



LIMITED PHASE II ENVIRONMENTAL SITE ASSESSMENT

**Harvard BP Real Estate, LLC
(Jim Olson's BP)
501 South Division Street
Harvard, McHenry County, Illinois 60033**

Prepared for:

Mr. Menjinder Bhambra
Harvard BP Real Estate, LLC
100 Tri State International, Suite 100
Lincolnshire, Illinois 60069

Prepared by:

EAGLE ENVIRONMENTAL CONSULTANTS, LLC
3809 Illinois Avenue, Suite 300
Saint Charles, Illinois 60174

April 5, 2016

Timothy L. Chung
Senior Project Manager

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INTRODUCTION

The subject investigation site is the former fuel station and service station located at 501 South Division Street in Harvard, McHenry County, Illinois. The site is an industrial/commercial property located in the Southeast ¼ of Section 2 in Township 45 North, Range 5 East of the Harvard, Illinois United States Geological Survey (USGS) Quadrangle. The general site location map is illustrated in **Figure 1**. Mr. Menjinder Bhambra retained Eagle Environmental Consultants, LLC (EEC) to provide a limited Phase II Environmental Site Assessment (ESA) pursuant to EEC proposal #16-3033.

OBJECTIVE

The objective of this limited Phase II ESA was to conduct a subsurface investigation based on a limited review of past site usage. Neither a Phase I ESA nor a comprehensive review of the past use of the site and surrounding areas were conducted as part of this scope of work. The fuel station in recent history dispensed unleaded gasoline and diesel fuel until the underground storage tanks (USTs) were last used around June 2015. The scope of work consisted of advancing six (6) soil borings (GP-1 through GP-6) at strategic locations around the UST system and dispenser islands. Please note that soil borings were advanced in areas where contamination would likely be present but would not compromise the integrity of the existing UST system components and underground utilities at the site. The indicator contaminants for unleaded gasoline and diesel fuel are benzene, toluene, ethylbenzene, total xylenes (BTEX), methyl tertiary butyl ether (MTBE), and poly-nuclear aromatic (PNA) hydrocarbons.

SUBSURFACE INVESTIGATION

On March 21, 2016, after providing proper notice to the Joint Utility Locating Information for Excavators (JULIE), EEC was on site with a professional drilling crew to conduct a subsurface investigation. A Geoprobe® 7822DT drill rig was utilized to advance the shallow soil borings. The field activities included the drilling and sampling of six (6) soil borings (GP-1 through GP-6) to approximate depths between ten (10) and 20 feet below ground surface (bgs). The soil borings locations are shown on **Figure 2**.

An experienced EEC project manager supervised the drilling operations and logged the geologic soil descriptions. A complete geologic description of the subsurface soil conditions encountered is detailed on the soil boring logs in **Attachment 1**. Photographic documentation of the investigation activities is included in **Attachment 2**.

The surface cover of the soil borings consisted of asphalt. The subsurface geology at this site generally consists of brown silty clay beneath the surface cover and fill material underlain by poorly sorted sand with trace to some gravel to approximately 20 feet bgs, the maximum depth explored. The groundwater zone was encountered at approximately 17 feet bgs in soil boring GP-5. None of the soil boring sample intervals displayed olfactory or visual evidence of soil impacts.

SOIL SAMPLING ACTIVITIES

Soil samples were collected at continuous depth intervals during the advancement of each boring. After each section of soil sample recovery, the macro-core sampler was removed from the borehole and the acetate sample liner was extracted from the sampling tool. The liner was then cut open to reveal the undisturbed soil sample for inspection and sampling. The soil samples were then collected using non-disposal sampling tools.

Sampling tools were thoroughly cleansed with a non-phosphate detergent wash and distilled water rinse between each sampling event to help prevent possible cross-contamination between the samples. A new acetate spoon liner was used for each sample collection interval. Disposable latex sampling gloves were worn during the sampling procedures to help safeguard against potential cross-contamination.

Representative soil samples from generally each two-foot depth interval from each soil boring were placed into zipper lock bags and sealed. The soil within the bags was then broken up to help increase the surface area for volatilization. The bag samples were allowed to warm to ambient outdoor temperature for approximately one-half hour. A field portable photoionization detector (PID) probe tip was then inserted through the seal of the bag to measure the concentration of volatile organic vapors within the headspace of the bag.

Additional portions of soil from selected depth intervals were collected from the spoon liners and placed into laboratory provided vials and jars with the method appropriate preservatives. The samples were labeled, stored in a cooler, and kept on ice to await analytical testing procedures.

PHOTOIONIZATION DETECTOR RESULTS

The organic vapor concentrations were measured and are expressed in parts-per-million (ppm) meter units. The detection limit of the PID is one (1) ppm meter unit. The PID soil vapor screening results for soil borings GP-1 through GP-6 returned volatile organic readings between <1 and 49.5 ppm meter units. PID vapor screening results are included in the soil boring logs provided in **Attachment 1**.

ANALYTICAL TESTING

Soil samples were selected for analytical confirmation testing from the six (6) strategically placed soil borings. The sample selection methodology was based on acute field observations, boring location, sample depth interval in relation to the potential sources and the observed groundwater zone. Groundwater samples were not collected. The selected samples were packed on ice and shipped under a signed chain-of-custody form to ESC Lab Sciences in Mt. Juliet, Tennessee (Illinois Laboratory Certification #200008) for quantitative chemical analysis as follows:

- Soil samples GP-1 (5'-7'), GP-2 (3'-5'), GP-3 (5'-7'), GP-4 (1'-3'), GP-5 (9'-11'), and GP-6 (11'-13') were tested for the primary indicator contaminants for unleaded gasoline: benzene, toluene, ethylbenzene, total xylenes (BTEX), and methyl tertiary butyl ether (MTBE) parameters using Environmental Protection Agency (EPA) Method 8260B.
- Based on the highest PID reading in the soil borings, soil sample GP-4 (1'-3') was also tested for the additional indicator contaminants for diesel fuel: poly-nuclear aromatic (PNA) hydrocarbon parameters using EPA Method 8270C SIM.

ANALYTICAL RESULTS INTERPRETATION

The laboratory analytical results for the soil samples collected during the preliminary limited subsurface investigation were compared to the Illinois Environmental Protection Agency (IEPA) Tiered Approach to Corrective Action (TACO) Tier 1 Soil Remediation Objectives (SROs) for the Soil Component of the Groundwater Ingestion exposure pathway for Class I groundwater and the Ingestion and Inhalation exposure pathways for Residential properties, Industrial/Commercial properties, and Construction Worker populations. The laboratory testing results and signed chain-of-custody form are presented in

Attachment 3. A summary of the soil analytical results for the selected soil samples is presented in **Table I.**

Soil Analytical Results

BTEX and MTBE: The concentrations of BTEX and MTBE parameters were detected either below the most stringent IEPA TACO Tier 1 SROs or below the respective laboratory detection limits for each of the soil samples.

PNAs: The concentration of benzo(a)pyrene [0.216 milligram per kilograms (mg/kg)] in soil sample GP-4 (1'-3') exceeds the IEPA TACO Tier 1 SRO of 0.090 mg/kg for the residential ingestion exposure pathway. However, the benzo(a)pyrene concentration of 0.216 mg/kg is below the IEPA TACO Tier 1 SRO of 0.800 mg/kg for the industrial/commercial ingestion exposure pathway. The concentrations of the remaining PNA parameters were detected below the most stringent IEPA TACO Tier 1 SROs.

SUMMARY & CONCLUSIONS

Based on the information obtained from the limited subsurface investigation field observations, PID screening and analytical confirmation soil sample results, the following conclusions concerning the investigation area are summarized as follows:

- On March 21, 2016, EEC conducted a subsurface investigation in which six (6) soil borings (GP-1 through GP-6) were advanced at strategic locations at the subject site property located at 501 South Division Street in Harvard, McHenry County, Illinois.
- None of the soil boring sample intervals displayed olfactory or visual evidence of potential impacts. The PID soil vapor screening results for soil borings GP-1 through GP-6 returned volatile organic readings between <1 and 49.5 ppm meter units. Six (6) soil samples [GP-1 (5'-7'), GP-2 (3'-5'), GP-3 (5'-7'), GP-4 (1'-3'), GP-5 (9'-11'), GP-6 (11'-13')] were selected from the soil borings and analyzed at an independent Illinois accredited environmental laboratory (IL ELAP/NELAC #200008).
- The laboratory analytical results of each of the soil samples indicated non-detectable concentrations of BTEX and MTBE parameters below the IEPA TACO Tier 1 SROs for each exposure pathway.

- The laboratory analytical results for soil sample GP-4 (1'-3') indicated a concentration of benzo(a)pyrene above the most stringent IEPA TACO Tier 1 SRO. The concentrations of the remaining PNA parameters were detected below the most stringent IEPA TACO Tier 1 SROs.
- The subsurface investigation activities represent a limited portion and locations of the entire subject property. Based on the limited subsurface investigation activities conducted at the subject property to the depth explored and the evaluation of the collected soil sample analytical results for the soil borings, it appears that potential contamination of benzo(a)pyrene was identified at the subject property at a concentration in excess of the IEPA TACO Tier 1 SRO for the residential ingestion exposure pathway. Based on the concentration level of benzo(a)pyrene in soil sample GP-4 (1'-3'), it is recommended that a suspected release of diesel fuel be notified to the Illinois Emergency Management Agency (IEMA) and site assessment be completed in accordance with the Title 35 Illinois Administrative Code (IAC) 734, Subpart B. It is also recommended that a tightness test be conducted on the UST system to determine if the UST system and piping has a leak.
- Benzo(a)pyrene can occur naturally in the setting like that of the property. Therefore, the benzo(a)pyrene concentrations may be attributed to area background concentrations in the native and fill materials. Additional sampling and testing would need to be completed to determine if the concentration of benzo(a)pyrene is attributed to area background concentrations utilizing an IEPA-approved statistical analysis or is present as a result of a release.

COMMENT

Eagle Environmental Consultants, LLC has performed this investigation in a professional manner using the degree of skill and care conducted for similar projects, under comparable conditions as those used by other reputable and competent environmental consultants, at the time these services were provided.

The scope and depth of this project was directed and agreed to by the client in our signed contract. All findings are based on limited explorations, analytical results, conversations and site observations as noted in this report. Eagle Environmental Consultants, LLC employed experienced and trained professionals in attempting to successfully evaluate the subsurface conditions at this site, in accordance with standard industry protocols or guidelines. It is possible that some materials containing petroleum hydrocarbon and/or other contaminant constituents were not visible or accessible to the professionals, and may not have been identified or addressed during this investigation.

This report is not intended to represent an exhaustive research of all potential hazards, which may exist at the site and is not representative of future conditions, previous activities or events that may have taken place prior to or after our demobilization from the site. Activities that transpire prior to or after our demobilization from the site are not considered relevant to this study.

The conclusions or opinions provided by Eagle Environmental Consultants, LLC are based solely on the scope of work conducted, analytical results obtained and limited explorations described within this report. No warranty, expressed or implied, is made concerning the professional opinions or analytical results included in this report.

FIGURES



3809 ILLINOIS AVENUE, SUITE 300
ST. CHARLES, ILLINOIS 60174

FIGURE:

1

PROJECT NUMBER:

116102

DRAWN DATE:

04/2016

PREPARED BY:

CHUNG

DRAWN BY:

CHUNG

REGIONAL SITE LOCATION MAP

HARVARD BP REAL ESTATE
501 SOUTH DIVISION STREET
HARVARD, IL 60033

FILE NAME:

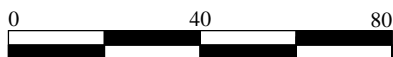
116102 RSLM



LEGEND



APPROXIMATE SOIL BORING SAMPLE LOCATION
(● = IMPACTED ABOVE TACO TIER 1 SRO'S)



APPROXIMATE SCALE : 1" = 40'



3809 ILLINOIS AVENUE, SUITE 300
ST. CHARLES, ILLINOIS 60174

FIGURE:

2

PROJECT NUMBER:
116102

DRAWN DATE:
04/2016

PREPARED BY:
CHUNG

DRAWN BY:
CHUNG

REGIONAL SITE LOCATION MAP

HARVARD BP REAL ESTATE
501 SOUTH DIVISION STREET
HARVARD, IL 60033

FILE NAME:
116102 RSLM

TABLES

TABLE I
Summary of Analytical Results – Soil Samples

Harvard BP Real Estate			GP-1 (5'-7')	GP-2 (3'-5')	GP-3 (5'-7')	GP-4 (1'-3')	GP-5 (9'-11')	GP-6 (11'-13')	Most Stringent IEPA TACO Tier 1 Soil Remediation Objectives
Date of Sample Collection:			3/21/2016	3/21/2016	3/21/2016	3/21/2016	3/21/2016	3/21/2016	
Time of Sample Collection:			9:30 AM	9:55 AM	10:15 AM	10:40 AM	11:05 AM	11:35 AM	
Laboratory Numbers:			L824812-01	L824812-02	L824812-03	L824812-04	L824812-05	L824812-06	
Contaminants of Concern:									
BTEX Organic Compounds (5035A/8260B)									
Date Analyzed:	Units	Rep. Limit	3/28/2016	3/28/2016	3/28/2016	3/28/2016	3/28/2016	3/28/2016	
Benzene	µg/kg	0.27	3.65	0.608	0.439	2.13	3.64	2.28	30
Toluene	µg/kg	0.434	11.2	1.57	0.929	4.08	7.10	4.66	12,000
Ethylbenzene	µg/kg	0.297	3.03	0.505	<0.297	1.43	1.80	1.31	13,000
Total Xylenes	µg/kg	0.698	3.77	1.54	<0.698	3.78	4.86	2.75	5,600
Methyl Teritary Butyl Ether	µg/kg	0.212	<0.212	<0.212	<0.212	<0.212	<0.212	<0.212	320
Polynuclear Aromatic Hydrocarbons (8270C)									
Date Analyzed:	Units	Rep. Limit	---	---	---	3/30/2016	---	---	
Acenaphthene	µg/kg	50	---	---	---	92.0	---	---	570,000
Acenaphthylene	µg/kg	50	---	---	---	21.4	---	---	---
Anthracene	µg/kg	50	---	---	---	64.4	---	---	12,000,000
Benzo(a)anthracene	µg/kg	8.7	---	---	---	169	---	---	900
Benzo(a)pyrene	µg/kg	15	---	---	---	216	---	---	90
Benzo(b)fluoranthene	µg/kg	11	---	---	---	295	---	---	900
Benzo(k)fluoranthene	µg/kg	11	---	---	---	73.8	---	---	9,000
Benzo(ghi)perylene	µg/kg	50	---	---	---	241	---	---	---
Chrysene	µg/kg	50	---	---	---	232	---	---	88,000
Dibenzo(a,h)anthracene	µg/kg	20	---	---	---	42.6	---	---	90
Fluoranthene	µg/kg	50	---	---	---	497	---	---	3,100,000
Fluorene	µg/kg	50	---	---	---	116	---	---	560,000
Indeno(1,2,3-cd)pyrene	µg/kg	29	---	---	---	147	---	---	900
Naphthalene	µg/kg	25	---	---	---	431	---	---	1,800
Phenanthrene	µg/kg	50	---	---	---	464	---	---	---
Pyrene	µg/kg	50	---	---	---	470	---	---	2,300,000
Solids, Total (160.3)									
Date Analyzed:	Units	Rep. Limit	3/26/2016	3/26/2016	3/26/2016	3/26/2016	3/26/2016	3/26/2016	
Total Solids	%	---	89.8	95.1	82.0	89.7	94.5	97.1	---

Note: Analytical testing results for BTEX, MTBE and PNAs are expressed in parts-per-billion (ppb) concentrations.

Note: Exceedences of the most stringent IEPA TACO Tier 1 SROs in **bold**.

ATTACHMENT 1

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

ATTACHMENT 2

PHOTOGRAPHIC LOG

PROJECT: HARVARD BP REAL ESTATE

DATE: 03/2016

VIEW: SOUTH

PHOTOGRAPH #: 1



DESCRIPTION: ADVANCEMENT OF SOIL BORING GP-1.

DATE: 03/2016

VIEW: SOUTHEAST

PHOTOGRAPH #: 2



DESCRIPTION: ADVANCEMENT OF SOIL BORING GP-2.

PHOTOGRAPHIC LOG

PROJECT: HARVARD BP REAL ESTATE

DATE: 03/2016

VIEW: WEST

PHOTOGRAPH #: 3



DESCRIPTION: ADVANCEMENT OF SOIL BORING GP-3.

DATE: 03/2016

VIEW: NORTHWEST

PHOTOGRAPH #: 4



DESCRIPTION: ADVANCEMENT OF SOIL BORING GP-4.

PHOTOGRAPHIC LOG

PROJECT: HARVARD BP REAL ESTATE

DATE: 03/2016

VIEW: WEST

PHOTOGRAPH #: 5



DESCRIPTION: ADVANCEMENT OF SOIL BORING GP-5.

DATE: 03/2016

VIEW: WEST

PHOTOGRAPH #: 6



DESCRIPTION: ADVANCEMENT OF SOIL BORING GP-6.

ATTACHMENT 3



12065 Lebanon Rd.
Mt. Juliet, TN 37122
(615) 758-5858
1-800-767-5859
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

Tim Chung
Eagle Environmental Consultants, LLC
3809 Illinois Avenue, Suite 350
St. Charles, IL 60174

Report Summary

Thursday March 31, 2016

Report Number: L824812

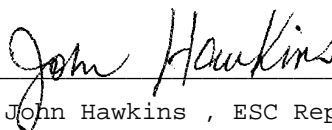
Samples Received: 03/22/16

Client Project: 116102

Description: Harvard BP Real Estate

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By:


John Hawkins , ESC Representative

Laboratory Certification Numbers

A2LA - 1461-01,1461-02, AIHA - 100789, AL - 40660, CA - 01157CA, CT - PH-0197,
FL - E87487, GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016,
NC - ENV375/DW21704/BIO041, ND - R-140, NJ - TN002, NJ NELAP - TN002,
SC - 84004, TN - 2006, VA - 460132, WV - 233, AZ - 0612,
MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032011-1,
TX - T104704245-11-3, OK - 9915, PA - 68-02979, IA Lab #364, EPA - TN002

Accreditation is only applicable to the test methods specified on each scope of accreditation held by ESC Lab Sciences.

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REPORT OF ANALYSIS

Tim Chung
Eagle Environmental Consultants, LL
3809 Illinois Avenue, Suite 350
St. Charles, IL 60174

March 31, 2016

Date Received : March 22, 2016
Description : Harvard BP Real Estate
Sample ID : GP-1 5-7FT
Collected By : Tim Chung
Collection Date : 03/21/16 09:30

ESC Sample # : L824812-01

Site ID :

Project # : 116102

Parameter	Dry Result	MDL	RDL	Units	Qualif	Method	Date	Dil.
Total Solids	89.8	0.0333		%	2540	G-2	03/26/16	1
Benzene	0.00365	0.000270	0.00111	mg/kg	8260B		03/28/16	1
Toluene	0.0112	0.000434	0.00557	mg/kg	8260B		03/28/16	1
Ethylbenzene	0.00303	0.000297	0.00111	mg/kg	8260B		03/28/16	1
Total Xylenes	0.00677	0.000698	0.00334	mg/kg	8260B		03/28/16	1
Methyl tert-butyl ether	U	0.000212	0.00111	mg/kg	8260B		03/28/16	1
Surrogate Recovery								
Toluene-d8	104.			% Rec.	8260B		03/28/16	1
Dibromofluoromethane	98.5			% Rec.	8260B		03/28/16	1
4-Bromofluorobenzene	105.			% Rec.	8260B		03/28/16	1

Results listed are dry weight basis.

U = ND (Not Detected)

MDL = Minimum Detection Limit = LOD = TRRP SDL

RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL

Note:

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The reported analytical results relate only to the sample submitted

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REPORT OF ANALYSIS

Tim Chung
Eagle Environmental Consultants, LL
3809 Illinois Avenue, Suite 350
St. Charles, IL 60174

March 31, 2016

Date Received : March 22, 2016
Description : Harvard BP Real Estate
Sample ID : GP-2 3-5FT
Collected By : Tim Chung
Collection Date : 03/21/16 09:55

ESC Sample # : L824812-02

Site ID :

Project # : 116102

Parameter	Dry Result	MDL	RDL	Units	Qualif	Method	Date	Dil.
Total Solids	95.1	0.0333		%		2540 G-2	03/26/16	1
Benzene	0.000608	0.000270	0.00105	mg/kg	J	8260B	03/23/16	1
Toluene	0.00157	0.000434	0.00526	mg/kg	J	8260B	03/23/16	1
Ethylbenzene	0.000505	0.000297	0.00105	mg/kg	J	8260B	03/23/16	1
Total Xylenes	0.00154	0.000698	0.00315	mg/kg	J	8260B	03/23/16	1
Methyl tert-butyl ether	U	0.000212	0.00105	mg/kg		8260B	03/23/16	1
Surrogate Recovery								
Toluene-d8	104.			% Rec.		8260B	03/23/16	1
Dibromofluoromethane	106.			% Rec.		8260B	03/23/16	1
4-Bromofluorobenzene	99.1			% Rec.		8260B	03/23/16	1

Results listed are dry weight basis.

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REPORT OF ANALYSIS

Tim Chung
Eagle Environmental Consultants, LL
3809 Illinois Avenue, Suite 350
St. Charles, IL 60174

March 31, 2016

Date Received : March 22, 2016
Description : Harvard BP Real Estate
Sample ID : GP-3 5-7FT
Collected By : Tim Chung
Collection Date : 03/21/16 10:15

ESC Sample # : L824812-03

Site ID :

Project # : 116102

Parameter	Dry Result	MDL	RDL	Units	Qualif	Method	Date	Dil.
Total Solids	82.0	0.0333		%		2540 G-2	03/26/16	1
Benzene	0.000439	0.000270	0.00122	mg/kg	J	8260B	03/28/16	1
Toluene	0.000929	0.000434	0.00610	mg/kg	J	8260B	03/28/16	1
Ethylbenzene	U	0.000297	0.00122	mg/kg		8260B	03/28/16	1
Total Xylenes	U	0.000698	0.00366	mg/kg		8260B	03/28/16	1
Methyl tert-butyl ether	U	0.000212	0.00122	mg/kg		8260B	03/28/16	1
Surrogate Recovery								
Toluene-d8	104.			% Rec.		8260B	03/28/16	1
Dibromofluoromethane	101.			% Rec.		8260B	03/28/16	1
4-Bromofluorobenzene	103.			% Rec.		8260B	03/28/16	1

Results listed are dry weight basis.

U = ND (Not Detected)

MDL = Minimum Detection Limit = LOD = TRRP SDL

RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL

Note:

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REPORT OF ANALYSIS

Tim Chung
Eagle Environmental Consultants, LL
3809 Illinois Avenue, Suite 350
St. Charles, IL 60174

March 31, 2016

Date Received : March 22, 2016
Description : Harvard BP Real Estate

ESC Sample # : L824812-04

Sample ID : GP-4 1-3FT

Site ID :

Collected By : Tim Chung
Collection Date : 03/21/16 10:40

Project # : 116102

Parameter	Dry Result	MDL	RDL	Units	Qualif	Method	Date	Dil.
Total Solids	89.7	0.0333		%		2540 G-2	03/26/16	1
Benzene	0.00213	0.000270	0.00111	mg/kg		8260B	03/28/16	1
Toluene	0.00408	0.000434	0.00557	mg/kg	J	8260B	03/28/16	1
Ethylbenzene	0.00143	0.000297	0.00111	mg/kg		8260B	03/28/16	1
Total Xylenes	0.00378	0.000698	0.00334	mg/kg		8260B	03/28/16	1
Methyl tert-butyl ether	U	0.000212	0.00111	mg/kg		8260B	03/28/16	1
Surrogate Recovery								
Toluene-d8	103.			% Rec.		8260B	03/28/16	1
Dibromofluoromethane	101.			% Rec.		8260B	03/28/16	1
4-Bromofluorobenzene	106.			% Rec.		8260B	03/28/16	1
Polynuclear Aromatic Hydrocarbons								
Anthracene	0.0644	0.00600	0.0669	mg/kg	J	8270C-SI	03/30/16	10
Acenaphthene	0.0920	0.00600	0.0669	mg/kg		8270C-SI	03/30/16	10
Acenaphthylene	0.0214	0.00600	0.0669	mg/kg	J	8270C-SI	03/30/16	10
Benzo(a)anthracene	0.169	0.00600	0.0669	mg/kg		8270C-SI	03/30/16	10
Benzo(a)pyrene	0.216	0.00600	0.0669	mg/kg		8270C-SI	03/30/16	10
Benzo(b)fluoranthene	0.295	0.00600	0.0669	mg/kg		8270C-SI	03/30/16	10
Benzo(g,h,i)perylene	0.241	0.00600	0.0669	mg/kg		8270C-SI	03/30/16	10
Benzo(k)fluoranthene	0.0738	0.00600	0.0669	mg/kg		8270C-SI	03/30/16	10
Chrysene	0.232	0.00600	0.0669	mg/kg		8270C-SI	03/30/16	10
Dibenz(a,h)anthracene	0.0426	0.00600	0.0669	mg/kg	J	8270C-SI	03/30/16	10
Fluoranthene	0.497	0.00600	0.0669	mg/kg		8270C-SI	03/30/16	10
Fluorene	0.116	0.00600	0.0669	mg/kg		8270C-SI	03/30/16	10
Indeno(1,2,3-cd)pyrene	0.147	0.00600	0.0669	mg/kg		8270C-SI	03/30/16	10
Naphthalene	0.431	0.0200	0.223	mg/kg		8270C-SI	03/30/16	10
Phenanthrene	0.464	0.00600	0.0669	mg/kg		8270C-SI	03/30/16	10
Pyrene	0.470	0.00600	0.0669	mg/kg		8270C-SI	03/30/16	10
1-Methylnaphthalene	1.38	0.0200	0.223	mg/kg		8270C-SI	03/30/16	10
2-Methylnaphthalene	1.68	0.0200	0.223	mg/kg		8270C-SI	03/30/16	10
2-Chloronaphthalene	0.0324	0.0200	0.223	mg/kg	J	8270C-SI	03/30/16	10
Surrogate Recovery								
Nitrobenzene-d5	202.			% Rec.	J1	8270C-SI	03/30/16	10
2-Fluorobiphenyl	90.3			% Rec.		8270C-SI	03/30/16	10
p-Terphenyl-d14	71.4			% Rec.		8270C-SI	03/30/16	10

Results listed are dry weight basis.

U = ND (Not Detected)

MDL = Minimum Detection Limit = LOD = TRRP SDL

RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL

Note:

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The reported analytical results relate only to the sample submitted

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L824812-04 (SV8270PAHSIM) - Dilution due to matrix



12065 Lebanon Rd.
Mt. Juliet, TN 37122
(615) 758-5858
1-800-767-5859
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

Tim Chung
Eagle Environmental Consultants, LL
3809 Illinois Avenue, Suite 350
St. Charles, IL 60174

March 31, 2016

Date Received : March 22, 2016
Description : Harvard BP Real Estate
Sample ID : GP-5 9-11FT
Collected By : Tim Chung
Collection Date : 03/21/16 11:05

ESC Sample # : L824812-05

Site ID :

Project # : 116102

Parameter	Dry Result	MDL	RDL	Units	Qualif Method	Date	Dil.
Total Solids	94.5	0.0333		%	2540 G-2	03/26/16	1
Benzene	0.00364	0.000270	0.00106	mg/kg	8260B	03/28/16	1
Toluene	0.00710	0.000434	0.00529	mg/kg	8260B	03/28/16	1
Ethylbenzene	0.00180	0.000297	0.00106	mg/kg	8260B	03/28/16	1
Total Xylenes	0.00486	0.000698	0.00317	mg/kg	8260B	03/28/16	1
Methyl tert-butyl ether	U	0.000212	0.00106	mg/kg	8260B	03/28/16	1
Surrogate Recovery							
Toluene-d8	103.			% Rec.	8260B	03/28/16	1
Dibromofluoromethane	101.			% Rec.	8260B	03/28/16	1
4-Bromofluorobenzene	107.			% Rec.	8260B	03/28/16	1

Results listed are dry weight basis.

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Est. 1970

REPORT OF ANALYSIS

Tim Chung
Eagle Environmental Consultants, LL
3809 Illinois Avenue, Suite 350
St. Charles, IL 60174

March 31, 2016

Date Received : March 22, 2016
Description : Harvard BP Real Estate
Sample ID : GP-6 11-13FT
Collected By : Tim Chung
Collection Date : 03/21/16 11:35

ESC Sample # : L824812-06

Site ID :

Project # : 116102

Parameter	Dry Result	MDL	RDL	Units	Qualif	Method	Date	Dil.
Total Solids	97.1	0.0333		%		2540 G-2	03/26/16	1
Benzene	0.00228	0.000270	0.00103	mg/kg		8260B	03/28/16	1
Toluene	0.00466	0.000434	0.00515	mg/kg	J	8260B	03/28/16	1
Ethylbenzene	0.00131	0.000297	0.00103	mg/kg		8260B	03/28/16	1
Total Xylenes	0.00275	0.000698	0.00309	mg/kg	J	8260B	03/28/16	1
Methyl tert-butyl ether	U	0.000212	0.00103	mg/kg		8260B	03/28/16	1
Surrogate Recovery								
Toluene-d8	103.			% Rec.		8260B	03/28/16	1
Dibromofluoromethane	99.4			% Rec.		8260B	03/28/16	1
4-Bromofluorobenzene	105.			% Rec.		8260B	03/28/16	1

Results listed are dry weight basis.

U = ND (Not Detected)

MDL = Minimum Detection Limit = LOD = TRRP SDL

RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL

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Attachment A
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L824812-02	WG858528	SAMP	Benzene	R3123088	J
	WG858528	SAMP	Toluene	R3123088	J
	WG858528	SAMP	Ethylbenzene	R3123088	J
	WG858528	SAMP	Total Xylenes	R3123088	J
L824812-03	WG859402	SAMP	Benzene	R3124257	J
	WG859402	SAMP	Toluene	R3124257	J
L824812-04	WG859402	SAMP	Toluene	R3124257	J
	WG859634	SAMP	Anthracene	R3125127	J
	WG859634	SAMP	Acenaphthylene	R3125127	J
	WG859634	SAMP	Dibenz(a,h)anthracene	R3125127	J
	WG859634	SAMP	2-Chloronaphthalene	R3125127	J
	WG859634	SAMP	Nitrobenzene-d5	R3125127	J1
L824812-06	WG859402	SAMP	Toluene	R3124257	J
	WG859402	SAMP	Total Xylenes	R3124257	J

Attachment B
Explanation of QC Qualifier Codes

Qualifier	Meaning
J	(EPA) - Estimated value below the lowest calibration point. Confidence correlates with concentration.
J1	Surrogate recovery limits have been exceeded; values are outside upper control limits

Qualifier Report Information

ESC utilizes sample and result qualifiers as set forth by the EPA Contract Laboratory Program and as required by most certifying bodies including NELAC. In addition to the EPA qualifiers adopted by ESC, we have implemented ESC qualifiers to provide more information pertaining to our analytical results. Each qualifier is designated in the qualifier explanation as either EPA or ESC. Data qualifiers are intended to provide the ESC client with more detailed information concerning the potential bias of reported data. Because of the wide range of constituents and variety of matrices incorporated by most EPA methods, it is common for some compounds to fall outside of established ranges. These exceptions are evaluated and all reported data is valid and useable "unless qualified as 'R' (Rejected)."

Definitions

- Accuracy - The relationship of the observed value of a known sample to the true value of a known sample. Represented by percent recovery and relevant to samples such as: control samples, matrix spike recoveries, surrogate recoveries, etc.
- Precision - The agreement between a set of samples or between duplicate samples. Relates to how close together the results are and is represented by Relative Percent Difference.
- Surrogate - Organic compounds that are similar in chemical composition, extraction, and chromatography to analytes of interest. The surrogates are used to determine the probable response of the group of analytes that are chemically related to the surrogate compound. Surrogates are added to the sample and carried through all stages of preparation and analyses.
- TIC - Tentatively Identified Compound: Compounds detected in samples that are not target compounds, internal standards, system monitoring compounds, or surrogates.

