)

**US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY  
Tombarello Site - Lawrence, MA**

	R01-100830MB-0472 AB11754 10/20/2010 11/12/2010 11/12/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0473 AB11755 10/20/2010 11/12/2010 11/12/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0474 AB11756 10/20/2010 11/12/2010 11/12/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0475 AB11757 10/20/2010 11/12/2010 11/12/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0476 AB11758 10/20/2010 11/12/2010 11/12/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0477 AB11759 10/20/2010 11/12/2010 11/12/2010 Soil  Conc. (RL) mg/Kg
Arsenic	ND ( 42)	41 ( 20)	82 ( 20)	ND ( 30)	ND ( 26)	27 ( 20)
Cadmium	ND ( 15)	ND ( 11)	ND ( 11)	ND ( 10)	ND ( 14)	ND ( 10)
Chromium	120 ( 20)	69 ( 20)	82 ( 20)	65 ( 20)	ND ( 42)	76 ( 20)
Lead	750 ( 20)	480 ( 20)	510 ( 20)	490 ( 20)	340 ( 20)	300 ( 20)

**US ENVIRONMENTAL PROTECTION  
AGENCY  
NEW ENGLAND LABORATORY**

R01-100830MB-0478 AB11760 10/20/2010 11/12/2010 11/12/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0479 AB11761 10/20/2010 11/12/2010 11/12/2010 Soil  Conc. (RL) mg/Kg
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Arsenic	88 ( 20)	ND ( 25)
Cadmium	ND ( 12)	ND ( 11)
Chromium	130 ( 20)	40 ( 20)
Lead	850 ( 20)	360 ( 20)

Qualifiers: RL = Reporting limit  
ND = Not Detected above Reporting limit  
NA = Not Applicable due to low (pH < 4.5)  
J = Estimated value  
E = Estimated value exceeds the calibration range  
L = Estimated value is below the calibration range  
B = Analyte is associated with the lab blank or trip blank contamination. Values are qualified when the observed concentration of the contamination in the sample extract is less than 10 times the concentration in the blank.  
P = The confirmation value exceeded 35% difference and is less than 100%. The lower value is reported.  
C = The identification has been confirmed by GC/MS.  
A = Suspected Aldol condensation product.  
N = Tentatively identified compound.



United States Environmental Protection Agency  
Office of Environmental Measurement & Evaluation  
11 Technology Drive  
North Chelmsford, MA 01863-2431

Laboratory Report

November 22, 2010

Mike Barry - OSRR02-2  
US EPA New England R1

Project Number: 10100035

Project: Tombarello Site - Lawrence, MA

Analysis: PAHs in Soil

Analyst: Inna Germansderfer *BB for IG  
11/22/10*

Analytical Procedure:

All samples were received and logged in by the laboratory according to the USEPA New England Laboratory SOP for Sample Log-in.

Sample preparation and analysis was done following the EPA Region I SOP, EIASOP-BNAS3.

Samples were analyzed by a quadrupole GC/MS operating in the full-scan mode. The extraction and analysis SOPs are based on SW-846 methods 3545A, 3630C, 8270C, and EIASOP-BNAGCMS7.

Date Samples Received by the Laboratory: 10/21/2010

Data were reviewed in accordance with the internal verification procedures described in the EPA New England OEME Chemistry QA Plan.

Results relate only to the items tested or to the samples as received by the Laboratory. This analytical report shall not be reproduced except in full, without written approval of the laboratory.

Report may contain multiple sections and each section will be numbered independently.

If you have any questions please call me at 617-918-8340 .

Sincerely,

*Daniel N. Boudreau 11/30/10*  
Daniel N. Boudreau  
Chemistry Team Leader

**Qualifiers:**

RL = Reporting limit

ND = Not Detected above Reporting limit

NA = Not Applicable due to high sample dilutions or sample interferences

NC = Not calculated since analyte concentration is ND.

J = Estimated value

E = Estimated value exceeds the calibration range

L = Estimated value is below the calibration range

B = Analyte is associated with the lab blank or trip blank contamination. Values are qualified when the observed concentration of the contamination in the sample extract is less than 5 times the concentration in the blank.

R = No recovery was calculated since the analyte concentration is greater than four times the spike level.

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0480	Lab Sample ID:	AB11762
Date of Collection:	10/20/2010	Matrix:	Soil
Date of Extraction:	10/26/10	Volume Extracted:	N/A
Date of Analysis:	11/3/10	Percent Solids:	89%
Dry Weight Extracted:	7.442 grams	Extract Dilution:	20
Wet Weight Extracted:	8.393 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	1300	
208-96-8	Acenaphthylene	ND	1300	
120-12-7	Anthracene	1500	1300	
56-55-3	Benzo(a)anthracene	7000	1300	
50-32-8	Benzo(a)pyrene	6000	1300	
205-99-2	Benzo(b)fluoranthene	5900	1300	
191-24-2	Benzo(g,h,i)perylene	5000	1300	
207-08-9	Benzo(k)fluoranthene	5100	1300	
218-01-9	Chrysene	7000	1300	
53-70-3	Dibenz(a,h)anthracene	ND	1300	
206-44-0	Fluoranthene	14000	1300	
86-73-7	Fluorene	ND	1300	
193-39-5	Indeno(1,2,3-cd)pyrene	4300	1300	
91-20-3	Naphthalene	ND	1300	
85-01-8	Phenanthrene	5800	1300	
129-00-0	Pyrene	10000	1300	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	110	41 - 106
2-Fluorobiphenyl (SS1)	94	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**Laboratory Blank (PAHs)**

Client Sample ID:	N/A	Lab Sample ID:	N/A
Date of Collection:	N/A	Matrix:	Soil
Date of Extraction:	10/26/10	Volume Extracted:	N/A
Date of Analysis:	11/3/10	Percent Solids:	100%
Dry Weight Extracted:	10.75 grams	Extract Dilution:	1
Wet Weight Extracted:	10.75 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	47	
208-96-8	Acenaphthylene	ND	47	
120-12-7	Anthracene	ND	47	
56-55-3	Benzo(a)anthracene	ND	47	
50-32-8	Benzo(a)pyrene	ND	47	
205-99-2	Benzo(b)fluoranthene	ND	47	
191-24-2	Benzo(g,h,i)perylene	ND	47	
207-08-9	Benzo(k)fluoranthene	ND	47	
218-01-9	Chrysene	ND	47	
53-70-3	Dibenz(a,h)anthracene	ND	47	
206-44-0	Fluoranthene	ND	47	
86-73-7	Fluorene	ND	47	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	47	
91-20-3	Naphthalene	ND	47	
85-01-8	Phenanthrene	ND	47	
129-00-0	Pyrene	ND	47	

Surrogate Compounds	Recoveries (%)	QC Ranges
2-Fluorobiphenyl (SS1)	92	39 - 103
p-Terphenyl-d14 (SS2)	108	41 - 106

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0481	Lab Sample ID:	AB11763
Date of Collection:	10/20/2010	Matrix:	Soil
Date of Extraction:	10/26/10	Volume Extracted:	N/A
Date of Analysis:	11/4/10	Percent Solids:	89%
Dry Weight Extracted:	5.445 grams	Extract Dilution:	20
Wet Weight Extracted:	6.107 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	1800	
208-96-8	Acenaphthylene	ND	1800	
120-12-7	Anthracene	ND	1800	
56-55-3	Benzo(a)anthracene	5400	1800	
50-32-8	Benzo(a)pyrene	5600	1800	
205-99-2	Benzo(b)fluoranthene	5400	1800	
191-24-2	Benzo(g,h,i)perylene	5200	1800	
207-08-9	Benzo(k)fluoranthene	4500	1800	
218-01-9	Chrysene	5100	1800	
53-70-3	Dibenz(a,h)anthracene	ND	1800	
206-44-0	Fluoranthene	11000	1800	
86-73-7	Fluorene	ND	1800	
193-39-5	Indeno(1,2,3-cd)pyrene	4100	1800	
91-20-3	Naphthalene	ND	1800	
85-01-8	Phenanthrene	3500	1800	
129-00-0	Pyrene	7700	1800	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	110	41 - 106
2-Fluorobiphenyl (SS1)	100	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0482	Lab Sample ID:	AB11764
Date of Collection:	10/20/2010	Matrix:	Soil
Date of Extraction:	10/26/10	Volume Extracted:	N/A
Date of Analysis:	11/4/10	Percent Solids:	92%
Dry Weight Extracted:	7.409 grams	Extract Dilution:	20
Wet Weight Extracted:	8.017 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	1300	
208-96-8	Acenaphthylene	ND	1300	
120-12-7	Anthracene	1700	1300	
56-55-3	Benzo(a)anthracene	8500	1300	
50-32-8	Benzo(a)pyrene	9300	1300	
205-99-2	Benzo(b)fluoranthene	9500	1300	
191-24-2	Benzo(g,h,i)perylene	8100	1300	
207-08-9	Benzo(k)fluoranthene	7000	1300	
218-01-9	Chrysene	8700	1300	
53-70-3	Dibenz(a,h)anthracene	ND	1300	
206-44-0	Fluoranthene	17000	1300	
86-73-7	Fluorene	ND	1300	
193-39-5	Indeno(1,2,3-cd)pyrene	7000	1300	
91-20-3	Naphthalene	ND	1300	
85-01-8	Phenanthrene	6100	1300	
129-00-0	Pyrene	13000	1300	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	100	41 - 106
2-Fluorobiphenyl (SS1)	84	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0483	Lab Sample ID:	AB11765
Date of Collection:	10/20/2010	Matrix:	Soil
Date of Extraction:	10/26/10	Volume Extracted:	N/A
Date of Analysis:	11/4/10	Percent Solids:	93%
Dry Weight Extracted:	6.158 grams	Extract Dilution:	20
Wet Weight Extracted:	6.626 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	3500	1600	
208-96-8	Acenaphthylene	ND	1600	
120-12-7	Anthracene	16000	1600	
56-55-3	Benzo(a)anthracene	56000	1600	
50-32-8	Benzo(a)pyrene	57000	1600	
205-99-2	Benzo(b)fluoranthene	53000	1600	
191-24-2	Benzo(g,h,i)perylene	38000	1600	
207-08-9	Benzo(k)fluoranthene	40000	1600	
218-01-9	Chrysene	54000	1600	
53-70-3	Dibenz(a,h)anthracene	ND	1600	
206-44-0	Fluoranthene	130000	1600	
86-73-7	Fluorene	4500	1600	
193-39-5	Indeno(1,2,3-cd)pyrene	34000	1600	
91-20-3	Naphthalene	ND	1600	
85-01-8	Phenanthrene	53000	1600	
129-00-0	Pyrene	92000	1600	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	120	41 - 106
2-Fluorobiphenyl (SS1)	100	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0484	Lab Sample ID:	AB11766
Date of Collection:	10/20/2010	Matrix:	Soil
Date of Extraction:	10/26/10	Volume Extracted:	N/A
Date of Analysis:	11/4/10	Percent Solids:	90%
Dry Weight Extracted:	6.749 grams	Extract Dilution:	20
Wet Weight Extracted:	7.496 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	1300	
208-96-8	Acenaphthylene	ND	1300	
120-12-7	Anthracene	ND	1300	
56-55-3	Benzo(a)anthracene	3300	1300	
50-32-8	Benzo(a)pyrene	4000	1300	
205-99-2	Benzo(b)fluoranthene	4200	1300	
191-24-2	Benzo(g,h,i)perylene	4600	1300	
207-08-9	Benzo(k)fluoranthene	4900	1300	
218-01-9	Chrysene	3300	1300	
53-70-3	Dibenz(a,h)anthracene	ND	1300	
206-44-0	Fluoranthene	6500	1300	
86-73-7	Fluorene	ND	1300	
193-39-5	Indeno(1,2,3-cd)pyrene	3900	1300	
91-20-3	Naphthalene	ND	1300	
85-01-8	Phenanthrene	2400	1300	
129-00-0	Pyrene	5000	1300	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	91	41 - 106
2-Fluorobiphenyl (SS1)	80	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0485	Lab Sample ID:	AB11767
Date of Collection:	10/20/2010	Matrix:	Soil
Date of Extraction:	10/26/10	Volume Extracted:	N/A
Date of Analysis:	11/4/10	Percent Solids:	89%
Dry Weight Extracted:	7.503 grams	Extract Dilution:	20
Wet Weight Extracted:	8.394 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	1300	
208-96-8	Acenaphthylene	ND	1300	
120-12-7	Anthracene	ND	1300	
56-55-3	Benzo(a)anthracene	2500	1300	
50-32-8	Benzo(a)pyrene	3200	1300	
205-99-2	Benzo(b)fluoranthene	3700	1300	
191-24-2	Benzo(g,h,i)perylene	3900	1300	
207-08-9	Benzo(k)fluoranthene	2500	1300	
218-01-9	Chrysene	2700	1300	
53-70-3	Dibenz(a,h)anthracene	ND	1300	
206-44-0	Fluoranthene	4500	1300	
86-73-7	Fluorene	ND	1300	
193-39-5	Indeno(1,2,3-cd)pyrene	3100	1300	
91-20-3	Naphthalene	ND	1300	
85-01-8	Phenanthrene	1700	1300	
129-00-0	Pyrene	3500	1300	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	110	41 - 106
2-Fluorobiphenyl (SS1)	94	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0486	Lab Sample ID:	AB11768
Date of Collection:	10/20/2010	Matrix:	Soil
Date of Extraction:	10/26/10	Volume Extracted:	N/A
Date of Analysis:	11/4/10	Percent Solids:	95%
Dry Weight Extracted:	8.483 grams	Extract Dilution:	20
Wet Weight Extracted:	8.921 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	1200	
208-96-8	Acenaphthylene	ND	1200	
120-12-7	Anthracene	ND	1200	
56-55-3	Benzo(a)anthracene	1600	1200	
50-32-8	Benzo(a)pyrene	2000	1200	
205-99-2	Benzo(b)fluoranthene	2600	1200	
191-24-2	Benzo(g,h,i)perylene	2800	1200	
207-08-9	Benzo(k)fluoranthene	1600	1200	
218-01-9	Chrysene	1800	1200	
53-70-3	Dibenz(a,h)anthracene	ND	1200	
206-44-0	Fluoranthene	3100	1200	
86-73-7	Fluorene	ND	1200	
193-39-5	Indeno(1,2,3-cd)pyrene	2200	1200	
91-20-3	Naphthalene	ND	1200	
85-01-8	Phenanthrene	ND	1200	
129-00-0	Pyrene	2400	1200	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	120	41 - 106
2-Fluorobiphenyl (SS1)	100	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID: R01-100830MB-0487  
Date of Collection: 10/20/2010  
Date of Extraction: 10/26/10  
Date of Analysis: 11/4/10  
Dry Weight Extracted: 8.261 grams  
Wet Weight Extracted: 8.627 grams  
Final Volume: 1 mL

Lab Sample ID: AB11769  
Matrix: Soil  
Volume Extracted: N/A  
Percent Solids: 96%  
Extract Dilution: 20  
pH: N/A  
GPC Factor: N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	1200	
208-96-8	Acenaphthylene	ND	1200	
120-12-7	Anthracene	ND	1200	
56-55-3	Benzo(a)anthracene	1800	1200	
50-32-8	Benzo(a)pyrene	2300	1200	
205-99-2	Benzo(b)fluoranthene	2200	1200	
191-24-2	Benzo(g,h,i)perylene	3300	1200	
207-08-9	Benzo(k)fluoranthene	2500	1200	
218-01-9	Chrysene	2000	1200	
53-70-3	Dibenz(a,h)anthracene	ND	1200	
206-44-0	Fluoranthene	3600	1200	
86-73-7	Fluorene	ND	1200	
193-39-5	Indeno(1,2,3-cd)pyrene	2500	1200	
91-20-3	Naphthalene	ND	1200	
85-01-8	Phenanthrene	1300	1200	
129-00-0	Pyrene	2800	1200	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	130	41 - 106
2-Fluorobiphenyl (SS1)	120	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0488	Lab Sample ID:	AB11770
Date of Collection:	10/20/2010	Matrix:	Soil
Date of Extraction:	10/26/10	Volume Extracted:	N/A
Date of Analysis:	11/4/10	Percent Solids:	92%
Dry Weight Extracted:	9.546 grams	Extract Dilution:	20
Wet Weight Extracted:	10.347 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	1000	
208-96-8	Acenaphthylene	ND	1000	
120-12-7	Anthracene	ND	1000	
56-55-3	Benzo(a)anthracene	2900	1000	
50-32-8	Benzo(a)pyrene	3300	1000	
205-99-2	Benzo(b)fluoranthene	3300	1000	
191-24-2	Benzo(g,h,i)perylene	3400	1000	
207-08-9	Benzo(k)fluoranthene	2500	1000	
218-01-9	Chrysene	2900	1000	
53-70-3	Dibenz(a,h)anthracene	ND	1000	
206-44-0	Fluoranthene	5000	1000	
86-73-7	Fluorene	ND	1000	
193-39-5	Indeno(1,2,3-cd)pyrene	2600	1000	
91-20-3	Naphthalene	ND	1000	
85-01-8	Phenanthrene	1300	1000	
129-00-0	Pyrene	4200	1000	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	100	41 - 106
2-Fluorobiphenyl (SS1)	86	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID: R01-100830MB-0489  
Date of Collection: 10/20/2010  
Date of Extraction: 10/26/10  
Date of Analysis: 11/4/10  
Dry Weight Extracted: 8.257 grams  
Wet Weight Extracted: 9.714 grams  
Final Volume: 1 mL

Lab Sample ID: AB11771  
Matrix: Soil  
Volume Extracted: N/A  
Percent Solids: 85%  
Extract Dilution: 20  
pH: N/A  
GPC Factor: N/A

<u>CAS Number</u>	<u>Compound</u>	<u>Concentration ug/Kg</u>	<u>RL ug/Kg</u>	<u>Qualifier</u>
83-32-9	Acenaphthene	ND	1200	
208-96-8	Acenaphthylene	ND	1200	
120-12-7	Anthracene	2600	1200	
56-55-3	Benzo(a)anthracene	9200	1200	
50-32-8	Benzo(a)pyrene	9400	1200	
205-99-2	Benzo(b)fluoranthene	8500	1200	
191-24-2	Benzo(g,h,i)perylene	8200	1200	
207-08-9	Benzo(k)fluoranthene	8800	1200	
218-01-9	Chrysene	9800	1200	
53-70-3	Dibenz(a,h)anthracene	ND	1200	
206-44-0	Fluoranthene	20000	1200	
86-73-7	Fluorene	ND	1200	
193-39-5	Indeno(1,2,3-cd)pyrene	7000	1200	
91-20-3	Naphthalene	2200	1200	
85-01-8	Phenanthrene	8800	1200	
129-00-0	Pyrene	15000	1200	

<b>Surrogate Compounds</b>	<b>Recoveries (%)</b>	<b>QC Ranges</b>
p-Terphenyl-d14 (SS2)	110	41 - 106
2-Fluorobiphenyl (SS1)	88	39 - 103

Comments:

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**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0490	Lab Sample ID:	AB11772
Date of Collection:	10/20/2010	Matrix:	Soil
Date of Extraction:	10/26/10	Volume Extracted:	N/A
Date of Analysis:	11/4/10	Percent Solids:	93%
Dry Weight Extracted:	8.133 grams	Extract Dilution:	20
Wet Weight Extracted:	8.740 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	1200	
208-96-8	Acenaphthylene	ND	1200	
120-12-7	Anthracene	ND	1200	
56-55-3	Benzo(a)anthracene	2700	1200	
50-32-8	Benzo(a)pyrene	3200	1200	
205-99-2	Benzo(b)fluoranthene	3800	1200	
191-24-2	Benzo(g,h,i)perylene	4000	1200	
207-08-9	Benzo(k)fluoranthene	3000	1200	
218-01-9	Chrysene	2900	1200	
53-70-3	Dibenz(a,h)anthracene	ND	1200	
206-44-0	Fluoranthene	5600	1200	
86-73-7	Fluorene	ND	1200	
193-39-5	Indeno(1,2,3-cd)pyrene	3300	1200	
91-20-3	Naphthalene	ND	1200	
85-01-8	Phenanthrene	2200	1200	
129-00-0	Pyrene	4400	1200	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	110	41 - 106
2-Fluorobiphenyl (SS1)	100	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
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**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID: R01-100830MB-0491  
Date of Collection: 10/20/2010  
Date of Extraction: 10/26/10  
Date of Analysis: 11/4/10  
Dry Weight Extracted: 9.808 grams  
Wet Weight Extracted: 11.457 grams  
Final Volume: 1 mL

Lab Sample ID: AB11773  
Matrix: Soil  
Volume Extracted: N/A  
Percent Solids: 86%  
Extract Dilution: 20  
pH: N/A  
GPC Factor: N/A

<u>CAS Number</u>	<u>Compound</u>	<u>Concentration ug/Kg</u>	<u>RL ug/Kg</u>	<u>Qualifier</u>
83-32-9	Acenaphthene	ND	1000	
208-96-8	Acenaphthylene	ND	1000	
120-12-7	Anthracene	ND	1000	
56-55-3	Benzo(a)anthracene	3700	1000	
50-32-8	Benzo(a)pyrene	3500	1000	
205-99-2	Benzo(b)fluoranthene	3500	1000	
191-24-2	Benzo(g,h,i)perylene	3000	1000	
207-08-9	Benzo(k)fluoranthene	2200	1000	
218-01-9	Chrysene	3700	1000	
53-70-3	Dibenz(a,h)anthracene	ND	1000	
206-44-0	Fluoranthene	7500	1000	
86-73-7	Fluorene	ND	1000	
193-39-5	Indeno(1,2,3-cd)pyrene	2500	1000	
91-20-3	Naphthalene	ND	1000	
85-01-8	Phenanthrene	3400	1000	
129-00-0	Pyrene	5600	1000	

<b>Surrogate Compounds</b>	<b>Recoveries (%)</b>	<b>QC Ranges</b>
p-Terphenyl-d14 (SS2)	95	41 - 106
2-Fluorobiphenyl (SS1)	81	39 - 103

Comments:

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**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0492	Lab Sample ID:	AB11774
Date of Collection:	10/20/2010	Matrix:	Soil
Date of Extraction:	10/26/10	Volume Extracted:	N/A
Date of Analysis:	11/4/10	Percent Solids:	86%
Dry Weight Extracted:	8.062 grams	Extract Dilution:	20
Wet Weight Extracted:	9.353 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	1200	
208-96-8	Acenaphthylene	ND	1200	
120-12-7	Anthracene	1700	1200	
56-55-3	Benzo(a)anthracene	7600	1200	
50-32-8	Benzo(a)pyrene	7700	1200	
205-99-2	Benzo(b)fluoranthene	7900	1200	
191-24-2	Benzo(g,h,i)perylene	6500	1200	
207-08-9	Benzo(k)fluoranthene	5600	1200	
218-01-9	Chrysene	7700	1200	
53-70-3	Dibenz(a,h)anthracene	1100	1200	
206-44-0	Fluoranthene	17000	1200	
86-73-7	Fluorene	ND	1200	
193-39-5	Indeno(1,2,3-cd)pyrene	5700	1200	
91-20-3	Naphthalene	ND	1200	
85-01-8	Phenanthrene	6900	1200	
129-00-0	Pyrene	12000	1200	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	100	41 - 106
2-Fluorobiphenyl (SS1)	87	39 - 103

Comments:

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**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID: R01-100830MB-0493  
Date of Collection: 10/20/2010  
Date of Extraction: 10/26/10  
Date of Analysis: 11/4/10  
Dry Weight Extracted: 8.720 grams  
Wet Weight Extracted: 10.683 grams  
Final Volume: 1 mL

Lab Sample ID: AB11775  
Matrix: Soil  
Volume Extracted: N/A  
Percent Solids: 82%  
Extract Dilution: 20  
pH: N/A  
GPC Factor: N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	1100	
208-96-8	Acenaphthylene	ND	1100	
120-12-7	Anthracene	1900	1100	
56-55-3	Benzo(a)anthracene	8500	1100	
50-32-8	Benzo(a)pyrene	8300	1100	
205-99-2	Benzo(b)fluoranthene	8200	1100	
191-24-2	Benzo(g,h,i)perylene	7100	1100	
207-08-9	Benzo(k)fluoranthene	8800	1100	
218-01-9	Chrysene	8100	1100	
53-70-3	Dibenz(a,h)anthracene	ND	1100	
206-44-0	Fluoranthene	18000	1100	
86-73-7	Fluorene	ND	1100	
193-39-5	Indeno(1,2,3-cd)pyrene	6100	1100	
91-20-3	Naphthalene	ND	1100	
85-01-8	Phenanthrene	7600	1100	
129-00-0	Pyrene	13000	1100	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	120	41 - 106
2-Fluorobiphenyl (SS1)	100	39 - 103

Comments:

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Tombarello Site - Lawrence, MA

PAHs in Soil

Client Sample ID: R01-100830MB-0494  
Date of Collection: 10/20/2010  
Date of Extraction: 10/26/10  
Date of Analysis: 11/4/10  
Dry Weight Extracted: 8.268 grams  
Wet Weight Extracted: 9.837 grams  
Final Volume: 1 mL

Lab Sample ID: AB11776  
Matrix: Soil  
Volume Extracted: N/A  
Percent Solids: 84%  
Extract Dilution: 20  
pH: N/A  
GPC Factor: N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	1200	
208-96-8	Acenaphthylene	ND	1200	
120-12-7	Anthracene	2000	1200	
56-55-3	Benzo(a)anthracene	7600	1200	
50-32-8	Benzo(a)pyrene	7800	1200	
205-99-2	Benzo(b)fluoranthene	8100	1200	
191-24-2	Benzo(g,h,i)perylene	8400	1200	
207-08-9	Benzo(k)fluoranthene	7200	1200	
218-01-9	Chrysene	7600	1200	
53-70-3	Dibenz(a,h)anthracene	ND	1200	
206-44-0	Fluoranthene	16000	1200	
86-73-7	Fluorene	ND	1200	
193-39-5	Indeno(1,2,3-cd)pyrene	7200	1200	
91-20-3	Naphthalene	ND	1200	
85-01-8	Phenanthrene	7300	1200	
129-00-0	Pyrene	12000	1200	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	110	41 - 106
2-Fluorobiphenyl (SS1)	93	39 - 103

Comments:

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**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID: R01-100830MB-0495  
Date of Collection: 10/20/2010  
Date of Extraction: 10/26/10  
Date of Analysis: 11/4/10  
Dry Weight Extracted: 7.665 grams  
Wet Weight Extracted: 8.912 grams  
Final Volume: 1 mL

Lab Sample ID: AB11777  
Matrix: Soil  
Volume Extracted: N/A  
Percent Solids: 86%  
Extract Dilution: 20  
pH: N/A  
GPC Factor: N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	1300	
208-96-8	Acenaphthylene	ND	1300	
120-12-7	Anthracene	ND	1300	
56-55-3	Benzo(a)anthracene	2700	1300	
50-32-8	Benzo(a)pyrene	2800	1300	
205-99-2	Benzo(b)fluoranthene	2800	1300	
191-24-2	Benzo(g,h,i)perylene	3200	1300	
207-08-9	Benzo(k)fluoranthene	2400	1300	
218-01-9	Chrysene	2600	1300	
53-70-3	Dibenz(a,h)anthracene	ND	1300	
206-44-0	Fluoranthene	5200	1300	
86-73-7	Fluorene	ND	1300	
193-39-5	Indeno(1,2,3-cd)pyrene	2500	1300	
91-20-3	Naphthalene	ND	1300	
85-01-8	Phenanthrene	2300	1300	
129-00-0	Pyrene	4100	1300	

**Surrogate Compounds**

p-Terphenyl-d14 (SS2)  
2-Fluorobiphenyl (SS1)

**Recoveries (%)**

83  
70

**QC Ranges**

41 - 106  
39 - 103

Comments:

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Tombarello Site - Lawrence, MA

PAHs in Soil

Client Sample ID:	R01-100830MB-0496	Lab Sample ID:	AB11778
Date of Collection:	10/20/2010	Matrix:	Soil
Date of Extraction:	10/26/10	Volume Extracted:	N/A
Date of Analysis:	11/4/10	Percent Solids:	86%
Dry Weight Extracted:	7.889 grams	Extract Dilution:	20
Wet Weight Extracted:	9.192 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	1300	
208-96-8	Acenaphthylene	ND	1300	
120-12-7	Anthracene	3400	1300	
56-55-3	Benzo(a)anthracene	12000	1300	
50-32-8	Benzo(a)pyrene	13000	1300	
205-99-2	Benzo(b)fluoranthene	10000	1300	
191-24-2	Benzo(g,h,i)perylene	11000	1300	
207-08-9	Benzo(k)fluoranthene	11000	1300	
218-01-9	Chrysene	11000	1300	
53-70-3	Dibenz(a,h)anthracene	ND	1300	
206-44-0	Fluoranthene	25000	1300	
86-73-7	Fluorene	ND	1300	
193-39-5	Indeno(1,2,3-cd)pyrene	9700	1300	
91-20-3	Naphthalene	ND	1300	
85-01-8	Phenanthrene	11000	1300	
129-00-0	Pyrene	19000	1300	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	100	41 - 106
2-Fluorobiphenyl (SS1)	86	39 - 103

Comments:

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**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID: R01-100830MB-0497  
Date of Collection: 10/20/2010  
Date of Extraction: 10/26/10  
Date of Analysis: 11/4/10  
Dry Weight Extracted: 6.139 grams  
Wet Weight Extracted: 7.385 grams  
Final Volume: 1 mL

Lab Sample ID: AB11779  
Matrix: Soil  
Volume Extracted: N/A  
Percent Solids: 83%  
Extract Dilution: 20  
pH: N/A  
GPC Factor: N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	1600	
208-96-8	Acenaphthylene	ND	1600	
120-12-7	Anthracene	ND	1600	
56-55-3	Benzo(a)anthracene	5000	1600	
50-32-8	Benzo(a)pyrene	5300	1600	
205-99-2	Benzo(b)fluoranthene	6700	1600	
191-24-2	Benzo(g,h,i)perylene	5200	1600	
207-08-9	Benzo(k)fluoranthene	5200	1600	
218-01-9	Chrysene	5400	1600	
53-70-3	Dibenz(a,h)anthracene	ND	1600	
206-44-0	Fluoranthene	12000	1600	
86-73-7	Fluorene	ND	1600	
193-39-5	Indeno(1,2,3-cd)pyrene	4300	1600	
91-20-3	Naphthalene	ND	1600	
85-01-8	Phenanthrene	5900	1600	
129-00-0	Pyrene	9400	1600	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	93	41 - 106
2-Fluorobiphenyl (SS1)	77	39 - 103

Comments:

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**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0498	Lab Sample ID:	AB11780
Date of Collection:	10/20/2010	Matrix:	Soil
Date of Extraction:	10/26/10	Volume Extracted:	N/A
Date of Analysis:	11/4/10	Percent Solids:	87%
Dry Weight Extracted:	6.058 grams	Extract Dilution:	20
Wet Weight Extracted:	6.943 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	1700	
208-96-8	Acenaphthylene	ND	1700	
120-12-7	Anthracene	ND	1700	
56-55-3	Benzo(a)anthracene	4800	1700	
50-32-8	Benzo(a)pyrene	5600	1700	
205-99-2	Benzo(b)fluoranthene	6000	1700	
191-24-2	Benzo(g,h,i)perylene	6000	1700	
207-08-9	Benzo(k)fluoranthene	5100	1700	
218-01-9	Chrysene	4800	1700	
53-70-3	Dibenz(a,h)anthracene	ND	1700	
206-44-0	Fluoranthene	9900	1700	
86-73-7	Fluorene	ND	1700	
193-39-5	Indeno(1,2,3-cd)pyrene	4900	1700	
91-20-3	Naphthalene	ND	1700	
85-01-8	Phenanthrene	4500	1700	
129-00-0	Pyrene	7400	1700	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	89	41 - 106
2-Fluorobiphenyl (SS1)	71	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**Laboratory Blank (PAHs)**

Client Sample ID:	N/A	Lab Sample ID:	N/A
Date of Collection:	N/A	Matrix:	Soil
Date of Extraction:	11/3/10	Volume Extracted:	N/A
Date of Analysis:	11/19/10	Percent Solids:	100%
Dry Weight Extracted:	10.396 grams	Extract Dilution:	1
Wet Weight Extracted:	10.396 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	48	
208-96-8	Acenaphthylene	ND	48	
120-12-7	Anthracene	ND	48	
56-55-3	Benzo(a)anthracene	ND	48	
50-32-8	Benzo(a)pyrene	ND	48	
205-99-2	Benzo(b)fluoranthene	ND	48	
191-24-2	Benzo(g,h,i)perylene	ND	48	
207-08-9	Benzo(k)fluoranthene	ND	48	
218-01-9	Chrysene	ND	48	
53-70-3	Dibenz(a,h)anthracene	ND	48	
206-44-0	Fluoranthene	ND	48	
86-73-7	Fluorene	ND	48	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	48	
91-20-3	Naphthalene	ND	48	
85-01-8	Phenanthrene	ND	48	
129-00-0	Pyrene	ND	48	

Surrogate Compounds	Recoveries (%)	QC Ranges
2-Fluorobiphenyl (SS1)	74	39 - 103
p-Terphenyl-d14 (SS2)	90	41 - 106

Comments: Method blank for the re-extraction of AB11781.

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

Tombarello Site - Lawrence, MA

PAHs in Soil

Client Sample ID:	R01-100830MB-0499	Lab Sample ID:	AB11781
Date of Collection:	10/20/2010	Matrix:	Soil
Date of Extraction:	11/3/10	Volume Extracted:	N/A
Date of Analysis:	11/19/10	Percent Solids:	82%
Dry Weight Extracted:	8.520 grams	Extract Dilution:	20
Wet Weight Extracted:	10.347 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	1200	
208-96-8	Acenaphthylene	ND	1200	
120-12-7	Anthracene	ND	1200	
56-55-3	Benzo(a)anthracene	4600	1200	
50-32-8	Benzo(a)pyrene	4900	1200	
205-99-2	Benzo(b)fluoranthene	4500	1200	
191-24-2	Benzo(g,h,i)perylene	5800	1200	
207-08-9	Benzo(k)fluoranthene	4700	1200	
218-01-9	Chrysene	4500	1200	
53-70-3	Dibenz(a,h)anthracene	ND	1200	
206-44-0	Fluoranthene	8600	1200	
86-73-7	Fluorene	ND	1200	
193-39-5	Indeno(1,2,3-cd)pyrene	4600	1200	
91-20-3	Naphthalene	ND	1200	
85-01-8	Phenanthrene	3900	1200	
129-00-0	Pyrene	6700	1200	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	104	41 - 106
2-Fluorobiphenyl (SS1)	95	39 - 103

Comments: The original extract for this sample was lost during vialing, the sample was re-extracted 11/3/2010.

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

PAH MATRIX SPIKE (MS)

Tombarello Site - Lawrence, MA

Sample ID: AB11763

PARAMETER	SPIKE ADDED ug/Kg	SAMPLE CONCENTRATION ug/Kg	MS CONCENTRATION ug/Kg	MS % REC	QC LIMITS (% REC)
Acenaphthene	5600	ND	5500	99	30 - 113
Acenaphthylene	5600	ND	5500	98	28 - 125
Anthracene	5600	ND	7000	125	30 - 129
Benzo(a)anthracene	5600	5400	11000	99	25 - 137
Benzo(a)pyrene	5600	5600	11000	97	26 - 115
Benzo(b)fluoranthene	5600	5400	10000	88	29 - 120
Benzo(g,h,i)perylene	5600	5200	11000	99	26 - 119
Benzo(k)fluoranthene	5600	4500	10000	99	27 - 139
Chrysene	5600	5100	11000	101	31 - 120
Dibenz(a,h)anthracene	5600	ND	7000	127	31 - 125
Fluoranthene	5600	11000	17000	104	21 - 148
Fluorene	5600	ND	5700	103	34 - 121
Indeno(1,2,3-cd)pyrene	5600	4100	9200	92	29 - 125
Naphthalene	5600	ND	5500	99	19 - 107
Phenanthrene	5600	3500	9700	111	26 - 125
Pyrene	5600	7700	13000	95	20 - 142

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

Laboratory Duplicate Results

Tombarello Site - Lawrence, MA

Sample ID: AB11763

PARAMETER	SAMPLE RESULT	SAMPLE DUPLICATE RESULT	PRECISION RPD	QC LIMITS
	ug/Kg	ug/Kg	%	
Acenaphthene	ND	ND	ND	40
Acenaphthylene	ND	ND	ND	40
Anthracene	ND	5800	200	40
Benzo(a)anthracene	5400	14000	91	40
Benzo(a)pyrene	5600	13000	78	40
Benzo(b)fluoranthene	5400	9600	56	40
Benzo(g,h,i)perylene	5200	9900	62	40
Benzo(k)fluoranthene	4500	10000	79	40
Chrysene	5100	14000	91	40
Dibenz(a,h)anthracene	ND	ND	ND	40
Fluoranthene	11000	35000	100	40
Fluorene	ND	1800	200	40
Indeno(1,2,3-cd)pyrene	4100	8600	71	40
Naphthalene	ND	ND	ND	40
Phenanthrene	3500	21000	140	40
Pyrene	7700	23000	98	40

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

Laboratory Fortified Blank (LFB) Results

Tombarello Site - Lawrence, MA

PARAMETER	LFB AMOUNT SPIKED ppb	LFB RESULT ppb	LFB RECOVERY %	QC LIMITS %
Acenaphthene	3700	3900	110	26 - 129
Acenaphthylene	3700	3800	100	23 - 141
Anthracene	3700	4300	120	25 - 149
Benzo(a)anthracene	3700	4100	110	27 - 142
Benzo(a)pyrene	3700	4100	110	29 - 123
Benzo(b)fluoranthene	3700	3600	98	22 - 146
Benzo(g,h,i)perylene	3700	3900	110	26 - 134
Benzo(k)fluoranthene	3700	4400	120	32 - 144
Chrysene	3700	4100	110	38 - 121
Dibenz(a,h)anthracene	3700	3900	110	35 - 133
Fluoranthene	3700	4700	130	29 - 154
Fluorene	3700	4000	110	29 - 138
Indeno(1,2,3-cd)pyrene	3700	3800	100	26 - 141
Naphthalene	3700	3700	100	30 - 110
Phenanthrene	3700	4100	110	27 - 140
Pyrene	3700	3900	110	24 - 147

Comments:



United States Environmental Protection Agency  
Office of Environmental Measurement & Evaluation  
60 Westview Street  
Lexington, MA 02421-3185

Laboratory Report

November 03, 2010

Mike Barry - OSRR02-2  
US EPA New England RI

Project Number: 10100035  
Project: Tombarello Site - Lawrence, MA  
Analysis: PCB's in Soil Field Method (Fixed Lab)  
Analyst: Paul Carroll

*Shawell*  
11.3.10

Analytical Procedure:

All samples were received and logged in by the laboratory according to the USEPA New England Laboratory SOP for Sample Log-in.

Sample preparation and analysis was done following the EPA Region I SOP, FLDPCB2.SOP.

Concentrations of PCBs in soil were calculated using an external standard technique.

Analysis for PCB's performed by this field analytical technique is used for tentative identification and semi-quantitation of PCB's in soil, oil, and sediment samples.

Date Samples Received by the Laboratory: 10/21/10

Results relate only to the items tested or to the samples as received by the Laboratory. This analytical report shall not be reproduced except in full, without written approval of the laboratory.

Results for soil samples are reported on a dry weight basis.

If you have any questions please call me at 617-918-8340.

Sincerely,

*Daniel Boudreau* 11/8/10  
Daniel Boudreau

Project # 10100035

**PCB's in Soil Field Method (Fixed Lab)**

US ENVIRONMENTAL PROTECTION AGENCY NEW ENGLAND LABORATORY Tombarello Site - Lawrence, MA						
Client Sample ID	R01-100830MB-0480	R01-100830MB-0481	R01-100830MB-0482	R01-100830MB-0483	R01-100830MB-0484	R01-100830MB-0485
Lab Sample ID	AB11762	AB11763	AB11764	AB11765	AB11766	AB11767
Date of Collection	10/20/2010	10/20/2010	10/20/2010	10/20/2010	10/20/2010	10/20/2010
Date of Extraction	10/26/2010	10/26/2010	10/26/2010	10/26/2010	10/26/2010	10/26/2010
Date of Analysis	10/31/2010	10/31/2010	10/31/2010	10/31/2010	10/31/2010	10/31/2010
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Compound	Conc. (RL) mg/Kg					
Aroclor-1242	ND (0.8)	ND (0.88)	ND (0.76)	ND (0.68)	ND (0.78)	ND (0.9)
Aroclor-1248	ND (0.8)	ND (0.88)	ND (0.76)	ND (0.68)	ND (0.78)	ND (0.9)
Aroclor-1254	ND (0.8)	1.6 (0.88)	1.0 (0.76)	ND (0.68)	0.94 (0.78)	1.1 (0.9)
Aroclor-1260	8.1 (0.8)	2.6 (0.88)	1.2 (0.76)	ND (0.68)	1.6 (0.78)	1.3 (0.9)
Aroclor-1262	ND (0.8)	ND (0.88)	ND (0.76)	ND (0.68)	ND (0.78)	ND (0.9)
Aroclor-1268	ND (0.8)	ND (0.88)	ND (0.76)	ND (0.68)	ND (0.78)	ND (0.9)

**US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY  
Tombarello Site - Lawrence, MA**

	R01-100830MB-0486 AB11768 10/20/2010 10/26/2010 10/31/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0487 AB11769 10/20/2010 10/26/2010 10/31/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0488 AB11770 10/20/2010 10/26/2010 10/31/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0489 AB11771 10/20/2010 10/26/2010 10/31/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0490 AB11772 10/20/2010 10/26/2010 10/31/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0491 AB11773 10/20/2010 10/26/2010 10/31/2010 Soil  Conc. (RL) mg/Kg
Aroclor-1242	ND (0.8)	ND (0.58)	ND (0.68)	ND (0.74)	ND (0.82)	ND (0.88)
Aroclor-1248	ND (0.8)	ND (0.58)	0.85 (0.68)	1.9 (0.74)	1.4 (0.82)	23 (0.88) J
Aroclor-1254	1.3 (0.8)	1.2 (0.58)	5.0 (0.68)	4.1 (0.74)	3.5 (0.82)	6.0 (0.88)
Aroclor-1260	2.1 (0.8)	1.1 (0.58)	2.2 (0.68)	2.2 (0.74)	3.0 (0.82)	3.2 (0.88)
Aroclor-1262	ND (0.8)	ND (0.58)	ND (0.68)	ND (0.74)	ND (0.82)	ND (0.88)
Aroclor-1268	ND (0.8)	ND (0.58)	ND (0.68)	ND (0.74)	ND (0.82)	ND (0.88)

**US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY  
Tombarello Site - Lawrence, MA**

	R01-100830MB-0492 AB11774 10/20/2010 10/26/2010 10/31/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0493 AB11775 10/20/2010 10/26/2010 10/31/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0494 AB11776 10/20/2010 10/26/2010 10/31/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0495 AB11777 10/20/2010 10/26/2010 10/31/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0496 AB11778 10/20/2010 10/26/2010 10/31/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0497 AB11779 10/20/2010 10/26/2010 10/31/2010 Soil  Conc. (RL) mg/Kg
Aroclor-1242	ND (0.72)	ND (0.8)	ND (0.7)	ND (0.62)	ND (0.9)	ND (0.78)
Aroclor-1248	1.2 (0.72)	2.0 (0.8)	4.2 (0.7)	ND (0.62)	9.0 (0.9) J	1.7 (0.78)
Aroclor-1254	2.3 (0.72)	5.4 (0.8)	6.9 (0.7)	2.5 (0.62)	4.2 (0.9)	5.5 (0.78)
Aroclor-1260	1.2 (0.72)	3.8 (0.8)	8.0 (0.7)	2.1 (0.62)	2.3 (0.9)	4.6 (0.78)
Aroclor-1262	ND (0.72)	ND (0.8)	ND (0.7)	ND (0.62)	ND (0.9)	ND (0.78)
Aroclor-1268	ND (0.72)	ND (0.8)	ND (0.7)	ND (0.62)	ND (0.9)	ND (0.78)

**US ENVIRONMENTAL PROTECTION  
AGENCY  
NEW ENGLAND LABORATORY**

R01-100830MB-0498 AB11780 10/20/2010 10/26/2010 10/31/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0499 AB11781 10/20/2010 10/26/2010 10/31/2010 Soil  Conc. (RL) mg/Kg
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Aroclor-1242	ND (0.76)	ND (0.94)
Aroclor-1248	3.2 (0.76)	4.5 (0.94)
Aroclor-1254	5.8 (0.76)	6.5 (0.94)
Aroclor-1260	4.4 (0.76)	3.2 (0.94)
Aroclor-1262	ND (0.76)	ND (0.94)
Aroclor-1268	ND (0.76)	ND (0.94)

Qualifiers: RL = Reporting limit  
ND = Not Detected above Reporting limit  
NA = Not Applicable due to high sample dilutions or sample interferences  
J = Estimated value  
E = Estimated value exceeds the calibration range  
L = Estimated value is below the calibration range  
B = Analyte is associated with the lab blank or trip blank contamination. Values are qualified when the observed concentration of the contamination in the sample extract is less than 10 times the concentration in the blank.  
P = The confirmation value exceeded 35% difference and is less than 100%. The lower value is reported.  
C = The identification has been confirmed by GC/MS.  
A = Suspected Aldol condensation product.  
N = Tentatively identified compound.



United States Environmental Protection Agency  
Office of Environmental Measurement & Evaluation  
11 Technology Drive  
North Chelmsford, MA 01863

Laboratory Report

November 17, 2010

Mike Barry - OSRR02-2

US EPA New England R1

Project Number: 10100035

Project: Tombarello Site - Lawrence, MA

Analysis: Field Analysis of Metals by XRF

Analyst: Paul Carroll

*Carroll*  
11.17.10

Analytical Procedure:

All samples were received and logged in by the laboratory according to the USEPA New England Laboratory SOP for Sample Log-in.

Sample preparation and analysis was done following the EPA Region I SOP, EIA-FLDXRFN3.

The analysis were performed by the EPA New England Regional Laboratory.

Date Samples Received by the Laboratory: 10/21/10

Results relate only to the items tested or to the samples as received by the Laboratory. This analytical report shall not be reproduced except in full, without written approval of the laboratory.

If you have any questions please call me at 617-918-8340.

Sincerely,

*Dan Boudreau* 11/19/10

Dan Boudreau  
Chemistry Team Leader

Project # 10100035

**Field Analysis of Metals by XRF**

US ENVIRONMENTAL PROTECTION AGENCY NEW ENGLAND LABORATORY Tombarello Site - Lawrence, MA						
Client Sample ID	R01-100830MB-0480	R01-100830MB-0481	R01-100830MB-0482	R01-100830MB-0483	R01-100830MB-0484	R01-100830MB-0485
Lab Sample ID	AB11762	AB11763	AB11764	AB11765	AB11766	AB11767
Date of Collection	10/20/2010	10/20/2010	10/20/2010	10/20/2010	10/20/2010	10/20/2010
Date of Extraction	11/12/2010	11/12/2010	11/12/2010	11/12/2010	11/12/2010	11/12/2010
Date of Analysis	11/12/2010	11/12/2010	11/12/2010	11/12/2010	11/12/2010	11/12/2010
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Compound	Conc. (RL) mg/Kg					
Arsenic	51 ( 20)	ND ( 29)	32 ( 20)	ND ( 20)	31 ( 20)	ND ( 32)
Cadmium	ND ( 11)	ND ( 10)	ND ( 14)	ND ( 14)	ND ( 11)	ND ( 11)
Chromium	120 ( 20)	36 ( 20)	120 ( 20)	35 ( 20)	41 ( 20)	57 ( 20)
Lead	590 ( 20)	450 ( 20)	390 ( 20)	180 ( 20)	370 ( 20)	470 ( 20)

**US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY  
Tombarello Site - Lawrence, MA**

	R01-100830MB-0486 AB11768 10/20/2010 11/12/2010 11/12/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0487 AB11769 10/20/2010 11/12/2010 11/12/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0488 AB11770 10/20/2010 11/12/2010 11/12/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0489 AB11771 10/20/2010 11/12/2010 11/12/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0490 AB11772 10/20/2010 11/12/2010 11/12/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0491 AB11773 10/20/2010 11/12/2010 11/12/2010 Soil  Conc. (RL) mg/Kg
Arsenic	ND ( 24)	ND ( 23)	ND ( 30)	ND ( 62)	69 ( 20)	120 ( 20)
Cadmium	ND ( 13)	11 (8.0)	ND ( 14)	27 (8.0)	23 (8.0)	23 (8.0)
Chromium	92 ( 20)	36 ( 20)	52 ( 20)	190 ( 20)	160 ( 20)	130 ( 20)
Lead	290 ( 20)	250 ( 20)	410 ( 20)	1600 ( 20)	900 ( 20)	1300 ( 20)

**US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY  
Tombarello Site - Lawrence, MA**

	R01-100830MB-0492 AB11774 10/20/2010 11/12/2010 11/12/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0493 AB11775 10/20/2010 11/12/2010 11/12/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0494 AB11776 10/20/2010 11/12/2010 11/12/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0495 AB11777 10/20/2010 11/12/2010 11/12/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0496 AB11778 10/20/2010 11/12/2010 11/12/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0497 AB11779 10/20/2010 11/12/2010 11/12/2010 Soil  Conc. (RL) mg/Kg
Arsenic	210 ( 20)	ND ( 58)	ND ( 50)	ND ( 63)	ND ( 48)	ND ( 48)
Cadmium	ND ( 16)	17 (8.0)	20 (8.0)	20 (8.0)	ND ( 15)	25 (8.0)
Chromium	340 ( 20)	140 ( 20)	100 ( 20)	190 ( 20)	150 ( 20)	830 ( 20)
Lead	4400 ( 20)	1300 ( 20)	1100 ( 20)	1400 ( 20)	970 ( 20)	1000 ( 20)

US ENVIRONMENTAL PROTECTION AGENCY NEW ENGLAND LABORATORY		
	R01-100830MB-0498 AB11780 10/20/2010 11/12/2010 11/12/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0499 AB11781 10/20/2010 11/12/2010 11/12/2010 Soil  Conc. (RL) mg/Kg
Arsenic	92 ( 20)	83 ( 20)
Cadmium	ND ( 14)	25 (8.0)
Chromium	150 ( 20)	110 ( 20)
Lead	1200 ( 20)	1900 ( 20)

Qualifiers: RL = Reporting limit  
ND = Not Detected above Reporting limit  
NA = Not Applicable due to low (pH < 4.5)  
J = Estimated value  
E = Estimated value exceeds the calibration range  
L = Estimated value is below the calibration range  
B = Analyte is associated with the lab blank or trip blank contamination. Values are qualified when the observed concentration of the contamination in the sample extract is less than 10 times the concentration in the blank.  
P = The confirmation value exceeded 35% difference and is less than 100%. The lower value is reported.  
C = The identification has been confirmed by GC/MS.  
A = Suspected Aldol condensation product.  
N = Tentatively identified compound.



United States Environmental Protection Agency  
Office of Environmental Measurement & Evaluation  
11 Technology Drive  
North Chelmsford, MA 01863-2431

Laboratory Report

December 02, 2010

Mike Barry - OSRR02-2  
US EPA New England R1

Project Number: 10100038  
Project: Tombarello Site - Lawrence, MA  
Analysis: PAHs in Soil  
Analyst: Bhavita Patel

*B. Patel 12/02/10*

Analytical Procedure:

All samples were received and logged in by the laboratory according to the USEPA New England Laboratory SOP for Sample Log-in.

Sample preparation and analysis was done following the EPA Region I SOP, EIASOP-BNAS3.

Samples were analyzed by a quadrupole GC/MS operating in the full-scan mode. The extraction and analysis SOPs are based on SW-846 methods 3545A, 3630C, 8270C, and EIASOP-BNAGCMS7.

Date Samples Received by the Laboratory: 10/21/2010

Data were reviewed in accordance with the internal verification procedures described in the EPA New England OEME Chemistry QA Plan.

Results relate only to the items tested or to the samples as received by the Laboratory. This analytical report shall not be reproduced except in full, without written approval of the laboratory.

Report may contain multiple sections and each section will be numbered independently.

If you have any questions please call me at 617-918-8340 .

Sincerely,

*Daniel N. Boudreau 12/2/10*

Daniel N. Boudreau  
Chemistry Team Leader

**Qualifiers:**

RL = Reporting limit

ND = Not Detected above Reporting limit

NA = Not Applicable due to high sample dilutions or sample interferences

NC = Not calculated since analyte concentration is ND.

J = Estimated value

E = Estimated value exceeds the calibration range

L = Estimated value is below the calibration range

B = Analyte is associated with the lab blank or trip blank contamination. Values are qualified when the observed concentration of the contamination in the sample extract is less than 5 times the concentration in the blank.

R = No recovery was calculated since the analyte concentration is greater than four times the spike level.

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID: R01-100830-0500  
Date of Collection: 10/20/2010  
Date of Extraction: 10/27/10  
Date of Analysis: 11/9/10  
Dry Weight Extracted: 8.379 grams  
Wet Weight Extracted: 10.310 grams  
Final Volume: 1 mL

Lab Sample ID: AB11825  
Matrix: Soil  
Volume Extracted: N/A  
Percent Solids: 81%  
Extract Dilution: 20  
pH: N/A  
GPC Factor: N/A

<b>CAS Number</b>	<b>Compound</b>	<b>Concentration ug/Kg</b>	<b>RL ug/Kg</b>	<b>Qualifier</b>
83-32-9	Acenaphthene	ND	1200	
208-96-8	Acenaphthylene	ND	1200	
120-12-7	Anthracene	ND	1200	
56-55-3	Benzo(a)anthracene	1800	1200	
50-32-8	Benzo(a)pyrene	2100	1200	
205-99-2	Benzo(b)fluoranthene	1900	1200	
191-24-2	Benzo(g,h,i)perylene	3000	1200	
207-08-9	Benzo(k)fluoranthene	2000	1200	
218-01-9	Chrysene	1700	1200	
53-70-3	Dibenz(a,h)anthracene	ND	1200	
206-44-0	Fluoranthene	3200	1200	
86-73-7	Fluorene	ND	1200	
193-39-5	Indeno(1,2,3-cd)pyrene	2200	1200	
91-20-3	Naphthalene	ND	1200	
85-01-8	Phenanthrene	2000	1200	
129-00-0	Pyrene	2800	1200	

<b>Surrogate Compounds</b>	<b>Recoveries (%)</b>	<b>QC Ranges</b>
p-Terphenyl-d14 (SS2)	98	41 - 106
2-Fluorobiphenyl (SS1)	84	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**Laboratory Blank (PAHs)**

Client Sample ID:	N/A	Lab Sample ID:	N/A
Date of Collection:	N/A	Matrix:	Soil
Date of Extraction:	10/27/10	Volume Extracted:	N/A
Date of Analysis:	11/9/10	Percent Solids:	100%
Dry Weight Extracted:	10.757 grams	Extract Dilution:	1
Wet Weight Extracted:	10.755 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	47	
208-96-8	Acenaphthylene	ND	47	
120-12-7	Anthracene	ND	47	
56-55-3	Benzo(a)anthracene	ND	47	
50-32-8	Benzo(a)pyrene	ND	47	
205-99-2	Benzo(b)fluoranthene	ND	47	
191-24-2	Benzo(g,h,i)perylene	ND	47	
207-08-9	Benzo(k)fluoranthene	ND	47	
218-01-9	Chrysene	ND	47	
53-70-3	Dibenz(a,h)anthracene	ND	47	
206-44-0	Fluoranthene	ND	47	
86-73-7	Fluorene	ND	47	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	47	
91-20-3	Naphthalene	ND	47	
85-01-8	Phenanthrene	ND	47	
129-00-0	Pyrene	ND	47	

Surrogate Compounds	Recoveries (%)	QC Ranges
2-Fluorobiphenyl (SS1)	83.5	39 - 103
p-Terphenyl-d14 (SS2)	95.0	41 - 106

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

Tombarello Site - Lawrence, MA

PAHs in Soil

Client Sample ID: R01-100830-0501  
Date of Collection: 10/20/2010  
Date of Extraction: 10/27/10  
Date of Analysis: 11/19/10  
Dry Weight Extracted: 5.076 grams  
Wet Weight Extracted: 6.020 grams  
Final Volume: 1 mL

Lab Sample ID: AB11826  
Matrix: Soil  
Volume Extracted: N/A  
Percent Solids: 84%  
Extract Dilution: 20  
pH: N/A  
GPC Factor: N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	2000	
208-96-8	Acenaphthylene	ND	2000	
120-12-7	Anthracene	1700	2000	
56-55-3	Benzo(a)anthracene	5800	2000	
50-32-8	Benzo(a)pyrene	5900	2000	
205-99-2	Benzo(b)fluoranthene	5500	2000	
191-24-2	Benzo(g,h,i)perylene	6000	2000	
207-08-9	Benzo(k)fluoranthene	4700	2000	
218-01-9	Chrysene	5800	2000	
53-70-3	Dibenz(a,h)anthracene	ND	2000	
206-44-0	Fluoranthene	12000	2000	
86-73-7	Fluorene	ND	2000	
193-39-5	Indeno(1,2,3-cd)pyrene	5000	2000	
91-20-3	Naphthalene	ND	2000	
85-01-8	Phenanthrene	7100	2000	
129-00-0	Pyrene	9600	2000	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	84	41 - 106
2-Fluorobiphenyl (SS1)	74	39 - 103

Comments: The matrix spike was out of spec due to the lack of homogeneity in the sample.

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

Tombarello Site - Lawrence, MA

PAHs in Soil

Client Sample ID:	R01-100830-0502	Lab Sample ID:	AB11827
Date of Collection:	10/20/2010	Matrix:	Soil
Date of Extraction:	10/27/10	Volume Extracted:	N/A
Date of Analysis:	11/9/10	Percent Solids:	82%
Dry Weight Extracted:	6.004 grams	Extract Dilution:	20
Wet Weight Extracted:	7.317 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	47000	1700	
208-96-8	Acenaphthylene	ND	1700	
120-12-7	Anthracene	80000	1700	
56-55-3	Benzo(a)anthracene	120000	1700	
50-32-8	Benzo(a)pyrene	90000	1700	
205-99-2	Benzo(b)fluoranthene	89000	1700	
191-24-2	Benzo(g,h,i)perylene	52000	1700	
207-08-9	Benzo(k)fluoranthene	62000	1700	
218-01-9	Chrysene	110000	1700	
53-70-3	Dibenz(a,h)anthracene	ND	1700	
206-44-0	Fluoranthene	260000	1700	
86-73-7	Fluorene	44000	1700	
193-39-5	Indeno(1,2,3-cd)pyrene	47000	1700	
91-20-3	Naphthalene	25000	1700	
85-01-8	Phenanthrene	260000	1700	
129-00-0	Pyrene	210000	1700	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	100	41 - 106
2-Fluorobiphenyl (SS1)	88	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

Tombarello Site - Lawrence, MA

PAHs in Soil

Client Sample ID: R01-100830-0506  
Date of Collection: 10/20/2010  
Date of Extraction: 10/27/10  
Date of Analysis: 11/9/10  
Dry Weight Extracted: 11.3 grams  
Wet Weight Extracted: 11.3 grams  
Final Volume: 1 mL

Lab Sample ID: AB11831  
Matrix: Soil  
Volume Extracted: N/A  
Percent Solids: 100%  
Extract Dilution: 1  
pH: N/A  
GPC Factor: N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	44	
208-96-8	Acenaphthylene	ND	44	
120-12-7	Anthracene	ND	44	
56-55-3	Benzo(a)anthracene	ND	44	
50-32-8	Benzo(a)pyrene	ND	44	
205-99-2	Benzo(b)fluoranthene	2200	44	
191-24-2	Benzo(g,h,i)perylene	2100	44	
207-08-9	Benzo(k)fluoranthene	1700	44	
218-01-9	Chrysene	1900	44	
53-70-3	Dibenz(a,h)anthracene	ND	44	
206-44-0	Fluoranthene	ND	44	
86-73-7	Fluorene	ND	44	
193-39-5	Indeno(1,2,3-cd)pyrene	1800	44	
91-20-3	Naphthalene	2100	44	
85-01-8	Phenanthrene	1700	44	
129-00-0	Pyrene	ND	44	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	95	41 - 106
2-Fluorobiphenyl (SS1)	75	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830-0507	Lab Sample ID:	AB11832
Date of Collection:	10/20/2010	Matrix:	Soil
Date of Extraction:	10/27/10	Volume Extracted:	N/A
Date of Analysis:	11/9/10	Percent Solids:	100%
Dry Weight Extracted:	10.857 grams	Extract Dilution:	1
Wet Weight Extracted:	10.857 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	46	
208-96-8	Acenaphthylene	ND	46	
120-12-7	Anthracene	ND	46	
56-55-3	Benzo(a)anthracene	ND	46	
50-32-8	Benzo(a)pyrene	ND	46	
205-99-2	Benzo(b)fluoranthene	2300	46	
191-24-2	Benzo(g,h,i)perylene	2200	46	
207-08-9	Benzo(k)fluoranthene	1700	46	
218-01-9	Chrysene	1900	46	
53-70-3	Dibenz(a,h)anthracene	ND	46	
206-44-0	Fluoranthene	ND	46	
86-73-7	Fluorene	ND	46	
193-39-5	Indeno(1,2,3-cd)pyrene	1900	46	
91-20-3	Naphthalene	2400	46	
85-01-8	Phenanthrene	1800	46	
129-00-0	Pyrene	ND	46	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	95	41 - 106
2-Fluorobiphenyl (SS1)	80	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID: R01-100830-0508	Lab Sample ID: AB11833
Date of Collection: 10/20/2010	Matrix: Soil
Date of Extraction: 10/27/10	Volume Extracted: N/A
Date of Analysis: 11/9/10	Percent Solids: 100%
Dry Weight Extracted: 10.221 grams	Extract Dilution: 1
Wet Weight Extracted: 10.221 grams	pH: N/A
Final Volume: 1 mL	GPC Factor: N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	1300	49	
208-96-8	Acenaphthylene	ND	49	
120-12-7	Anthracene	ND	49	
56-55-3	Benzo(a)anthracene	ND	49	
50-32-8	Benzo(a)pyrene	ND	49	
205-99-2	Benzo(b)fluoranthene	ND	49	
191-24-2	Benzo(g,h,i)perylene	1700	49	
207-08-9	Benzo(k)fluoranthene	ND	49	
218-01-9	Chrysene	ND	49	
53-70-3	Dibenz(a,h)anthracene	1800	49	
206-44-0	Fluoranthene	ND	49	
86-73-7	Fluorene	1400	49	
193-39-5	Indeno(1,2,3-cd)pyrene	2300	49	
91-20-3	Naphthalene	2200	49	
85-01-8	Phenanthrene	1800	49	
129-00-0	Pyrene	2300	49	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	95	41 - 106
2-Fluorobiphenyl (SS1)	80	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830-0512	Lab Sample ID:	AB11837
Date of Collection:	10/20/2010	Matrix:	Soil
Date of Extraction:	10/27/10	Volume Extracted:	N/A
Date of Analysis:	11/9/10	Percent Solids:	80%
Dry Weight Extracted:	8.368 grams	Extract Dilution:	20
Wet Weight Extracted:	10.444 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	1200	
208-96-8	Acenaphthylene	ND	1200	
120-12-7	Anthracene	ND	1200	
56-55-3	Benzo(a)anthracene	2700	1200	
50-32-8	Benzo(a)pyrene	2900	1200	
205-99-2	Benzo(b)fluoranthene	3300	1200	
191-24-2	Benzo(g,h,i)perylene	3300	1200	
207-08-9	Benzo(k)fluoranthene	2000	1200	
218-01-9	Chrysene	2900	1200	
53-70-3	Dibenz(a,h)anthracene	ND	1200	
206-44-0	Fluoranthene	4800	1200	
86-73-7	Fluorene	ND	1200	
193-39-5	Indeno(1,2,3-cd)pyrene	2700	1200	
91-20-3	Naphthalene	ND	1200	
85-01-8	Phenanthrene	2100	1200	
129-00-0	Pyrene	4200	1200	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	100	41 - 106
2-Fluorobiphenyl (SS1)	83	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID: R01-100830-0513  
Date of Collection: 10/21/2010  
Date of Extraction: 10/27/10  
Date of Analysis: 11/9/10  
Dry Weight Extracted: 10.208 grams  
Wet Weight Extracted: 12.363 grams  
Final Volume: 1 mL

Lab Sample ID: AB11838  
Matrix: Soil  
Volume Extracted: N/A  
Percent Solids: 83%  
Extract Dilution: 20  
pH: N/A  
GPC Factor: N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	980	
208-96-8	Acenaphthylene	ND	980	
120-12-7	Anthracene	2700	980	
56-55-3	Benzo(a)anthracene	10000	980	
50-32-8	Benzo(a)pyrene	11000	980	
205-99-2	Benzo(b)fluoranthene	9700	980	
191-24-2	Benzo(g,h,i)perylene	9700	980	
207-08-9	Benzo(k)fluoranthene	8500	980	
218-01-9	Chrysene	10000	980	
53-70-3	Dibenz(a,h)anthracene	ND	980	
206-44-0	Fluoranthene	21000	980	
86-73-7	Fluorene	ND	980	
193-39-5	Indeno(1,2,3-cd)pyrene	7900	980	
91-20-3	Naphthalene	ND	980	
85-01-8	Phenanthrene	11000	980	
129-00-0	Pyrene	17000	980	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	110	41 - 106
2-Fluorobiphenyl (SS1)	89	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830-0514	Lab Sample ID:	AB11839
Date of Collection:	10/21/2010	Matrix:	Soil
Date of Extraction:	10/27/10	Volume Extracted:	N/A
Date of Analysis:	11/9/10	Percent Solids:	82%
Dry Weight Extracted:	8.199 grams	Extract Dilution:	20
Wet Weight Extracted:	10.014 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	1900	1200	
208-96-8	Acenaphthylene	ND	1200	
120-12-7	Anthracene	7500	1200	
56-55-3	Benzo(a)anthracene	21000	1200	
50-32-8	Benzo(a)pyrene	17000	1200	
205-99-2	Benzo(b)fluoranthene	14000	1200	
191-24-2	Benzo(g,h,i)perylene	12000	1200	
207-08-9	Benzo(k)fluoranthene	14000	1200	
218-01-9	Chrysene	22000	1200	
53-70-3	Dibenz(a,h)anthracene	ND	1200	
206-44-0	Fluoranthene	45000	1200	
86-73-7	Fluorene	2500	1200	
193-39-5	Indeno(1,2,3-cd)pyrene	10000	1200	
91-20-3	Naphthalene	ND	1200	
85-01-8	Phenanthrene	31000	1200	
129-00-0	Pyrene	42000	1200	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	110	41 - 106
2-Fluorobiphenyl (SS1)	94	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID: R01-100830-0515  
Date of Collection: 10/21/2010  
Date of Extraction: 10/27/10  
Date of Analysis: 11/9/10  
Dry Weight Extracted: 5.240 grams  
Wet Weight Extracted: 6.253 grams  
Final Volume: 1 mL

Lab Sample ID: AB11840  
Matrix: Soil  
Volume Extracted: N/A  
Percent Solids: 84%  
Extract Dilution: 20  
pH: N/A  
GPC Factor: N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	1900	
208-96-8	Acenaphthylene	ND	1900	
120-12-7	Anthracene	4500	1900	
56-55-3	Benzo(a)anthracene	15000	1900	
50-32-8	Benzo(a)pyrene	15000	1900	
205-99-2	Benzo(b)fluoranthene	15000	1900	
191-24-2	Benzo(g,h,i)perylene	13000	1900	
207-08-9	Benzo(k)fluoranthene	10000	1900	
218-01-9	Chrysene	15000	1900	
53-70-3	Dibenz(a,h)anthracene	ND	1900	
206-44-0	Fluoranthene	32000	1900	
86-73-7	Fluorene	ND	1900	
193-39-5	Indeno(1,2,3-cd)pyrene	10000	1900	
91-20-3	Naphthalene	ND	1900	
85-01-8	Phenanthrene	17000	1900	
129-00-0	Pyrene	27000	1900	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	98	41 - 106
2-Fluorobiphenyl (SS1)	82	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830-0516	Lab Sample ID:	AB11841
Date of Collection:	10/21/2010	Matrix:	Soil
Date of Extraction:	10/27/10	Volume Extracted:	N/A
Date of Analysis:	11/9/10	Percent Solids:	85%
Dry Weight Extracted:	8.166 grams	Extract Dilution:	20
Wet Weight Extracted:	9.587 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	1200	
208-96-8	Acenaphthylene	ND	1200	
120-12-7	Anthracene	4800	1200	
56-55-3	Benzo(a)anthracene	14000	1200	
50-32-8	Benzo(a)pyrene	13000	1200	
205-99-2	Benzo(b)fluoranthene	13000	1200	
191-24-2	Benzo(g,h,i)perylene	10000	1200	
207-08-9	Benzo(k)fluoranthene	10000	1200	
218-01-9	Chrysene	14000	1200	
53-70-3	Dibenz(a,h)anthracene	1800	1200	
206-44-0	Fluoranthene	30000	1200	
86-73-7	Fluorene	1600	1200	
193-39-5	Indeno(1,2,3-cd)pyrene	8900	1200	
91-20-3	Naphthalene	ND	1200	
85-01-8	Phenanthrene	17000	1200	
129-00-0	Pyrene	24000	1200	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	99	41 - 106
2-Fluorobiphenyl (SS1)	82	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID: R01-100830-0517  
Date of Collection: 10/21/2010  
Date of Extraction: 10/27/10  
Date of Analysis: 11/9/10  
Dry Weight Extracted: 6.304 grams  
Wet Weight Extracted: 7.159 grams  
Final Volume: 1 mL

Lab Sample ID: AB11842  
Matrix: Soil  
Volume Extracted: N/A  
Percent Solids: 88%  
Extract Dilution: 20  
pH: N/A  
GPC Factor: N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	1600	
208-96-8	Acenaphthylene	1600	1600	
120-12-7	Anthracene	3600	1600	
56-55-3	Benzo(a)anthracene	12000	1600	
50-32-8	Benzo(a)pyrene	12000	1600	
205-99-2	Benzo(b)fluoranthene	12000	1600	
191-24-2	Benzo(g,h,i)perylene	11000	1600	
207-08-9	Benzo(k)fluoranthene	9000	1600	
218-01-9	Chrysene	11000	1600	
53-70-3	Dibenz(a,h)anthracene	ND	1600	
206-44-0	Fluoranthene	24000	1600	
86-73-7	Fluorene	ND	1600	
193-39-5	Indeno(1,2,3-cd)pyrene	9100	1600	
91-20-3	Naphthalene	ND	1600	
85-01-8	Phenanthrene	14000	1600	
129-00-0	Pyrene	21000	1600	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	92	41 - 106
2-Fluorobiphenyl (SS1)	82	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

Tombarello Site - Lawrence, MA

PAHs in Soil

Client Sample ID:	R01-100830-0518	Lab Sample ID:	AB11843
Date of Collection:	10/21/2010	Matrix:	Soil
Date of Extraction:	10/27/10	Volume Extracted:	N/A
Date of Analysis:	11/9/10	Percent Solids:	88%
Dry Weight Extracted:	8.009 grams	Extract Dilution:	20
Wet Weight Extracted:	9.112 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	1200	
208-96-8	Acenaphthylene	ND	1200	
120-12-7	Anthracene	1700	1200	
56-55-3	Benzo(a)anthracene	7200	1200	
50-32-8	Benzo(a)pyrene	7400	1200	
205-99-2	Benzo(b)fluoranthene	7900	1200	
191-24-2	Benzo(g,h,i)perylene	7200	1200	
207-08-9	Benzo(k)fluoranthene	5300	1200	
218-01-9	Chrysene	7000	1200	
53-70-3	Dibenz(a,h)anthracene	ND	1200	
206-44-0	Fluoranthene	13000	1200	
86-73-7	Fluorene	ND	1200	
193-39-5	Indeno(1,2,3-cd)pyrene	5800	1200	
91-20-3	Naphthalene	ND	1200	
85-01-8	Phenanthrene	6400	1200	
129-00-0	Pyrene	12000	1200	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	100	41 - 106
2-Fluorobiphenyl (SS1)	85	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID: R01-100830-0519  
Date of Collection: 10/21/2010  
Date of Extraction: 10/27/10  
Date of Analysis: 11/9/10  
Dry Weight Extracted: 7.467 grams  
Wet Weight Extracted: 8.715 grams  
Final Volume: 1 mL

Lab Sample ID: AB11844  
Matrix: Soil  
Volume Extracted: N/A  
Percent Solids: 86%  
Extract Dilution: 20  
pH: N/A  
GPC Factor: N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	1300	
208-96-8	Acenaphthylene	ND	1300	
120-12-7	Anthracene	ND	1300	
56-55-3	Benzo(a)anthracene	3700	1300	
50-32-8	Benzo(a)pyrene	4100	1300	
205-99-2	Benzo(b)fluoranthene	4100	1300	
191-24-2	Benzo(g,h,i)perylene	4200	1300	
207-08-9	Benzo(k)fluoranthene	3000	1300	
218-01-9	Chrysene	3800	1300	
53-70-3	Dibenz(a,h)anthracene	ND	1300	
206-44-0	Fluoranthene	7200	1300	
86-73-7	Fluorene	ND	1300	
193-39-5	Indeno(1,2,3-cd)pyrene	3500	1300	
91-20-3	Naphthalene	ND	1300	
85-01-8	Phenanthrene	3500	1300	
129-00-0	Pyrene	6300	1300	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	92	41 - 106
2-Fluorobiphenyl (SS1)	82	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830-0520	Lab Sample ID:	AB11845
Date of Collection:	10/21/2010	Matrix:	Soil
Date of Extraction:	10/27/10	Volume Extracted:	N/A
Date of Analysis:	11/9/10	Percent Solids:	88%
Dry Weight Extracted:	8.110 grams	Extract Dilution:	20
Wet Weight Extracted:	9.235 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	1200	
208-96-8	Acenaphthylene	ND	1200	
120-12-7	Anthracene	1400	1200	
56-55-3	Benzo(a)anthracene	5000	1200	
50-32-8	Benzo(a)pyrene	4900	1200	
205-99-2	Benzo(b)fluoranthene	4900	1200	
191-24-2	Benzo(g,h,i)perylene	4900	1200	
207-08-9	Benzo(k)fluoranthene	3600	1200	
218-01-9	Chrysene	4900	1200	
53-70-3	Dibenz(a,h)anthracene	ND	1200	
206-44-0	Fluoranthene	10000	1200	
86-73-7	Fluorene	ND	1200	
193-39-5	Indeno(1,2,3-cd)pyrene	3900	1200	
91-20-3	Naphthalene	ND	1200	
85-01-8	Phenanthrene	4800	1200	
129-00-0	Pyrene	8800	1200	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	89	41 - 106
2-Fluorobiphenyl (SS1)	75	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID: R01-100830-0521  
Date of Collection: 10/21/2010  
Date of Extraction: 10/27/10  
Date of Analysis: 11/9/10  
Dry Weight Extracted: 6.5 grams  
Wet Weight Extracted: 7.385 grams  
Final Volume: 1 mL

Lab Sample ID: AB11846  
Matrix: Soil  
Volume Extracted: N/A  
Percent Solids: 88%  
Extract Dilution: 20  
pH: N/A  
GPC Factor: N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	1500	
208-96-8	Acenaphthylene	ND	1500	
120-12-7	Anthracene	5200	1500	
56-55-3	Benzo(a)anthracene	18000	1500	
50-32-8	Benzo(a)pyrene	14000	1500	
205-99-2	Benzo(b)fluoranthene	15000	1500	
191-24-2	Benzo(g,h,i)perylene	9800	1500	
207-08-9	Benzo(k)fluoranthene	11000	1500	
218-01-9	Chrysene	18000	1500	
53-70-3	Dibenz(a,h)anthracene	ND	1500	
206-44-0	Fluoranthene	46000	1500	
86-73-7	Fluorene	1800	1500	
193-39-5	Indeno(1,2,3-cd)pyrene	8400	1500	
91-20-3	Naphthalene	ND	1500	
85-01-8	Phenanthrene	25000	1500	
129-00-0	Pyrene	37000	1500	

**Surrogate Compounds**

p-Terphenyl-d14 (SS2)  
2-Fluorobiphenyl (SS1)

**Recoveries (%)**

110  
89

**QC Ranges**

41 - 106  
39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830-0522	Lab Sample ID:	AB11847
Date of Collection:	10/21/2010	Matrix:	Soil
Date of Extraction:	10/27/10	Volume Extracted:	N/A
Date of Analysis:	11/9/10	Percent Solids:	90%
Dry Weight Extracted:	6.198 grams	Extract Dilution:	20
Wet Weight Extracted:	6.925 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	1600	
208-96-8	Acenaphthylene	ND	1600	
120-12-7	Anthracene	ND	1600	
56-55-3	Benzo(a)anthracene	<b>8400</b>	1600	
50-32-8	Benzo(a)pyrene	<b>9500</b>	1600	
205-99-2	Benzo(b)fluoranthene	<b>9600</b>	1600	
191-24-2	Benzo(g,h,i)perylene	<b>8800</b>	1600	
207-08-9	Benzo(k)fluoranthene	<b>6800</b>	1600	
218-01-9	Chrysene	<b>8600</b>	1600	
53-70-3	Dibenz(a,h)anthracene	ND	1600	
206-44-0	Fluoranthene	<b>15000</b>	1600	
86-73-7	Fluorene	ND	1600	
193-39-5	Indeno(1,2,3-cd)pyrene	<b>7400</b>	1600	
91-20-3	Naphthalene	ND	1600	
85-01-8	Phenanthrene	<b>5600</b>	1600	
129-00-0	Pyrene	<b>14000</b>	1600	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	99	41 - 106
2-Fluorobiphenyl (SS1)	84	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

PAH MATRIX SPIKE (MS)

Tombarello Site - Lawrence, MA

Sample ID: AB11826

PARAMETER	SPIKE ADDED ug/Kg	SAMPLE CONCENTRATION ug/Kg	MS CONCENTRATION ug/Kg	MS % REC	QC LIMITS (% REC)
Acenaphthene	6600	ND	7600	115	30 - 113
Acenaphthylene	6600	ND	5900	89	28 - 125
Anthracene	6600	1700	10000	126	30 - 129
Benzo(a)anthracene	6600	5800	17000	170	25 - 137
Benzo(a)pyrene	6600	5900	17000	168	26 - 115
Benzo(b)fluoranthene	6600	5500	17000	176	29 - 120
Benzo(g,h,i)perylene	6600	6000	14000	124	26 - 119
Benzo(k)fluoranthene	6600	4700	13000	128	27 - 139
Chrysene	6600	5800	17000	168	31 - 120
Dibenz(a,h)anthracene	6600	ND	9100	138	31 - 125
Fluoranthene	6600	12000	28000	251	21 - 148
Fluorene	6600	ND	7400	112	34 - 121
Indeno(1,2,3-cd)pyrene	6600	5000	13000	116	29 - 125
Naphthalene	6600	ND	6800	102	19 - 107
Phenanthrene	6600	7100	22000	230	26 - 125
Pyrene	6600	9600	25000	229	20 - 142

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

Laboratory Duplicate Results

Tombarello Site - Lawrence, MA

Sample ID: AB11826

PARAMETER	SAMPLE RESULT ug/Kg	SAMPLE DUPLICATE RESULT ug/Kg	PRECISION RPD %	QC LIMITS
Acenaphthene	ND	ND	ND	40
Acenaphthylene	ND	ND	ND	40
Anthracene	1700	ND	ND	40
Benzo(a)anthracene	5800	5800	0.519	40
Benzo(a)pyrene	5900	6100	4.11	40
Benzo(b)fluoranthene	5500	5600	1.64	40
Benzo(g,h,i)perylene	6000	6400	7.52	40
Benzo(k)fluoranthene	4700	5500	17	40
Chrysene	5800	6000	2.22	40
Dibenz(a,h)anthracene	ND	ND	ND	40
Fluoranthene	12000	11000	4.93	40
Fluorene	ND	ND	ND	40
Indeno(1,2,3-cd)pyrene	5000	5200	3.64	40
Naphthalene	ND	ND	ND	40
Phenanthrene	7100	6500	9.62	40
Pyrene	9600	9900	3.54	40

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

Laboratory Fortified Blank (LFB) Results

Tombarello Site - Lawrence, MA

PARAMETER	LFB AMOUNT SPIKED ppb	LFB RESULT ppb	LFB RECOVERY %	QC LIMITS %
Acenaphthene	3700	3100	85	26 - 129
Acenaphthylene	3700	3100	83	23 - 141
Anthracene	3700	3500	94	25 - 149
Benzo(a)anthracene	3700	3400	92	27 - 142
Benzo(a)pyrene	3700	3400	92	29 - 123
Benzo(b)fluoranthene	3700	3000	82	22 - 146
Benzo(g,h,i)perylene	3700	3300	89	26 - 134
Benzo(k)fluoranthene	3700	3600	97	32 - 144
Chrysene	3700	3400	92	38 - 121
Dibenz(a,h)anthracene	3700	3300	89	35 - 133
Fluoranthene	3700	3300	89	29 - 154
Fluorene	3700	3100	85	29 - 138
Indeno(1,2,3-cd)pyrene	3700	3200	87	26 - 141
Naphthalene	3700	3000	82	30 - 110
Phenanthrene	3700	3400	92	27 - 140
Pyrene	3700	3400	93	24 - 147

Comments:



United States Environmental Protection Agency  
Office of Environmental Measurement & Evaluation  
60 Westview Street  
Lexington, MA 02421-3185

Laboratory Report

November 04, 2010

Mike Barry - OSRR02-2  
US EPA New England R1

Project Number: 10100038  
Project: Tombarello Site - Lawrence, MA  
Analysis: PCB's in Soil Field Method (Fixed Lab)  
Analyst: Paul Carroll

*Carroll*  
11.4.10

Analytical Procedure:

All samples were received and logged in by the laboratory according to the USEPA New England Laboratory SOP for Sample Log-in.

Sample preparation and analysis was done following the EPA Region I SOP, FLDPCB2.SOP.

Concentrations of PCBs in soil were calculated using an external standard technique.

Analysis for PCB's performed by this field analytical technique is used for tentative identification and semi-quantitation of PCB's in soil, oil, and sediment samples.

Date Samples Received by the Laboratory: 10/21/10

Results relate only to the items tested or to the samples as received by the Laboratory. This analytical report shall not be reproduced except in full, without written approval of the laboratory.

Results for soil samples are reported on a dry weight basis.

If you have any questions please call me at 617-918-8340.

Sincerely,

*Daniel Boudreau* 11/8/10  
Daniel Boudreau

Project # 10100038

**PCB's in Soil Field Method (Fixed Lab)**

US ENVIRONMENTAL PROTECTION AGENCY NEW ENGLAND LABORATORY Tombarello Site - Lawrence, MA						
Client Sample ID	R01-100830-0500	R01-100830-0501	R01-100830-0502	R01-100830-0503	R01-100830-0504	R01-100830-0505
Lab Sample ID	AB11825	AB11826	AB11827	AB11828	AB11829	AB11830
Date of Collection	10/20/2010	10/20/2010	10/20/2010	10/20/2010	10/20/2010	10/20/2010
Date of Extraction	10/29/2010	10/29/2010	10/29/2010	10/29/2010	10/29/2010	10/29/2010
Date of Analysis	10/31/2010	10/31/2010	10/31/2010	10/31/2010	10/31/2010	10/31/2010
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Compound	Conc. (RL) mg/Kg					
Aroclor-1242	ND (0.98)	ND (0.9)	ND (0.86)	ND (0.20)	ND (0.20)	ND (0.20)
Aroclor-1248	3.7 (0.98)	30 (0.9) J	18 (0.86) J	ND (0.20)	ND (0.20)	ND (0.20)
Aroclor-1254	4.9 (0.98)	8.1 (0.9)	5.4 (0.86)	1.2 (0.20)	1.1 (0.20)	0.33 (0.20)
Aroclor-1260	2.5 (0.98)	2.9 (0.9)	2.9 (0.86)	ND (0.20)	ND (0.20)	ND (0.20)
Aroclor-1262	ND (0.98)	ND (0.9)	ND (0.86)	ND (0.20)	ND (0.20)	ND (0.20)
Aroclor-1268	ND (0.98)	ND (0.9)	ND (0.86)	ND (0.20)	ND (0.20)	ND (0.20)

**US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY  
Tombarello Site - Lawrence, MA**

	R01-100830-0518 AB11843 10/21/2010 10/29/2010 10/31/2010 Soil  Conc. (RL) mg/Kg	R01-100830-0519 AB11844 10/21/2010 10/29/2010 10/31/2010 Soil  Conc. (RL) mg/Kg	R01-100830-0520 AB11845 10/21/2010 10/29/2010 10/31/2010 Soil  Conc. (RL) mg/Kg	R01-100830-0521 AB11846 10/21/2010 10/29/2010 10/31/2010 Soil  Conc. (RL) mg/Kg	R01-100830-0522 AB11847 10/21/2010 10/29/2010 10/31/2010 Soil  Conc. (RL) mg/Kg
Aroclor-1242	ND (0.78)	ND (0.88)	ND (0.78)	ND (0.68)	ND (0.76)
Aroclor-1248	ND (0.78)	1.7 (0.88)	ND (0.78)	1.5 (0.68)	7.7 (0.76)
Aroclor-1254	21 (0.78)	4.1 (0.88)	4.9 (0.78)	7.5 (0.68)	7.8 (0.76)
Aroclor-1260	4.9 (0.78)	1.9 (0.88)	3.4 (0.78)	3.4 (0.68)	4.2 (0.76)
Aroclor-1262	ND (0.78)	ND (0.88)	ND (0.78)	ND (0.68)	ND (0.76)
Aroclor-1268	ND (0.78)	ND (0.88)	ND (0.78)	ND (0.68)	ND (0.76)

**US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY  
Tombarello Site - Lawrence, MA**

	R01-100830-0512 AB11837 10/20/2010 10/29/2010 10/31/2010 Soil  Conc. (RL) mg/Kg	R01-100830-0513 AB11838 10/21/2010 10/29/2010 10/31/2010 Soil  Conc. (RL) mg/Kg	R01-100830-0514 AB11839 10/21/2010 10/29/2010 10/31/2010 Soil  Conc. (RL) mg/Kg	R01-100830-0515 AB11840 10/21/2010 10/29/2010 10/31/2010 Soil  Conc. (RL) mg/Kg	R01-100830-0516 AB11841 10/21/2010 10/29/2010 10/31/2010 Soil  Conc. (RL) mg/Kg	R01-100830-0517 AB11842 10/21/2010 10/29/2010 10/31/2010 Soil  Conc. (RL) mg/Kg
Aroclor-1242	ND (0.88)	ND (0.86)	ND (0.84)	ND (0.76)	ND (0.82)	ND (0.7)
Aroclor-1248	13 (0.88) J	ND (0.86)	ND (0.84)	5.9 (0.76)	8.8 (0.82)	20 (0.7) J
Aroclor-1254	4.1 (0.88)	5.4 (0.86)	7.3 (0.84)	11 (0.76)	11 (0.82)	7.0 (0.7)
Aroclor-1260	3.1 (0.88)	7.8 (0.86)	11 (0.84)	14 (0.76)	19 (0.82)	4.4 (0.7)
Aroclor-1262	ND (0.88)	ND (0.86)	ND (0.84)	ND (0.76)	ND (0.82)	ND (0.7)
Aroclor-1268	ND (0.88)	ND (0.86)	ND (0.84)	ND (0.76)	ND (0.82)	ND (0.7)

Qualifiers: RL = Reporting limit  
ND = Not Detected above Reporting limit  
NA = Not Applicable due to high sample dilutions or sample interferences  
J = Estimated value  
E = Estimated value exceeds the calibration range  
L = Estimated value is below the calibration range  
B = Analyte is associated with the lab blank or trip blank contamination. Values are qualified when the observed concentration of the contamination in the sample extract is less than 10 times the concentration in the blank.  
P = The confirmation value exceeded 35% difference and is less than 100%. The lower value is reported.  
C = The identification has been confirmed by GC/MS.  
A = Suspected Aldol condensation product.  
N = Tentatively identified compound.



United States Environmental Protection Agency  
Office of Environmental Measurement & Evaluation  
11 Technology Drive  
North Chelmsford, MA 01863

Laboratory Report

November 17, 2010

Mike Barry - OSRR02-2

US EPA New England R1

Project Number: 10100038

Project: Tombarello Site - Lawrence, MA

Analysis: Field Analysis of Metals by XRF

Analyst: Paul Carroll

*Carroll*  
11.17.10

Analytical Procedure:

All samples were received and logged in by the laboratory according to the USEPA New England Laboratory SOP for Sample Log-in.

Sample preparation and analysis was done following the EPA Region I SOP, EIA-FLDXRFN3.

The analysis were performed by the EPA New England Regional Laboratory.

Date Samples Received by the Laboratory: 10/21/10

Results relate only to the items tested or to the samples as received by the Laboratory. This analytical report shall not be reproduced except in full, without written approval of the laboratory.

If you have any questions please call me at 617-918-8340.

Sincerely,

*Dan Boudreau* 11/18/10

Dan Boudreau

Chemistry Team Leader

Project # 10100038

**Field Analysis of Metals by XRF**

US ENVIRONMENTAL PROTECTION AGENCY NEW ENGLAND LABORATORY Tombarello Site - Lawrence, MA						
Client Sample ID	R01-100830-0500	R01-100830-0501	R01-100830-0502	R01-100830-0509	R01-100830-0510	R01-100830-0511
Lab Sample ID	AB11825	AB11826	AB11827	AB11834	AB11835	AB11836
Date of Collection	10/20/2010	10/20/2010	10/20/2010	10/20/2010	10/20/2010	10/20/2010
Date of Extraction	11/10/2010	11/10/2010	11/10/2010	11/10/2010	11/10/2010	11/10/2010
Date of Analysis	11/10/2010	11/10/2010	11/10/2010	11/10/2010	11/10/2010	11/10/2010
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Compound	Conc. (RL) mg/Kg					
Arsenic	52 ( 20)	49 ( 20)	76 ( 20)	48 ( 20)	120 ( 20)	35 ( 20)
Cadmium	ND ( 44)	ND ( 46)	ND ( 43)	ND ( 33)	ND ( 33)	ND ( 33)
Chromium	190 ( 20)	210 ( 20)	170 ( 20)	28 ( 20)	ND ( 14)	35 ( 20)
Lead	900 ( 20)	1200 ( 20)	920 ( 20)	35 ( 20)	46 ( 20)	40 ( 20)

**US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY  
Tombarello Site - Lawrence, MA**

	R01-100830-0512 AB11837 10/20/2010 11/10/2010 11/10/2010 Soil  Conc. (RL) mg/Kg	R01-100830-0513 AB11838 10/21/2010 11/12/2010 11/12/2010 Soil  Conc. (RL) mg/Kg	R01-100830-0514 AB11839 10/21/2010 11/12/2010 11/12/2010 Soil  Conc. (RL) mg/Kg	R01-100830-0515 AB11840 10/21/2010 11/12/2010 11/12/2010 Soil  Conc. (RL) mg/Kg	R01-100830-0516 AB11841 10/21/2010 11/12/2010 11/12/2010 Soil  Conc. (RL) mg/Kg	R01-100830-0517 AB11842 10/21/2010 11/12/2010 11/12/2010 Soil  Conc. (RL) mg/Kg
Arsenic	ND ( 61)	ND ( 50)	ND ( 46)	58 ( 20)	ND ( 58)	ND ( 54)
Cadmium	ND ( 52)	ND ( 43)	ND ( 43)	ND ( 46)	ND ( 47)	ND ( 46)
Chromium	1200 ( 20)	120 ( 20)	150 ( 20)	280 ( 20)	230 ( 20)	250 ( 20)
Lead	1400 ( 20)	1600 ( 20)	1300 ( 20)	1500 ( 20)	1600 ( 20)	1500 ( 20)

**US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY  
Tombarello Site - Lawrence, MA**

	R01-100830-0518 AB11843 10/21/2010 11/12/2010 11/12/2010 Soil  Conc. (RL) mg/Kg	R01-100830-0519 AB11844 10/21/2010 11/12/2010 11/12/2010 Soil  Conc. (RL) mg/Kg	R01-100830-0520 AB11845 10/21/2010 11/12/2010 11/12/2010 Soil  Conc. (RL) mg/Kg	R01-100830-0521 AB11846 10/21/2010 11/12/2010 11/12/2010 Soil  Conc. (RL) mg/Kg	R01-100830-0522 AB11847 10/21/2010 11/12/2010 11/12/2010 Soil  Conc. (RL) mg/Kg
Arsenic	83 ( 20)	64 ( 20)	ND ( 44)	ND ( 52)	ND ( 54)
Cadmium	ND ( 44)	ND ( 47)	ND ( 43)	ND ( 45)	ND ( 47)
Chromium	220 ( 20)	270 ( 20)	180 ( 20)	440 ( 20)	300 ( 20)
Lead	1500 ( 20)	1400 ( 20)	1100 ( 20)	1400 ( 20)	1400 ( 20)

Qualifiers: RL = Reporting limit  
ND = Not Detected above Reporting limit  
NA = Not Applicable due to low (pH < 4.5)  
J = Estimated value  
E = Estimated value exceeds the calibration range  
L = Estimated value is below the calibration range  
B = Analyte is associated with the lab blank or trip blank contamination. Values are qualified when the observed concentration of the contamination in the sample extract is less than 10 times the concentration in the blank.  
P = The confirmation value exceeded 35% difference and is less than 100%. The lower value is reported.  
C = The identification has been confirmed by GC/MS.  
A = Suspected Aldol condensation product.  
N = Tentatively identified compound.



United States Environmental Protection Agency  
Office of Environmental Measurement & Evaluation  
11 Technology Drive  
North Chelmsford, MA 01863-2431

Laboratory Report

November 23, 2010

Mike Barry - OSRR02-2  
US EPA New England R1

Project Number: 10100039  
Project: Tombarello Site - Lawrence, MA  
Analysis: PAHs in Soil  
Analyst: Dan Boudreau *DB*  
*11/23/10*

Analytical Procedure:

All samples were received and logged in by the laboratory according to the USEPA New England Laboratory SOP for Sample Log-in.

Sample preparation and analysis was done following the EPA Region I SOP, EIASOP-BNAS3.

Samples were analyzed by a quadrapole GC/MS operating in the full-scan mode. The extraction and analysis SOPs are based on SW-846 methods 3545A, 3630C, 8270C, and EIASOP-BNAGCMS7.

Date Samples Received by the Laboratory: 10/21/2010

Data were reviewed in accordance with the internal verification procedures described in the EPA New England OEME Chemistry QA Plan.

Results relate only to the items tested or to the samples as received by the Laboratory. This analytical report shall not be reproduced except in full, without written approval of the laboratory.

Report may contain multiple sections and each section will be numbered independently.

If you have any questions please call me at 617-918-8340 .

Sincerely,

*Daniel N. Boudreau* *11/30/10*  
Daniel N. Boudreau  
Chemistry Team Leader

**Qualifiers:**

RL = Reporting limit

ND = Not Detected above Reporting limit

NA = Not Applicable due to high sample dilutions or sample interferences

NC = Not calculated since analyte concentration is ND.

J = Estimated value

E = Estimated value exceeds the calibration range

L = Estimated value is below the calibration range

B = Analyte is associated with the lab blank or trip blank contamination. Values are qualified when the observed concentration of the contamination in the sample extract is less than 5 times the concentration in the blank.

R = No recovery was calculated since the analyte concentration is greater than four times the spike level.

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID: R01-100830MB-0523  
Date of Collection: 10/21/2010  
Date of Extraction: 10/27/10  
Date of Analysis: 11/10/10  
Dry Weight Extracted: 7.061 grams  
Wet Weight Extracted: 8.432 grams  
Final Volume: 1 mL

Lab Sample ID: AB11848  
Matrix: Soil  
Volume Extracted: N/A  
Percent Solids: 84%  
Extract Dilution: 20  
pH: N/A  
GPC Factor: N/A

<u>CAS Number</u>	<u>Compound</u>	<u>Concentration ug/Kg</u>	<u>RL ug/Kg</u>	<u>Qualifier</u>
83-32-9	Acenaphthene	ND	1400	
208-96-8	Acenaphthylene	ND	1400	
120-12-7	Anthracene	3400	1400	
56-55-3	Benzo(a)anthracene	15000	1400	
50-32-8	Benzo(a)pyrene	15000	1400	
205-99-2	Benzo(b)fluoranthene	16000	1400	
191-24-2	Benzo(g,h,i)perylene	12000	1400	
207-08-9	Benzo(k)fluoranthene	13000	1400	
218-01-9	Chrysene	15000	1400	
53-70-3	Dibenz(a,h)anthracene	2400	1400	
206-44-0	Fluoranthene	27000	1400	
86-73-7	Fluorene	ND	1400	
193-39-5	Indeno(1,2,3-cd)pyrene	9900	1400	
91-20-3	Naphthalene	ND	1400	
85-01-8	Phenanthrene	11000	1400	
129-00-0	Pyrene	24000	1400	

<b>Surrogate Compounds</b>	<b>Recoveries (%)</b>	<b>QC Ranges</b>
p-Terphenyl-d14 (SS2)	100	41 - 106
2-Fluorobiphenyl (SS1)	87	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**Laboratory Blank (PAHs)**

Client Sample ID:	N/A	Lab Sample ID:	N/A
Date of Collection:	N/A	Matrix:	Soil
Date of Extraction:	10/27/10	Volume Extracted:	N/A
Date of Analysis:	11/10/10	Percent Solids:	100%
Dry Weight Extracted:	9.791 grams	Extract Dilution:	1
Wet Weight Extracted:	9.800 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	51	
208-96-8	Acenaphthylene	ND	51	
120-12-7	Anthracene	ND	51	
56-55-3	Benzo(a)anthracene	ND	51	
50-32-8	Benzo(a)pyrene	ND	51	
205-99-2	Benzo(b)fluoranthene	ND	51	
191-24-2	Benzo(g,h,i)perylene	ND	51	
207-08-9	Benzo(k)fluoranthene	ND	51	
218-01-9	Chrysene	ND	51	
53-70-3	Dibenz(a,h)anthracene	ND	51	
206-44-0	Fluoranthene	ND	51	
86-73-7	Fluorene	ND	51	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	51	
91-20-3	Naphthalene	ND	51	
85-01-8	Phenanthrene	ND	51	
129-00-0	Pyrene	ND	51	

Surrogate Compounds	Recoveries (%)	QC Ranges
2-Fluorobiphenyl (SS1)	79	39 - 103
p-Terphenyl-d14 (SS2)	90	41 - 106

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

Tombarello Site - Lawrence, MA

PAHs in Soil

Client Sample ID: R01-100830MB-0524  
Date of Collection: 10/21/2010  
Date of Extraction: 10/27/10  
Date of Analysis: 11/10/10  
Dry Weight Extracted: 6.047 grams  
Wet Weight Extracted: 7.022 grams  
Final Volume: 1 mL

Lab Sample ID: AB11849  
Matrix: Soil  
Volume Extracted: N/A  
Percent Solids: 86%  
Extract Dilution: 20  
pH: N/A  
GPC Factor: N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	1700	
208-96-8	Acenaphthylene	ND	1700	
120-12-7	Anthracene	1400	1700	
56-55-3	Benzo(a)anthracene	5700	1700	
50-32-8	Benzo(a)pyrene	6200	1700	
205-99-2	Benzo(b)fluoranthene	5600	1700	
191-24-2	Benzo(g,h,i)perylene	6300	1700	
207-08-9	Benzo(k)fluoranthene	4300	1700	
218-01-9	Chrysene	5600	1700	
53-70-3	Dibenz(a,h)anthracene	ND	1700	
206-44-0	Fluoranthene	10000	1700	
86-73-7	Fluorene	ND	1700	
193-39-5	Indeno(1,2,3-cd)pyrene	5200	1700	
91-20-3	Naphthalene	ND	1700	
85-01-8	Phenanthrene	4500	1700	
129-00-0	Pyrene	8900	1700	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	95	41 - 106
2-Fluorobiphenyl (SS1)	84	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0525	Lab Sample ID:	AB11850
Date of Collection:	10/21/2010	Matrix:	Soil
Date of Extraction:	10/27/10	Volume Extracted:	N/A
Date of Analysis:	11/10/10	Percent Solids:	84%
Dry Weight Extracted:	6.998 grams	Extract Dilution:	20
Wet Weight Extracted:	8.327 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	1400	
208-96-8	Acenaphthylene	ND	1400	
120-12-7	Anthracene	ND	1400	
56-55-3	Benzo(a)anthracene	3900	1400	
50-32-8	Benzo(a)pyrene	3700	1400	
205-99-2	Benzo(b)fluoranthene	3600	1400	
191-24-2	Benzo(g,h,i)perylene	3600	1400	
207-08-9	Benzo(k)fluoranthene	3300	1400	
218-01-9	Chrysene	3600	1400	
53-70-3	Dibenz(a,h)anthracene	ND	1400	
206-44-0	Fluoranthene	7400	1400	
86-73-7	Fluorene	ND	1400	
193-39-5	Indeno(1,2,3-cd)pyrene	2900	1400	
91-20-3	Naphthalene	ND	1400	
85-01-8	Phenanthrene	3500	1400	
129-00-0	Pyrene	6400	1400	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	85	41 - 106
2-Fluorobiphenyl (SS1)	72	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

Tombarello Site - Lawrence, MA

PAHs in Soil

Client Sample ID: R01-100830MB-0526  
Date of Collection: 10/21/2010  
Date of Extraction: 10/27/10  
Date of Analysis: 11/10/10  
Dry Weight Extracted: 7.167 grams  
Wet Weight Extracted: 8.205 grams  
Final Volume: 1 mL

Lab Sample ID: AB11851  
Matrix: Soil  
Volume Extracted: N/A  
Percent Solids: 87%  
Extract Dilution: 20  
pH: N/A  
GPC Factor: N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	1400	
208-96-8	Acenaphthylene	ND	1400	
120-12-7	Anthracene	3200	1400	
56-55-3	Benzo(a)anthracene	7700	1400	
50-32-8	Benzo(a)pyrene	6800	1400	
205-99-2	Benzo(b)fluoranthene	6300	1400	
191-24-2	Benzo(g,h,i)perylene	5200	1400	
207-08-9	Benzo(k)fluoranthene	5300	1400	
218-01-9	Chrysene	7100	1400	
53-70-3	Dibenz(a,h)anthracene	2000	1400	
206-44-0	Fluoranthene	17000	1400	
86-73-7	Fluorene	ND	1400	
193-39-5	Indeno(1,2,3-cd)pyrene	4400	1400	
91-20-3	Naphthalene	ND	1400	
85-01-8	Phenanthrene	13000	1400	
129-00-0	Pyrene	14000	1400	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	83	41 - 106
2-Fluorobiphenyl (SS1)	68	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0527	Lab Sample ID:	AB11852
Date of Collection:	10/21/2010	Matrix:	Soil
Date of Extraction:	10/27/10	Volume Extracted:	N/A
Date of Analysis:	11/10/10	Percent Solids:	88%
Dry Weight Extracted:	7.430 grams	Extract Dilution:	20
Wet Weight Extracted:	8.441 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	1300	
208-96-8	Acenaphthylene	ND	1300	
120-12-7	Anthracene	3400	1300	
56-55-3	Benzo(a)anthracene	7800	1300	
50-32-8	Benzo(a)pyrene	7500	1300	
205-99-2	Benzo(b)fluoranthene	6900	1300	
191-24-2	Benzo(g,h,i)perylene	6400	1300	
207-08-9	Benzo(k)fluoranthene	5800	1300	
218-01-9	Chrysene	7200	1300	
53-70-3	Dibenz(a,h)anthracene	ND	1300	
206-44-0	Fluoranthene	17000	1300	
86-73-7	Fluorene	1500	1300	
193-39-5	Indeno(1,2,3-cd)pyrene	5300	1300	
91-20-3	Naphthalene	ND	1300	
85-01-8	Phenanthrene	13000	1300	
129-00-0	Pyrene	15000	1300	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	85	41 - 106
2-Fluorobiphenyl (SS1)	72	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0528	Lab Sample ID:	AB11853
Date of Collection:	10/21/2010	Matrix:	Soil
Date of Extraction:	11/10/10	Volume Extracted:	N/A
Date of Analysis:	11/10/10	Percent Solids:	82%
Dry Weight Extracted:	9.812 grams	Extract Dilution:	20
Wet Weight Extracted:	11.941 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

<b>CAS Number</b>	<b>Compound</b>	<b>Concentration ug/Kg</b>	<b>RL ug/Kg</b>	<b>Qualifier</b>
83-32-9	Acenaphthene	ND	1000	
208-96-8	Acenaphthylene	ND	1000	
120-12-7	Anthracene	1300	1000	
56-55-3	Benzo(a)anthracene	5100	1000	
50-32-8	Benzo(a)pyrene	5100	1000	
205-99-2	Benzo(b)fluoranthene	5400	1000	
191-24-2	Benzo(g,h,i)perylene	5200	1000	
207-08-9	Benzo(k)fluoranthene	3700	1000	
218-01-9	Chrysene	5100	1000	
53-70-3	Dibenz(a,h)anthracene	ND	1000	
206-44-0	Fluoranthene	9700	1000	
86-73-7	Fluorene	ND	1000	
193-39-5	Indeno(1,2,3-cd)pyrene	4100	1000	
91-20-3	Naphthalene	1500	1000	
85-01-8	Phenanthrene	4700	1000	
129-00-0	Pyrene	8500	1000	

<b>Surrogate Compounds</b>	<b>Recoveries (%)</b>	<b>QC Ranges</b>
p-Terphenyl-d14 (SS2)	87	41 - 106
2-Fluorobiphenyl (SS1)	74	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

Tombarello Site - Lawrence, MA

PAHs in Soil

Client Sample ID:	R01-100830MB-0529	Lab Sample ID:	AB11854
Date of Collection:	10/21/2010	Matrix:	Soil
Date of Extraction:	10/27/10	Volume Extracted:	N/A
Date of Analysis:	11/10/10	Percent Solids:	87%
Dry Weight Extracted:	9.061 grams	Extract Dilution:	20
Wet Weight Extracted:	10.475 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	1100	
208-96-8	Acenaphthylene	ND	1100	
120-12-7	Anthracene	1000	1100	
56-55-3	Benzo(a)anthracene	4500	1100	
50-32-8	Benzo(a)pyrene	4800	1100	
205-99-2	Benzo(b)fluoranthene	4400	1100	
191-24-2	Benzo(g,h,i)perylene	4900	1100	
207-08-9	Benzo(k)fluoranthene	4200	1100	
218-01-9	Chrysene	4900	1100	
53-70-3	Dibenz(a,h)anthracene	ND	1100	
206-44-0	Fluoranthene	9200	1100	
86-73-7	Fluorene	ND	1100	
193-39-5	Indeno(1,2,3-cd)pyrene	3900	1100	
91-20-3	Naphthalene	ND	1100	
85-01-8	Phenanthrene	4500	1100	
129-00-0	Pyrene	7800	1100	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	91	41 - 106
2-Fluorobiphenyl (SS1)	81	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0530	Lab Sample ID:	AB11855
Date of Collection:	10/21/2010	Matrix:	Soil
Date of Extraction:	10/27/10	Volume Extracted:	N/A
Date of Analysis:	11/10/10	Percent Solids:	88%
Dry Weight Extracted:	9.601 grams	Extract Dilution:	20
Wet Weight Extracted:	10.902 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	1000	
208-96-8	Acenaphthylene	ND	1000	
120-12-7	Anthracene	ND	1000	
56-55-3	Benzo(a)anthracene	4300	1000	
50-32-8	Benzo(a)pyrene	5000	1000	
205-99-2	Benzo(b)fluoranthene	5200	1000	
191-24-2	Benzo(g,h,i)perylene	5900	1000	
207-08-9	Benzo(k)fluoranthene	4400	1000	
218-01-9	Chrysene	4300	1000	
53-70-3	Dibenz(a,h)anthracene	ND	1000	
206-44-0	Fluoranthene	7400	1000	
86-73-7	Fluorene	ND	1000	
193-39-5	Indeno(1,2,3-cd)pyrene	4500	1000	
91-20-3	Naphthalene	ND	1000	
85-01-8	Phenanthrene	2900	1000	
129-00-0	Pyrene	6900	1000	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	94	41 - 106
2-Fluorobiphenyl (SS1)	79	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0531	Lab Sample ID:	AB11856
Date of Collection:	10/21/2010	Matrix:	Soil
Date of Extraction:	10/27/10	Volume Extracted:	N/A
Date of Analysis:	11/10/10	Percent Solids:	85%
Dry Weight Extracted:	8.622 grams	Extract Dilution:	20
Wet Weight Extracted:	10.087 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	1200	
208-96-8	Acenaphthylene	ND	1200	
120-12-7	Anthracene	2000	1200	
56-55-3	Benzo(a)anthracene	7900	1200	
50-32-8	Benzo(a)pyrene	7700	1200	
205-99-2	Benzo(b)fluoranthene	8200	1200	
191-24-2	Benzo(g,h,i)perylene	6600	1200	
207-08-9	Benzo(k)fluoranthene	6800	1200	
218-01-9	Chrysene	7500	1200	
53-70-3	Dibenz(a,h)anthracene	2400	1200	
206-44-0	Fluoranthene	16000	1200	
86-73-7	Fluorene	ND	1200	
193-39-5	Indeno(1,2,3-cd)pyrene	5400	1200	
91-20-3	Naphthalene	ND	1200	
85-01-8	Phenanthrene	8300	1200	
129-00-0	Pyrene	14000	1200	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	91	41 - 106
2-Fluorobiphenyl (SS1)	76	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
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**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0532	Lab Sample ID:	AB11857
Date of Collection:	10/21/2010	Matrix:	Soil
Date of Extraction:	10/27/10	Volume Extracted:	N/A
Date of Analysis:	11/10/10	Percent Solids:	86%
Dry Weight Extracted:	8.577 grams	Extract Dilution:	20
Wet Weight Extracted:	9.960 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	1200	
208-96-8	Acenaphthylene	ND	1200	
120-12-7	Anthracene	ND	1200	
56-55-3	Benzo(a)anthracene	3600	1200	
50-32-8	Benzo(a)pyrene	3900	1200	
205-99-2	Benzo(b)fluoranthene	3500	1200	
191-24-2	Benzo(g,h,i)perylene	4400	1200	
207-08-9	Benzo(k)fluoranthene	2600	1200	
218-01-9	Chrysene	3500	1200	
53-70-3	Dibenz(a,h)anthracene	ND	1200	
206-44-0	Fluoranthene	6900	1200	
86-73-7	Fluorene	ND	1200	
193-39-5	Indeno(1,2,3-cd)pyrene	3300	1200	
91-20-3	Naphthalene	ND	1200	
85-01-8	Phenanthrene	3300	1200	
129-00-0	Pyrene	6000	1200	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	91	41 - 106
2-Fluorobiphenyl (SS1)	78	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0533	Lab Sample ID:	AB11858
Date of Collection:	10/21/2010	Matrix:	Soil
Date of Extraction:	10/27/10	Volume Extracted:	N/A
Date of Analysis:	11/10/10	Percent Solids:	86%
Dry Weight Extracted:	9.313 grams	Extract Dilution:	20
Wet Weight Extracted:	10.815 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	1100	
208-96-8	Acenaphthylene	ND	1100	
120-12-7	Anthracene	1500	1100	
56-55-3	Benzo(a)anthracene	4800	1100	
50-32-8	Benzo(a)pyrene	4700	1100	
205-99-2	Benzo(b)fluoranthene	5000	1100	
191-24-2	Benzo(g,h,i)perylene	4700	1100	
207-08-9	Benzo(k)fluoranthene	3100	1100	
218-01-9	Chrysene	4700	1100	
53-70-3	Dibenz(a,h)anthracene	1500	1100	
206-44-0	Fluoranthene	9300	1100	
86-73-7	Fluorene	ND	1100	
193-39-5	Indeno(1,2,3-cd)pyrene	3800	1100	
91-20-3	Naphthalene	ND	1100	
85-01-8	Phenanthrene	5200	1100	
129-00-0	Pyrene	8100	1100	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	92	41 - 106
2-Fluorobiphenyl (SS1)	78	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
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**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0534	Lab Sample ID:	AB11859
Date of Collection:	10/21/2010	Matrix:	Soil
Date of Extraction:	10/27/10	Volume Extracted:	N/A
Date of Analysis:	11/10/10	Percent Solids:	85%
Dry Weight Extracted:	8.927 grams	Extract Dilution:	20
Wet Weight Extracted:	10.489 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	1100	
208-96-8	Acenaphthylene	ND	1100	
120-12-7	Anthracene	1100	1100	
56-55-3	Benzo(a)anthracene	4900	1100	
50-32-8	Benzo(a)pyrene	5000	1100	
205-99-2	Benzo(b)fluoranthene	5600	1100	
191-24-2	Benzo(g,h,i)perylene	5600	1100	
207-08-9	Benzo(k)fluoranthene	4600	1100	
218-01-9	Chrysene	5000	1100	
53-70-3	Dibenz(a,h)anthracene	2200	1100	
206-44-0	Fluoranthene	9500	1100	
86-73-7	Fluorene	ND	1100	
193-39-5	Indeno(1,2,3-cd)pyrene	4400	1100	
91-20-3	Naphthalene	ND	1100	
85-01-8	Phenanthrene	4800	1100	
129-00-0	Pyrene	8500	1100	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	96	41 - 106
2-Fluorobiphenyl (SS1)	84	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0535	Lab Sample ID:	AB11860
Date of Collection:	10/21/2010	Matrix:	Soil
Date of Extraction:	10/27/10	Volume Extracted:	N/A
Date of Analysis:	11/10/10	Percent Solids:	86%
Dry Weight Extracted:	10.365 grams	Extract Dilution:	20
Wet Weight Extracted:	12.040 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	970	
208-96-8	Acenaphthylene	ND	970	
120-12-7	Anthracene	1400	970	
56-55-3	Benzo(a)anthracene	5200	970	
50-32-8	Benzo(a)pyrene	5400	970	
205-99-2	Benzo(b)fluoranthene	4600	970	
191-24-2	Benzo(g,h,i)perylene	5300	970	
207-08-9	Benzo(k)fluoranthene	3400	970	
218-01-9	Chrysene	5000	970	
53-70-3	Dibenz(a,h)anthracene	ND	970	
206-44-0	Fluoranthene	9800	970	
86-73-7	Fluorene	ND	970	
193-39-5	Indeno(1,2,3-cd)pyrene	4100	970	
91-20-3	Naphthalene	ND	970	
85-01-8	Phenanthrene	4900	970	
129-00-0	Pyrene	8500	970	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	85	41 - 106
2-Fluorobiphenyl (SS1)	71	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0536	Lab Sample ID:	AB11861
Date of Collection:	10/21/2010	Matrix:	Soil
Date of Extraction:	10/27/10	Volume Extracted:	N/A
Date of Analysis:	11/10/10	Percent Solids:	85%
Dry Weight Extracted:	9.639 grams	Extract Dilution:	20
Wet Weight Extracted:	11.292 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	1100	1000	
208-96-8	Acenaphthylene	ND	1000	
120-12-7	Anthracene	3500	1000	
56-55-3	Benzo(a)anthracene	9200	1000	
50-32-8	Benzo(a)pyrene	8700	1000	
205-99-2	Benzo(b)fluoranthene	8100	1000	
191-24-2	Benzo(g,h,i)perylene	8000	1000	
207-08-9	Benzo(k)fluoranthene	7300	1000	
218-01-9	Chrysene	8500	1000	
53-70-3	Dibenz(a,h)anthracene	2900	1000	
206-44-0	Fluoranthene	20000	1000	
86-73-7	Fluorene	1200	1000	
193-39-5	Indeno(1,2,3-cd)pyrene	6500	1000	
91-20-3	Naphthalene	ND	1000	
85-01-8	Phenanthrene	13000	1000	
129-00-0	Pyrene	16000	1000	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	92	41 - 106
2-Fluorobiphenyl (SS1)	83	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0537	Lab Sample ID:	AB11862
Date of Collection:	10/21/2010	Matrix:	Soil
Date of Extraction:	10/27/10	Volume Extracted:	N/A
Date of Analysis:	11/10/10	Percent Solids:	83%
Dry Weight Extracted:	9.918 grams	Extract Dilution:	20
Wet Weight Extracted:	11.927 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	1000	
208-96-8	Acenaphthylene	ND	1000	
120-12-7	Anthracene	ND	1000	
56-55-3	Benzo(a)anthracene	2800	1000	
50-32-8	Benzo(a)pyrene	3100	1000	
205-99-2	Benzo(b)fluoranthene	3500	1000	
191-24-2	Benzo(g,h,i)perylene	4000	1000	
207-08-9	Benzo(k)fluoranthene	1900	1000	
218-01-9	Chrysene	2800	1000	
53-70-3	Dibenz(a,h)anthracene	ND	1000	
206-44-0	Fluoranthene	5300	1000	
86-73-7	Fluorene	ND	1000	
193-39-5	Indeno(1,2,3-cd)pyrene	3000	1000	
91-20-3	Naphthalene	ND	1000	
85-01-8	Phenanthrene	2800	1000	
129-00-0	Pyrene	4800	1000	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	91	41 - 106
2-Fluorobiphenyl (SS1)	82	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

Tombarello Site - Lawrence, MA

PAHs in Soil

Client Sample ID:	R01-100830MB-0538	Lab Sample ID:	AB11863
Date of Collection:	10/21/2010	Matrix:	Soil
Date of Extraction:	10/27/10	Volume Extracted:	N/A
Date of Analysis:	11/10/10	Percent Solids:	85%
Dry Weight Extracted:	9.931 grams	Extract Dilution:	20
Wet Weight Extracted:	11.633 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	2700	1000	
208-96-8	Acenaphthylene	ND	1000	
120-12-7	Anthracene	8800	1000	
56-55-3	Benzo(a)anthracene	14000	1000	
50-32-8	Benzo(a)pyrene	11000	1000	
205-99-2	Benzo(b)fluoranthene	11000	1000	
191-24-2	Benzo(g,h,i)perylene	7600	1000	
207-08-9	Benzo(k)fluoranthene	6900	1000	
218-01-9	Chrysene	13000	1000	
53-70-3	Dibenz(a,h)anthracene	ND	1000	
206-44-0	Fluoranthene	36000	1000	
86-73-7	Fluorene	4100	1000	
193-39-5	Indeno(1,2,3-cd)pyrene	6800	1000	
91-20-3	Naphthalene	1900	1000	
85-01-8	Phenanthrene	33000	1000	
129-00-0	Pyrene	29000	1000	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	88	41 - 106
2-Fluorobiphenyl (SS1)	77	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID:	R01-100830MB-0539	Lab Sample ID:	AB11864
Date of Collection:	10/21/2010	Matrix:	Soil
Date of Extraction:	10/27/10	Volume Extracted:	N/A
Date of Analysis:	11/10/10	Percent Solids:	85%
Dry Weight Extracted:	10.122 grams	Extract Dilution:	20
Wet Weight Extracted:	11.927 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	1600	990	
208-96-8	Acenaphthylene	ND	990	
120-12-7	Anthracene	4000	990	
56-55-3	Benzo(a)anthracene	11000	990	
50-32-8	Benzo(a)pyrene	9900	990	
205-99-2	Benzo(b)fluoranthene	9100	990	
191-24-2	Benzo(g,h,i)perylene	7900	990	
207-08-9	Benzo(k)fluoranthene	7700	990	
218-01-9	Chrysene	10000	990	
53-70-3	Dibenz(a,h)anthracene	ND	990	
206-44-0	Fluoranthene	22000	990	
86-73-7	Fluorene	1500	990	
193-39-5	Indeno(1,2,3-cd)pyrene	6500	990	
91-20-3	Naphthalene	1100	990	
85-01-8	Phenanthrene	16000	990	
129-00-0	Pyrene	18000	990	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	94	41 - 106
2-Fluorobiphenyl (SS1)	81	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Tombarello Site - Lawrence, MA**

**PAHs in Soil**

Client Sample ID: R01-100830MB-0542  
Date of Collection: 10/21/2010  
Date of Extraction: 10/27/10  
Date of Analysis: 11/10/10  
Dry Weight Extracted: 10.185 grams  
Wet Weight Extracted: 10.185 grams  
Final Volume: 1 mL

Lab Sample ID: AB11867  
Matrix: Soil  
Volume Extracted: N/A  
Percent Solids: 100%  
Extract Dilution: 1  
pH: N/A  
GPC Factor: N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	ND	49	
208-96-8	Acenaphthylene	ND	49	
120-12-7	Anthracene	ND	49	
56-55-3	Benzo(a)anthracene	ND	49	
50-32-8	Benzo(a)pyrene	ND	49	
205-99-2	Benzo(b)fluoranthene	1900	49	
191-24-2	Benzo(g,h,i)perylene	1900	49	
207-08-9	Benzo(k)fluoranthene	1400	49	
218-01-9	Chrysene	1600	49	
53-70-3	Dibenz(a,h)anthracene	ND	49	
206-44-0	Fluoranthene	ND	49	
86-73-7	Fluorene	ND	49	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	49	
91-20-3	Naphthalene	2000	49	
85-01-8	Phenanthrene	1500	49	
129-00-0	Pyrene	ND	49	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	80	41 - 106
2-Fluorobiphenyl (SS1)	70	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

Tombarello Site - Lawrence, MA

PAHs in Soil

Client Sample ID:	R01-100830MB-0543	Lab Sample ID:	AB11868
Date of Collection:	10/21/2010	Matrix:	Soil
Date of Extraction:	10/27/10	Volume Extracted:	N/A
Date of Analysis:	11/10/10	Percent Solids:	100%
Dry Weight Extracted:	9.786 grams	Extract Dilution:	1
Wet Weight Extracted:	9.786 grams	pH:	N/A
Final Volume:	1 mL	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
83-32-9	Acenaphthene	1200	51	
208-96-8	Acenaphthylene	ND	51	
120-12-7	Anthracene	ND	51	
56-55-3	Benzo(a)anthracene	ND	51	
50-32-8	Benzo(a)pyrene	ND	51	
205-99-2	Benzo(b)fluoranthene	ND	51	
191-24-2	Benzo(g,h,i)perylene	1600	51	
207-08-9	Benzo(k)fluoranthene	ND	51	
218-01-9	Chrysene	ND	51	
53-70-3	Dibenz(a,h)anthracene	1600	51	
206-44-0	Fluoranthene	ND	51	
86-73-7	Fluorene	1300	51	
193-39-5	Indeno(1,2,3-cd)pyrene	2000	51	
91-20-3	Naphthalene	2000	51	
85-01-8	Phenanthrene	1600	51	
129-00-0	Pyrene	2000	51	

Surrogate Compounds	Recoveries (%)	QC Ranges
p-Terphenyl-d14 (SS2)	85	41 - 106
2-Fluorobiphenyl (SS1)	75	39 - 103

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

PAH MATRIX SPIKE (MS)

Tombarello Site - Lawrence, MA

Sample ID: AB11849

PARAMETER	SPIKE ADDED ug/Kg	SAMPLE CONCENTRATION ug/Kg	MS CONCENTRATION ug/Kg	MS % REC	QC LIMITS (% REC)
Acenaphthene	6900	ND	5800	84	30 - 113
Acenaphthylene	6900	ND	5100	75	28 - 125
Anthracene	6900	1400	7600	91	30 - 129
Benzo(a)anthracene	6900	5700	12000	96	25 - 137
Benzo(a)pyrene	6900	6200	12000	86	26 - 115
Benzo(b)fluoranthene	6900	5600	11000	83	29 - 120
Benzo(g,h,i)perylene	6900	6300	11000	73	26 - 119
Benzo(k)fluoranthene	6900	4300	12000	106	27 - 139
Chrysene	6900	5600	12000	97	31 - 120
Dibenz(a,h)anthracene	6900	ND	7300	105	31 - 125
Fluoranthene	6900	10000	19000	133	21 - 148
Fluorene	6900	ND	5900	86	34 - 121
Indeno(1,2,3-cd)pyrene	6900	5200	10000	71	29 - 125
Naphthalene	6900	ND	5400	78	19 - 107
Phenanthrene	6900	4500	13000	128	26 - 125
Pyrene	6900	8900	17000	123	20 - 142

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

Laboratory Duplicate Results

Tombarello Site - Lawrence, MA

Sample ID: AB11849

PARAMETER	SAMPLE RESULT	SAMPLE DUPLICATE RESULT	PRECISION RPD	QC LIMITS
	ug/Kg	ug/Kg	%	
Acenaphthene	ND	ND	ND	40
Acenaphthylene	ND	ND	ND	40
Anthracene	1400	ND	ND	40
Benzo(a)anthracene	5700	6300	10	40
Benzo(a)pyrene	6200	7600	20	40
Benzo(b)fluoranthene	5600	8200	37	40
Benzo(g,h,i)perylene	6300	7800	21	40
Benzo(k)fluoranthene	4300	6600	42	40
Chrysene	5600	6300	12	40
Dibenz(a,h)anthracene	ND	4100	200	40
Fluoranthene	10000	10000	2.96	40
Fluorene	ND	ND	ND	40
Indeno(1,2,3-cd)pyrene	5200	6700	25	40
Naphthalene	ND	ND	ND	40
Phenanthrene	4500	4100	10	40
Pyrene	8900	9300	4.40	40

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

Laboratory Fortified Blank (LFB) Results

Tombarello Site - Lawrence, MA

PARAMETER	LFB AMOUNT SPIKED ppb	LFB RESULT ppb	LFB RECOVERY %	QC LIMITS %
Acenaphthene	4000	3000	75	26 - 129
Acenaphthylene	4000	2900	73	23 - 141
Anthracene	4000	3400	85	25 - 149
Benzo(a)anthracene	4000	3400	83	27 - 142
Benzo(a)pyrene	4000	3300	83	29 - 123
Benzo(b)fluoranthene	4000	3200	78	22 - 146
Benzo(g,h,i)perylene	4000	3300	80	26 - 134
Benzo(k)fluoranthene	4000	3300	82	32 - 144
Chrysene	4000	3400	84	38 - 121
Dibenz(a,h)anthracene	4000	3300	81	35 - 133
Fluoranthene	4000	3400	83	29 - 154
Fluorene	4000	3100	76	29 - 138
Indeno(1,2,3-cd)pyrene	4000	3200	79	26 - 141
Naphthalene	4000	2800	69	30 - 110
Phenanthrene	4000	3300	82	27 - 140
Pyrene	4000	3300	83	24 - 147

Comments:



United States Environmental Protection Agency  
Office of Environmental Measurement & Evaluation  
60 Westview Street  
Lexington, MA 02421-3185

Laboratory Report

November 04, 2010

Mike Barry - OSRR02-2  
US EPA New England R1

Project Number: 10100039  
Project: Tombarello Site - Lawrence, MA  
Analysis: PCB's in Soil Field Method (Fixed Lab)  
Analyst: Paul Carroll

*Carroll*  
11.4.10

Analytical Procedure:

All samples were received and logged in by the laboratory according to the USEPA New England Laboratory SOP for Sample Log-in.

Sample preparation and analysis was done following the EPA Region I SOP, FLDPCB2.SOP.

Concentrations of PCBs in soil were calculated using an external standard technique.

Analysis for PCB's performed by this field analytical technique is used for tentative identification and semi-quantitation of PCB's in soil, oil, and sediment samples.

Date Samples Received by the Laboratory: 10/21/10

Results relate only to the items tested or to the samples as received by the Laboratory. This analytical report shall not be reproduced except in full, without written approval of the laboratory.

Results for soil samples are reported on a dry weight basis.

If you have any questions please call me at 617-918-8340.

Sincerely,

*Daniel Boudreau 11/8/10*  
Daniel Boudreau

Project # 10100039

**PCB's in Soil Field Method (Fixed Lab)**

US ENVIRONMENTAL PROTECTION AGENCY NEW ENGLAND LABORATORY Tombarello Site - Lawrence, MA						
Client Sample ID	R01-100830MB-0523	R01-100830MB-0524	R01-100830MB-0525	R01-100830MB-0526	R01-100830MB-0527	R01-100830MB-0528
Lab Sample ID	AB11848	AB11849	AB11850	AB11851	AB11852	AB11853
Date of Collection	10/21/2010	10/21/2010	10/21/2010	10/21/2010	10/21/2010	10/21/2010
Date of Extraction	10/29/2010	10/29/2010	10/29/2010	10/29/2010	10/29/2010	10/29/2010
Date of Analysis	11/1/2010	11/1/2010	11/1/2010	11/1/2010	11/1/2010	11/1/2010
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Compound	Conc. (RL) mg/Kg					
Aroclor-1242	ND (0.92)	ND (0.82)	ND (0.88)	ND (0.72)	ND (0.74)	ND (0.8)
Aroclor-1248	4.0 (0.92)	11 (0.82)	ND (0.88)	ND (0.72)	1.1 (0.74)	ND (0.8)
Aroclor-1254	8.6 (0.92)	13 (0.82)	1.8 (0.88)	1.5 (0.72)	2.4 (0.74)	2.6 (0.8)
Aroclor-1260	4.3 (0.92)	4.4 (0.82)	1.2 (0.88)	1.4 (0.72)	1.6 (0.74)	2.4 (0.8)
Aroclor-1262	ND (0.92)	ND (0.82)	ND (0.88)	ND (0.72)	ND (0.74)	ND (0.8)
Aroclor-1268	ND (0.92)	ND (0.82)	ND (0.88)	ND (0.72)	ND (0.74)	ND (0.8)

**US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY  
Tombarello Site - Lawrence, MA**

	R01-100830MB-0529 AB11854 10/21/2010 10/29/2010 11/1/2010 Soil	R01-100830MB-0530 AB11855 10/21/2010 10/29/2010 11/1/2010 Soil	R01-100830MB-0531 AB11856 10/21/2010 10/29/2010 11/1/2010 Soil	R01-100830MB-0532 AB11857 10/21/2010 10/29/2010 11/1/2010 Soil	R01-100830MB-0533 AB11858 10/21/2010 10/29/2010 11/1/2010 Soil	R01-100830MB-0534 AB11859 10/21/2010 10/29/2010 11/1/2010 Soil
	Conc. (RL) mg/Kg					
Aroclor-1242	ND (0.8)	ND (0.86)	ND (0.9)	ND (0.84)	ND (0.86)	ND (0.82)
Aroclor-1248	ND (0.8)	1.1 (0.86)	5.8 (0.9)	6.0 (0.84)	8.6 (0.86)	7.4 (0.82)
Aroclor-1254	5.7 (0.8)	2.9 (0.86)	8.6 (0.9)	9.0 (0.84)	5.1 (0.86)	6.8 (0.82)
Aroclor-1260	12 (0.8)	2.4 (0.86)	3.1 (0.9)	3.5 (0.84)	2.5 (0.86)	2.8 (0.82)
Aroclor-1262	ND (0.8)	ND (0.86)	ND (0.9)	ND (0.84)	ND (0.86)	ND (0.82)
Aroclor-1268	ND (0.8)	ND (0.86)	ND (0.9)	ND (0.84)	ND (0.86)	ND (0.82)

**US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY  
Tombarello Site - Lawrence, MA**

	R01-100830MB-0535 AB11860 10/21/2010 10/29/2010 11/1/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0536 AB11861 10/21/2010 10/29/2010 11/1/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0537 AB11862 10/21/2010 10/29/2010 11/2/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0538 AB11863 10/21/2010 10/29/2010 11/2/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0539 AB11864 10/21/2010 10/29/2010 11/2/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0540 AB11865 10/21/2010 10/29/2010 11/2/2010 Soil  Conc. (RL) mg/Kg
Aroclor-1242	ND (0.68)	ND (0.76)	ND (0.9)	ND (0.7)	ND (0.86)	ND (0.20)
Aroclor-1248	5.1 (0.68)	9.9 (0.76)	16 (0.9) J	4.3 (0.7)	2.1 (0.86)	ND (0.20)
Aroclor-1254	5.6 (0.68)	7.9 (0.76)	6.0 (0.9)	4.1 (0.7)	3.7 (0.86)	0.32 (0.20)
Aroclor-1260	2.7 (0.68)	2.8 (0.76)	2.3 (0.9)	2.3 (0.7)	3.4 (0.86)	ND (0.20)
Aroclor-1262	ND (0.68)	ND (0.76)	ND (0.9)	ND (0.7)	ND (0.86)	ND (0.20)
Aroclor-1268	ND (0.68)	ND (0.76)	ND (0.9)	ND (0.7)	ND (0.86)	ND (0.20)

**S ENVIRONMENTA  
ROTECTION AGENC  
ENGLAND LABORA**

R01-100830MB-0541

AB11866

10/21/2010

10/29/2010

11/2/2010

Soil

Conc. (RL)

mg/Kg

Aroclor-1242	ND (1.0)
Aroclor-1248	ND (1.0)
Aroclor-1254	1.1 (1.0)
Aroclor-1260	ND (1.0)
Aroclor-1262	ND (1.0)
Aroclor-1268	ND (1.0)

Qualifiers: RL = Reporting limit  
ND = Not Detected above Reporting limit  
NA = Not Applicable due to high sample dilutions or sample interferences  
J = Estimated value  
E = Estimated value exceeds the calibration range  
L = Estimated value is below the calibration range  
B = Analyte is associated with the lab blank or trip blank contamination. Values are qualified when the observed concentration of the contamination in the sample extract is less than 10 times the concentration in the blank.  
P = The confirmation value exceeded 35% difference and is less than 100%. The lower value is reported.  
C = The identification has been confirmed by GC/MS.  
A = Suspected Aldol condensation product.  
N = Tentatively identified compound.



United States Environmental Protection Agency  
Office of Environmental Measurement & Evaluation  
11 Technology Drive  
North Chelmsford, MA 01863

Laboratory Report

November 17, 2010

Mike Barry - OSRR02-2

US EPA New England R1

Project Number: 10100039

Project: Tombarello Site - Lawrence, MA

Analysis: Field Analysis of Metals by XRF

Analyst: Paul Carroll *Paul Carroll*  
*11.17.10*

Analytical Procedure:

All samples were received and logged in by the laboratory according to the USEPA New England Laboratory SOP for Sample Log-in.

Sample preparation and analysis was done following the EPA Region I SOP, EIA-FLDXRFN3.

The analysis were performed by the EPA New England Regional Laboratory.

Date Samples Received by the Laboratory: 10/21/10

Results relate only to the items tested or to the samples as received by the Laboratory. This analytical report shall not be reproduced except in full, without written approval of the laboratory.

If you have any questions please call me at 617-918-8340.

Sincerely,

*Dan Boudreau* 11/18/10  
Dan Boudreau  
Chemistry Team Leader

Project # 10100039

**Field Analysis of Metals by XRF**

US ENVIRONMENTAL PROTECTION AGENCY NEW ENGLAND LABORATORY Tombarello Site - Lawrence, MA						
Client Sample ID	R01-100830MB-0523	R01-100830MB-0524	R01-100830MB-0525	R01-100830MB-0526	R01-100830MB-0527	R01-100830MB-0528
Lab Sample ID	AB11848	AB11849	AB11850	AB11851	AB11852	AB11853
Date of Collection	10/21/2010	10/21/2010	10/21/2010	10/21/2010	10/21/2010	10/21/2010
Date of Extraction	11/10/2010	11/10/2010	11/10/2010	11/10/2010	11/10/2010	11/10/2010
Date of Analysis	11/10/2010	11/10/2010	11/10/2010	11/10/2010	11/10/2010	11/10/2010
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Compound	Conc. (RL) mg/Kg					
Arsenic	77 ( 20)	ND ( 65)	100 ( 20)	ND ( 40)	ND ( 48)	54 ( 20)
Cadmium	ND ( 44)	ND ( 49)	ND ( 50)	ND ( 44)	ND ( 44)	ND ( 44)
Chromium	450 ( 20)	390 ( 20)	580 ( 20)	190 ( 20)	230 ( 20)	240 ( 20)
Lead	1300 ( 20)	1900 ( 20)	1300 ( 20)	900 ( 20)	1200 ( 20)	1000 ( 20)

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	R01-100830MB-0529 AB11854 10/21/2010 11/10/2010 11/10/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0530 AB11855 10/21/2010 11/10/2010 11/10/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0531 AB11856 10/21/2010 11/10/2010 11/10/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0532 AB11857 10/21/2010 11/10/2010 11/10/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0533 AB11858 10/21/2010 11/10/2010 11/10/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0534 AB11859 10/21/2010 11/10/2010 11/10/2010 Soil  Conc. (RL) mg/Kg
Arsenic	60 ( 20)	ND ( 45)	ND ( 54)	ND ( 45)	ND ( 51)	ND ( 49)
Cadmium	ND ( 44)	ND ( 45)	ND ( 45)	ND ( 44)	ND ( 46)	ND ( 44)
Chromium	200 ( 20)	290 ( 20)	200 ( 20)	180 ( 20)	220 ( 20)	180 ( 20)
Lead	1200 ( 20)	1100 ( 20)	1500 ( 20)	1000 ( 20)	1300 ( 20)	1300 ( 20)

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	R01-100830MB-0535 AB11860 10/21/2010 11/10/2010 11/10/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0536 AB11861 10/21/2010 11/10/2010 11/10/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0537 AB11862 10/21/2010 11/10/2010 11/10/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0538 AB11863 10/21/2010 11/10/2010 11/10/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0539 AB11864 10/21/2010 11/10/2010 11/10/2010 Soil  Conc. (RL) mg/Kg	R01-100830MB-0544 AB11869 10/21/2010 11/10/2010 11/10/2010 Soil  Conc. (RL) mg/Kg
Arsenic	ND ( 52)	ND ( 60)	ND ( 56)	50 ( 20)	ND ( 57)	23 ( 20)
Cadmium	ND ( 46)	ND ( 45)	ND ( 47)	ND ( 46)	ND ( 48)	ND ( 33)
Chromium	250 ( 20)	320 ( 20)	220 ( 20)	500 ( 20)	480 ( 20)	ND ( 14)
Lead	1400 ( 20)	2000 ( 20)	1500 ( 20)	1200 ( 20)	1500 ( 20)	ND (7)

<b>S ENVIRONMENTAL  PROTECTION AGENCY  ENGLAND LABORATORY</b>	
R01-100830MB-0545 AB11870 10/21/2010 11/10/2010 11/10/2010 Soil  Conc. (RL) mg/Kg	
Arsenic	100 ( 20)
Cadmium	ND ( 33)
Chromium	ND ( 15)
Lead	43 ( 20)

Qualifiers: RL = Reporting limit  
ND = Not Detected above Reporting limit  
NA = Not Applicable due to low (pH < 4.5)  
J = Estimated value  
E = Estimated value exceeds the calibration range  
L = Estimated value is below the calibration range  
B = Analyte is associated with the lab blank or trip blank contamination. Values are qualified when the observed concentration of the contamination in the sample extract is less than 10 times the concentration in the blank.  
P = The confirmation value exceeded 35% difference and is less than 100%. The lower value is reported.  
C = The identification has been confirmed by GC/MS.  
A = Suspected Aldol condensation product.  
N = Tentatively identified compound.