LIMITED PHASE II ENVIRONMENTAL SITE ASSESSMENT

PLEASANT PARK

TONKA BAY, MINNESOTA

January 14, 2016

Prepared for
City of Tonka Bay
1901 Manitou Road | Tonka Bay, MN 55331

WSB PROJECT NO. 1987-570

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Limited Phase II ESA
Pleasant Park
Tonka Bay, Minnesota

Prepared for:

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January 14, 2016

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1. Introduction

WSB & Associates, Inc. (WSB) was retained by the City of Tonka Bay (the City) to conduct a Limited Phase II Environmental Site Assessment (Limited Phase II ESA) assessing subsurface soil conditions at select locations in Pleasant Park, located in Tonka Bay, Minnesota (the Property). A Site Location Map is included as **Figure 1**.

The purpose of this subsurface investigation was to identify the cause of sinkhole formations and to determine if hazardous and/or contaminated materials are present at the Property. The limited Phase II was conducted based on findings from a previously completed Environmental Desktop Review.

1.1 Scope of Work

On December 22, 2015, City personnel excavated ten test pits using a Volvo Backhoe Loader BL70B to depths ranging from 10.5 to 14.5 feet below ground surface (bgs) to facilitate field observations and subsurface assessment. WSB completed the following tasks as part of the investigation:

- Soil sampling during test pit excavations. Soil samples were visually assessed for indications of debris/contamination (visual, olfactory, etc.) and screened for organic vapors using a photoionization detector (PID) equipped with a 10.6 eV lamp. Soil samples were profiled and test pit locations were documented on a site map.

- Submittal of soil samples for laboratory analysis of diesel range organics (DRO) with silica gel clean up, gasoline range organics (GRO), benzene, toluene, ethylbenzene, xylene (BTEX), and methyl tertiary butyl ether (MTBE) by Wisconsin Modified Method, lead by EPA Method 6010 and polycyclic aromatic hydrocarbons (PAHs) by EPA Method 8270.

- Assessed groundwater identified in the test pit excavations. Limited groundwater was encountered in select test pits during this investigation and no groundwater samples were collected.

- Visually assessed the excavated materials for solid waste or suspect asbestos containing materials. No solid waste or suspect asbestos containing materials were encountered during the investigation.

- Prepared a report detailing field observations, laboratory results, conclusions and recommendations.

Photographic documentation of site activities is included in **Appendix A**. Methods and procedures used during this investigation are detailed in **Appendix B.**

2. Phase II ESA Results

2.1 Test Pit Excavation and Sampling

Ten test pits, identified as TP-1 through TP-10, were excavated on December 22, 2015. The test pit locations were selected based on visually confirmed sinkhole features identified in the environmental desktop review. Test pit locations are depicted on **Figure 2**.

General soil lithology at the Property consisted of fill material which included sand and silty sand ranging in depth from 2 to 10 feet below ground surface (bgs) followed by native, fine to coarse sand to the base of the excavations. Test pit TP-10 deviated from the generally observed site soil lithology including fill material to 2 feet bgs followed by clay and silty clay to approximately 8 feet bgs followed by native sand to the base of the excavation. Woody debris consisting of branches, logs and tree roots was observed to be mixed with fill soil and was identified in all test pits except test pits TP-5, TP-9, and TP-10. Specific depths and locations of woody debris included test pit TP-1 from 2 to 9 feet bgs, the northern edge of test pit TP-2 from 2 to 4 feet bgs, TP-3 from 0 to 9 feet bgs, TP-4 from 3 to 10 feet bgs, the northeastern edge of TP-6 at 5 feet bgs, TP-7 from 0 to 4 feet bgs, and the western edge of TP-8 from 0 to 9 feet bgs. Additionally, an open cavity/void space of unknown size was identified in the woody debris at test pit TP-3 from approximately 3 to 5 feet bgs.

Continuous soil sampling was conducted at two-foot intervals to terminal depths ranging from 10.5 to 14.5 feet bgs at each test pit location. Each sample was visually examined for evidence of contamination, field classified, and screened for organic vapors using a PID. PID readings ranged from 0.0 ppm to 2.8 ppm. Excavations were completed to a minimal depth that confirmed the presence of native soil (i.e. excavation beyond fill material). Four soil samples, identified as samples TP-1 (0-2), TP-3 (4-6), TP-8 (2-4) and TP-1 (14-16) were collected and submitted for laboratory analysis. Samples TP-1 (0-2), TP-3 (4-6), and TP-8 (2-4), were collected from fill material mixed with the woody debris and sample TP-1 (14-16) was collected from native soil.

Groundwater was encountered in test pits TP-1, TP-2, TP-3, and TP-7, but a groundwater sample could not be collected. Samples were not collected due to the limited amount of groundwater present in the excavations and the unstable conditions of test pit walls, which continuously caved in and limited the opportunity to collect such a sample.

No suspect ACM, elevated organic vapor readings, staining, odors or other indications of contamination were observed during investigation activities. PID results are summarized in the test pit logs included as **Appendix C.**

2.2 Soil Analytical Results

Four soil samples identified as samples TP-1 (0-2), TP-1 (14-16), TP-3 (4-6), and TP-8 (2-4) were submitted to the TestAmerica Laboratory facility in Cedar Falls, Iowa, for analysis of DRO, GRO, BTEX, MTBE, lead, and PAHs. Soil samples were not submitted for grain size analysis as a groundwater sample was not collected during site activities.

Laboratory analysis identified that all samples were below their respective MPCA Residential (Tier I) and Industrial (Tier II) Soil Reference Values (SRVs) and MPCA Screening Soil Leaching Values (SLVs). No sample analytes were detected above the laboratory reporting limit except for fluoranthene in sample TP-1 (0-2) which had a concentration of 0.0121 mg/kg, which was only slightly above the laboratory detection limit. Laboratory analytical reports and chain-of-custody documentation are included in **Appendix D** and sample results are summarized in **Table 1.**

3. Conclusions

Based on visual observations from limited Phase II ESA, it appears that the sinkhole formations at the Property are likely caused by void space collapse and settling that is occurring inside of the buried woody debris, along with the decomposition of buried trees, branches, and roots.

None of the sample analytes were identified to exceed their respective MPCA Tier I and Tier II SRVs or SLVs and only one analyte (fluoranthene) in sample TP-1 (0-2) was found to exceed the laboratory reporting limit. No elevated PID readings, odors, staining, suspect ACM or other indications of contamination were encountered during this investigation.

4. Recommendations

No concerns of contamination were identified during the Limited Phase II ESA and no further investigation of the Property is warranted at this time.

In the future, if woody debris is removed from the Property to eliminate the sinkhole formations and solid waste or other signs of contamination are identified, we recommend that those materials are evaluated by an environmental professional prior to reuse or off-site disposal.

5. Limitations

The conclusions and recommendations provided in this report are based on field observations and soil sample analysis completed for this limited investigation. The services performed by WSB have been conducted with the level of care and skill ordinarily exercised by reputable members of the profession practicing in the same locality under similar budget and time constraints. No other warranty is made or intended.

Test pits were limited to ten locations throughout Pleasant Park and WSB does not guarantee that the Property is free of contamination, hazardous or potentially hazardous materials, or other undiscovered conditions.

FIGURES

Document Path: K:\0198-570\GIS\Maps\Environmental Desktop Review\Figure1_SiteLocation.mxd

Figure 1: Pleasant Park Site Location Map

Tonka Bay, MN

WSB & Associates, Inc.

Document Path: K:\0153297 0\GIS\Maps\Phase II\Test Pit Location Map.mxd

Figure 2: Pleasant Park Test Pit Location Map

Tonka Bay, MN

WSB & Associates, Inc.

TABLES

Table 1
Soil Analytical Results
Limited Phase II
Pleasant Park
Tonka Bay, Minnesota

WSB & Associates, Inc.								
Sample ID **Sample Date**	**CAS #**	**TP-1 (0-2)** **12/22/2015**	**TP-1 (14-16)** **12/22/2015**	**TP-3 (4-6)** **12/22/2015**	**TP-8 (2-4)** **12/22/2015**	**Tier 1 Residential SRV (mg/kg)**	**Tier II Industrial SRV (mg/kg)**	**SLV (mg/kg)**
Volatile Organic Compounds (VOCs)								
Benzene	71-43-2	<0.129	<0.164	<0.117	<0.152	6	10	0.017
Ethylbenzene	100-41-4	<0.129	<0.164	<0.117	<0.152	200	200	1
Methyl tert-butyl ether	1634-04-4	<0.129	<0.164	<0.117	<0.152	NE	NE	NE
Toluene	108-88-3	<0.129	<0.164	<0.117	<0.152	107	305	2.5
Xylenes, Total	1330-20-7	<0.387	<0.164	<0.350	<0.457	45	130	5.4
Polycyclic Aromatic Hydrocarbons (PAHs)								
2-Methylnaphthalene	91-57-6	<0.0110	<0.0118	<0.0104	<0.0113	100	369	NE
Acenaphthene	83-32-9	<0.0110	<0.0118	<0.0104	<0.0113	1,200	5,260	81
Acenaphthylene	208-96-8	<0.0110	<0.0118	<0.0104	<0.0113	NE	NE	NE
Anthracene	120-12-7	<0.0110	<0.0118	<0.0104	<0.0113	7,880	45,400	1,300
Benzo[a]anthracene	56-55-3	<0.0110	<0.0118	<0.0104	<0.0113	NE	NE	NE
Benzo[a]pyrene	50-32-8	<0.0110	<0.0118	<0.0104	<0.0113	2	3	1.4
Benzo[b]fluoranthene	205-99-2	<0.0110	<0.0118	<0.0104	<0.0113	NE	NE	NE
Benzo[g,h,i]perylene	191-24-2	<0.0110	<0.0118	<0.0104	<0.0113	NE	NE	NE
Benzo[k]fluoranthene	207-08-9	<0.0110	<0.0118	<0.0104	<0.0113	NE	NE	NE
Chrysene	218-01-9	<0.0110	<0.0118	<0.0104	<0.0113	NE	NE	NE
Dibenz(a,h)anthracene	53-70-3	<0.0110	<0.0118	<0.0104	<0.0113	NE	NE	NE
Fluoranthene	206-44-0	**0.0121**	<0.0118	<0.0104	<0.0113	1,080	6,800	670
Fluorene	86-73-7	<0.0110	<0.0118	<0.0104	<0.0113	850	4,120	110

Bold = Value exceeds the laboratory reporting limit
Yellow = Value exceeds Residential SRV
Orange = Value exceeds Industrial SRV
Blue = Value exceeds SLV
NE = Not Established
*= MPCA criteria for unregulated fill

Table 1
Soil Analytical Results
Limited Phase II
Pleasant Park
Tonka Bay, Minnesota

WSB & Associates, Inc.								
Sample ID **Sample Date**	**CAS #**	**TP-1 (0-2)** **12/22/2015**	**TP-1 (14-16)** **12/22/2015**	**TP-3 (4-6)** **12/22/2015**	**TP-8 (2-4)** **12/22/2015**	**Tier 1 Residential SRV (mg/kg)**	**Tier II Industrial SRV (mg/kg)**	**SLV (mg/kg)**
Polycyclic Aromatic Hydrocarbons (PAHs - cont'd)								
Indeno[1,2,3-cd]pyrene	193-39-5	<0.0110	<0.0118	<0.0104	<0.0113	NE	NE	NE
Naphthalene	91-20-3	<0.0110	<0.0118	<0.0104	<0.0113	10	28	4.5
Phenanthrene	85-01-8	<0.0110	<0.0118	<0.0104	<0.0113	NE	NE	NE
Pyrene	129-00-0	<0.0110	<0.0118	<0.0104	<0.0113	890	5,800	440
Lead								
Lead	7439-92-1	<5.18	<4.96	<0.164	<5.61	300	700	2,700
Diesel Range Organics (DRO)								
DRO	STL00143	<7.16	<5.69	<6.82	<7.75	100*	NE	NE
Gasoline Range Organics (GRO)								
GRO	STL01887	<12.9	<16.4	<11.7	<15.2	100*	NE	NE

Bold = Value exceeds the laboratory reporting limit
Yellow = Value exceeds Residential SRV
Orange = Value exceeds Industrial SRV
Blue = Value exceeds SLV
NE = Not Established
*= MPCA criteria for unregulated fill

Appendix A
Photographic Documentation

Photographic Log

Pleasant Park Phase II ESA

Tonka Bay, Minnesota

1 - View of site prior to test pit excavations.

2 - View of buried wood debris in TP-1 during excavation activities.

3 - View of native soil encountered at the base of TP-1.

4 - View of TP-1 after excavation activities were complete.

5 - View of TP-2 during excavation activities.

6 - View of TP-2 after excavation activities were complete. No debris was encountered with the exception of a few roots.

7 - View of an open cavity that was unearthed during TP-3 excavation activities.

8 - View of buried wood debris encountered during TP-3 excavation activities.

9 - View of buried debris from TP-4.

10 - View of TP-6 during excavation activities.

11 - View of TP-6 after excavation activities.

12 - View of TP-7 excavation.

13 - View of a backfill boundary in TP-8.

14 - View of wood debris encountered along the west side of TP-8.

15 - View of TP-9 after excavation was complete. No wood or debris was encountered.

16 - View of TP-10 after excavation was complete. No wood or debris was encountered.

Appendix B
Field Methods

METHODOLOGIES AND PROCEDURES

I. Calibration of MiniRAE Lite Model 7300 PID

Prior to each field usage, the MiniRAE Lite PID was calibrated in the field using a 100 ppm isobutylene standard in accordance with the instructions outlined in the MiniRAE Lite User's Manual. The results were recorded on the calibration log located in the PID carrying case along with the date, time, and project information. An additional calibration verification check was conducted by attaching the calibration gas to the instrument and then removing to make sure the instrument reading returned to zero.

II. Soil Sample Collection, Screening, and Analysis

Soil samples collected during test pit activities were screened for the presence of organic vapors using a MiniRAE Lite PID equipped with a 10.6 or higher eV lamp. The PID was calibrated prior to daily field activities to an isobutylene standard for readings in parts-per-million. For each sample, a new re-sealable one quart polyethylene bag was half-filled with soil and immediately sealed. The bag was shaken for approximately 15 seconds. The sample was then stored for a minimum of 10 minutes at a temperature of at least 70° F (on cold days this may require placing the soil bag in a heated room or vehicle). The bag was shaken again for 15 seconds and then opened just enough to insert the PID probe into the bag. The highest meter response within a time period of 2 to 5 seconds after insertion was then recorded for each sample. In addition to headspace analysis, all samples were carefully examined for evidence of impacts using visual and olfactory criteria.

Soil samples collected for laboratory analyses were placed in clean glass and/or plastic jars supplied by the contract laboratory. The respective sample containers were labeled with the following information:

- Unique sample number
- Site name
- Name of sampler
- Time and date
- Desired analysis

Immediately following collection, samples were placed on ice in a field cooler. Samples were then transported to a Minnesota-certified laboratory with chain-of-custody documentation.

III. Test Pit

Prior to test pit excavation activities, subsurface utility lines were marked by Gopher State One Call, Minnesota's on-call utility locating service. Test pit excavations were accomplished by utilizing backhoe equipment to perform the excavations. Soil sampling was achieved by excavating soil at two foot intervals, to the desired test pit depth. Soil

samples were collected using a decontaminated stainless steel trowel or by hand using a new disposable nitrile glove. Soil samples were collected continuously from each interval for field logging, screening for volatile organic vapor concentrations, and visually assessed for indications of contamination. In an effort to avoid cross contamination of soil samples collected during test pit activities, the soil sampling equipment was cleaned between test pits utilizing an Alconox solution and rinsed with potable water and new nitrile gloves were used for each soil sampling interval. Additionally, soil in contact with the backhoe bucket should not be collected for sampling purposes. After test pits have been completed to the desired depth, excavation materials were backfilled in reverse order and restored to grade.

Appendix C
Test Pit Logs

Test Pit TP-1

Project Name: Pleasant Park

Site Location: Tonka Bay, MN

WSB Personnel: Dan Rangitsch and David Mueller

Excavator Contractor: City of Tonka Bay

WSB Project Number: 01987-570

Date of Work: 12/22/15

DEPTH (feet)	PID (ppm)	DESCRIPTION	COMMENTS
0-2	0.7	Brown very fine to medium sand, moist, no odor	Roots from adjacent tree at the top 2 feet
2-4	0.4		Buried logs and branches 2'-9'
4-6	0.5		
6-8	0.8		Some mottling 7'-9'
8-10	0.7		
		Light tan fine to very fine sand, moist, no odor	Native soil at 9'
10-12	0.6		
		Gray sandy silt, moist to wet, no odor	
12-14	0.7		
14-14.5	0.6		Groundwater at 14'

End of Test Pit 14.5'

Test Pit TP-2

Project Name: Pleasant Park

Site Location: Tonka Bay, MN

WSB Personnel: Dan Rangitsch and David Mueller

Excavator Contractor: City of Tonka Bay

WSB Project Number: 01987-570

Date of Work: 12/22/15

DEPTH (feet)	PID (ppm)	DESCRIPTION	COMMENTS
0-2	0.9	Brown silty sand, moist, no odor	Native soil at 2', no logs in test pit excavation with the exception of a few logs that were observed at 2'-4' north of the test pit.
2-4	1.1	Yellowish brown fine sand, moist, no odor	
4-6	1.2	Yellowish brown fine to medium sand, moist, no odor	
6-8	1.1		
8-10	1.4		
10-12	1.4	Brown medium to coarse sand, moist to wet, no odor	
12-14	0.9		Groundwater at 14'

End of Test Pit 14'

Test Pit TP-3

Project Name: Pleasant Park

Site Location: Tonka Bay, MN

WSB Personnel: Dan Rangitsch and David Mueller

Excavator Contractor: City of Tonka Bay

WSB Project Number: 01987-570

Date of Work: 12/22/15

DEPTH (feet)	PID (ppm)	DESCRIPTION	COMMENTS
0-2	1.4	Brown sand, moist, no odor	Tree and log debris 0'-9'
2-4	1.2		Open cavity at 3'
4-6	1.4		
6-8	1.6		
8-10	0.8	Gray sand, wet, no odor	Native soil at 9' with some mottling
10-12	1.1	Gray very fine sand, wet, no odor	
12-14	1.5		Groundwater at 14'

End of Test Pit 14'

Test Pit TP-4

Project Name: Pleasant Park

Site Location: Tonka Bay, MN

WSB Personnel: Dan Rangitsch and David Mueller

Excavator Contractor: City of Tonka Bay

WSB Project Number: 01987-570

Date of Work: 12/22/15

DEPTH (feet)	PID (ppm)	DESCRIPTION	COMMENTS
0-2	1.4	Brown silty sand, moist, no odor	Minor asphalt debris at 2'
2-4	1.8	Blackish brown silty sand, moist, no odor	Logs at 3'-10'
4-6	1.7	Dark black silty sand, moist, no odor	Possible native soil on southeast corner of test pit
6-8	1.4		
8-10	1.8		
10-12	2.4	Gray fine sand, moist, no odor	Native soil at 10'
12-13	2.0		

End of Test Pit 13'

Test Pit TP-5

Project Name: Pleasant Park

Site Location: Tonka Bay, MN

WSB Personnel: Dan Rangitsch and David Mueller

Excavator Contractor: City of Tonka Bay

WSB Project Number: 01987-570

Date of Work: 12/22/15

DEPTH (feet)	PID (ppm)	DESCRIPTION	COMMENTS
0-2	0.7	Yellowish brown silty sand, moist, no odor	No logs or debris
2-4	0.8	Yellowish brown very fine sand, moist, no odor	Native soil at 2'
4-6	2.7		
6-8	2.8		
8-10	2.5		
10-12	1.5		
12-14	1.6		

End of Test Pit 14'

Test Pit TP-6

Project Name: Pleasant Park

Site Location: Tonka Bay, MN

WSB Personnel: Dan Rangitsch and David Mueller

Excavator Contractor: City of Tonka Bay

WSB Project Number: 01987-570

Date of Work: 12/22/15

DEPTH (feet)	PID (ppm)	DESCRIPTION	COMMENTS
0-2	1.5	Brown silty sand, moist, no odor	Log debris along northeast corner at 5' Native soil at 6'
2-4	2.1		
4-6	1.4		
6-8	1.2	Yellowish brown fine sand, moist, no odor	
8-10	No sample		
10-12	2.0		
12-14	1.6		

End of Test Pit 14'

Test Pit TP-7

Project Name: Pleasant Park

Site Location: Tonka Bay, MN

WSB Personnel: Dan Rangitsch and David Mueller

Excavator Contractor: City of Tonka Bay

WSB Project Number: 01987-570

Date of Work: 12/22/15

DEPTH (feet)	PID (ppm)	DESCRIPTION	COMMENTS
0-2	2.3	Dark brown fine silty sand, moist, no odor	Minimal wood/log debris to 4'
2-4	2.2		
4-6	2.8	Light yellowish brown fine to very fine sand, moist, no odor	Native soil at 4'
6-8	1.5		
8-10	1.6		
10-10.5	0.8	Light yellowish brown very fine sand, moist, no odor	Groundwater at 10.5'

End of Test Pit 10.5'

Test Pit TP-8

Project Name: Pleasant Park

Site Location: Tonka Bay, MN

WSB Personnel: Dan Rangitsch and David Mueller

Excavator Contractor: City of Tonka Bay

WSB Project Number: 01987-570

Date of Work: 12/22/15

DEPTH (feet)	PID (ppm)	DESCRIPTION	COMMENTS
0-2	1.3	Brown fine silty sand, moist, no odor	Logs at 0' to 9' Native soil at 9.5' Groundwater at 9'
2-4	1.3		
4-6	1.4		
6-8	1.0		
8-10	0.9		
10-12	1.1	Gray fine sand, wet, no odor	
12-14.5	1.0		

End of Test Pit 14.5'

Test Pit TP-9

Project Name: Pleasant Park

Site Location: Tonka Bay, MN

WSB Personnel: Dan Rangitsch and David Mueller

Excavator Contractor: City of Tonka Bay

WSB Project Number: 01987-570

Date of Work: 12/22/15

DEPTH (feet)	PID (ppm)	DESCRIPTION	COMMENTS
0-2	1.0	Very dark brown silty sand, moist, no odor	Native soil at 2'
2-4	1.4	Yellowish brown fine sand, moist, no odor	
4-6	1.5		
6-8	1.4		
8-10	1.3		
10-11.5	1.4		

End of Test Pit 11.5'

Test Pit TP-10

Project Name: Pleasant Park

Site Location: Tonka Bay, MN

WSB Personnel: Dan Rangitsch and David Mueller

Excavator Contractor: City of Tonka Bay

WSB Project Number: 01987-570

Date of Work: 12/22/15

DEPTH (feet)	PID (ppm)	DESCRIPTION	COMMENTS
0-2	1.2	Very dark brown silty sand , moist, no odor	Native soil at 8'
		Redish brown silty sand, moist, no odor	
2-4	2.0	Reddish brown silty clay, moist, no odor	
4-6	1.6	Grayish red silty clay, moist, no odor	
6-8	1.1		
8-10	1.7	Gray medium to coarse sand, moist, no odor	
10-12	0.5		

End of Test Pit 12'

Appendix D
Laboratory Reports

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Cedar Falls
704 Enterprise Drive
Cedar Falls, IA 50613
Tel: (319)277-2401

TestAmerica Job ID: 310-71794-1
TestAmerica Sample Delivery Group: 01987-570
Client Project/Site: Pleasant Park - Tonka Bay

For:
WSB & Associates, Inc
701 Xenia Ave South
Suite 300
Minneapolis, Minnesota 55416

Attn: Jeff Rice

Authorized for release by:
1/7/2016 2:19:16 PM

Derrick Klinkenberg, Project Manager I
(319)277-2401
derrick.klinkenberg@testamericainc.com

LINKS

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Visit us at: www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Job ID: 310-71794-1

Laboratory: TestAmerica Cedar Falls

Narrative

Job Narrative
310-71794-1

Comments
No additional comments.

Receipt
The samples were received on 12/29/2015 9:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 0.6º C.

GC/MS Semi VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC VOA
Method(s) WI-GRO: The following sample was provided to the laboratory with a significantly different initial weight than that required by the reference method: TP-1 (14-16) (310-71794-2). The method requires that at least 7.5g/10ml (sample/methanol) be used. The amount provided was below this range.

Method(s) WI-GRO: The laboratory control sample (LCS) for batch preparation batch 310-113847 and analytical batch 310-113861 recovered outside control limits for Ethylbenzene. This analyte was biased high in the LCS. Samples containing non-detects for this analyte have been reported. Samples containing concentrations of this analyte above the RL have been rejected/reran.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC Semi VOA
Method(s) WI-DRO: The %RPD of the laboratory control sample (LCS) and laboratory control standard duplicate (LCSD) for preparation batch 310-113837 recovered outside control limits for the following analytes: Diesel Range Organics (DRO).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

General Chemistry
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

VOA Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Sample Summary

Client: WSB & Associates, Inc
Project/Site: Pleasant Park - Tonka Bay

TestAmerica Job ID: 310-71794-1
SDG: 01987-570

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-71794-1	TP-1 (0-2)	Soil	12/22/15 08:10	12/29/15 09:30
310-71794-2	TP-1 (14-16)	Soil	12/22/15 08:00	12/29/15 09:30
310-71794-3	TP-3 (4-6)	Soil	12/22/15 10:00	12/29/15 09:30
310-71794-4	TP-8 (2-4)	Soil	12/22/15 12:30	12/29/15 09:30

Detection Summary

Client: WSB & Associates, Inc
Project/Site: Pleasant Park - Tonka Bay

TestAmerica Job ID: 310-71794-1
SDG: 01987-570

Client Sample ID: TP-1 (0-2) — Lab Sample ID: 310-71794-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Fluoranthene	0.0121		0.0110		mg/Kg	1	☼	8270D SIM	Total/NA

Client Sample ID: TP-1 (14-16) — Lab Sample ID: 310-71794-2

No Detections.

Client Sample ID: TP-3 (4-6) — Lab Sample ID: 310-71794-3

No Detections.

Client Sample ID: TP-8 (2-4) — Lab Sample ID: 310-71794-4

No Detections.

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: WSB & Associates, Inc
Project/Site: Pleasant Park - Tonka Bay

TestAmerica Job ID: 310-71794-1
SDG: 01987-570

Client Sample ID: TP-1 (0-2)

Date Collected: 12/22/15 08:10
Date Received: 12/29/15 09:30

Lab Sample ID: 310-71794-1

Matrix: Soil
Percent Solids: 87.7

Method: 8270D SIM - Semivolatile Organic Compound (GC/MS SIM LL)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	<0.0110		0.0110		mg/Kg	☼	12/30/15 11:32	12/31/15 11:31	1
Acenaphthene	<0.0110		0.0110		mg/Kg	☼	12/30/15 11:32	12/31/15 11:31	1
Acenaphthylene	<0.0110		0.0110		mg/Kg	☼	12/30/15 11:32	12/31/15 11:31	1
Anthracene	<0.0110		0.0110		mg/Kg	☼	12/30/15 11:32	12/31/15 11:31	1
Benzo[a]anthracene	<0.0110		0.0110		mg/Kg	☼	12/30/15 11:32	12/31/15 11:31	1
Benzo[a]pyrene	<0.0110		0.0110		mg/Kg	☼	12/30/15 11:32	12/31/15 11:31	1
Benzo[b]fluoranthene	<0.0110		0.0110		mg/Kg	☼	12/30/15 11:32	12/31/15 11:31	1
Benzo[g,h,i]perylene	<0.0110		0.0110		mg/Kg	☼	12/30/15 11:32	12/31/15 11:31	1
Benzo[k]fluoranthene	<0.0110		0.0110		mg/Kg	☼	12/30/15 11:32	12/31/15 11:31	1
Chrysene	<0.0110		0.0110		mg/Kg	☼	12/30/15 11:32	12/31/15 11:31	1
Dibenz(a,h)anthracene	<0.0110		0.0110		mg/Kg	☼	12/30/15 11:32	12/31/15 11:31	1
Fluoranthene	**0.0121**		0.0110		mg/Kg	☼	12/30/15 11:32	12/31/15 11:31	1
Fluorene	<0.0110		0.0110		mg/Kg	☼	12/30/15 11:32	12/31/15 11:31	1
Indeno[1,2,3-cd]pyrene	<0.0110		0.0110		mg/Kg	☼	12/30/15 11:32	12/31/15 11:31	1
Naphthalene	<0.0110		0.0110		mg/Kg	☼	12/30/15 11:32	12/31/15 11:31	1
Phenanthrene	<0.0110		0.0110		mg/Kg	☼	12/30/15 11:32	12/31/15 11:31	1
Pyrene	<0.0110		0.0110		mg/Kg	☼	12/30/15 11:32	12/31/15 11:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*66*		*10 - 110*	*12/30/15 11:32*	*12/31/15 11:31*	*1*
Nitrobenzene-d5 (Surr)	*68*		*10 - 110*	*12/30/15 11:32*	*12/31/15 11:31*	*1*
Terphenyl-d14 (Surr)	*61*		*20 - 110*	*12/30/15 11:32*	*12/31/15 11:31*	*1*

Method: WI-GRO - Wisconsin - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.129		0.129		mg/Kg	☼	12/30/15 12:10	12/31/15 01:39	1
Ethylbenzene	<0.129	*	0.129		mg/Kg	☼	12/30/15 12:10	12/31/15 01:39	1
Methyl tert-butyl ether	<0.129		0.129		mg/Kg	☼	12/30/15 12:10	12/31/15 01:39	1
Toluene	<0.129		0.129		mg/Kg	☼	12/30/15 12:10	12/31/15 01:39	1
Wisconsin GRO	<12.9		12.9		mg/Kg	☼	12/30/15 12:10	12/31/15 01:39	1
Xylenes, Total	<0.387		0.387		mg/Kg	☼	12/30/15 12:10	12/31/15 01:39	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*97*		*80 - 120*	*12/30/15 12:10*	*12/31/15 01:39*	*1*

Method: WI-DRO - Wisconsin - Diesel Range Organics (GC) - Silica Gel Cleanup

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO)	<7.16	*	7.16		mg/Kg	☼	12/30/15 11:31	01/06/16 21:47	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	<5.18		5.18		mg/Kg	☼	12/30/15 16:01	12/30/15 16:11	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**12.3**		0.100		%			12/29/15 13:35	1
Percent Solids	**87.7**		0.100		%			12/29/15 13:35	1

Client Sample Results

Client: WSB & Associates, Inc
Project/Site: Pleasant Park - Tonka Bay

TestAmerica Job ID: 310-71794-1
SDG: 01987-570

Client Sample ID: TP-1 (14-16)

Date Collected: 12/22/15 08:00
Date Received: 12/29/15 09:30

Lab Sample ID: 310-71794-2

Matrix: Soil
Percent Solids: 82.2

Method: 8270D SIM - Semivolatile Organic Compound (GC/MS SIM LL)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	<0.0118		0.0118		mg/Kg	☼	12/30/15 11:32	12/31/15 11:55	1
Acenaphthene	<0.0118		0.0118		mg/Kg	☼	12/30/15 11:32	12/31/15 11:55	1
Acenaphthylene	<0.0118		0.0118		mg/Kg	☼	12/30/15 11:32	12/31/15 11:55	1
Anthracene	<0.0118		0.0118		mg/Kg	☼	12/30/15 11:32	12/31/15 11:55	1
Benzo[a]anthracene	<0.0118		0.0118		mg/Kg	☼	12/30/15 11:32	12/31/15 11:55	1
Benzo[a]pyrene	<0.0118		0.0118		mg/Kg	☼	12/30/15 11:32	12/31/15 11:55	1
Benzo[b]fluoranthene	<0.0118		0.0118		mg/Kg	☼	12/30/15 11:32	12/31/15 11:55	1
Benzo[g,h,i]perylene	<0.0118		0.0118		mg/Kg	☼	12/30/15 11:32	12/31/15 11:55	1
Benzo[k]fluoranthene	<0.0118		0.0118		mg/Kg	☼	12/30/15 11:32	12/31/15 11:55	1
Chrysene	<0.0118		0.0118		mg/Kg	☼	12/30/15 11:32	12/31/15 11:55	1
Dibenz(a,h)anthracene	<0.0118		0.0118		mg/Kg	☼	12/30/15 11:32	12/31/15 11:55	1
Fluoranthene	<0.0118		0.0118		mg/Kg	☼	12/30/15 11:32	12/31/15 11:55	1
Fluorene	<0.0118		0.0118		mg/Kg	☼	12/30/15 11:32	12/31/15 11:55	1
Indeno[1,2,3-cd]pyrene	<0.0118		0.0118		mg/Kg	☼	12/30/15 11:32	12/31/15 11:55	1
Naphthalene	<0.0118		0.0118		mg/Kg	☼	12/30/15 11:32	12/31/15 11:55	1
Phenanthrene	<0.0118		0.0118		mg/Kg	☼	12/30/15 11:32	12/31/15 11:55	1
Pyrene	<0.0118		0.0118		mg/Kg	☼	12/30/15 11:32	12/31/15 11:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*59*		*10 - 110*	*12/30/15 11:32*	*12/31/15 11:55*	*1*
Nitrobenzene-d5 (Surr)	*59*		*10 - 110*	*12/30/15 11:32*	*12/31/15 11:55*	*1*
Terphenyl-d14 (Surr)	*34*		*20 - 110*	*12/30/15 11:32*	*12/31/15 11:55*	*1*

Method: WI-GRO - Wisconsin - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.164		0.164		mg/Kg	☼	12/30/15 12:10	12/31/15 02:19	1
Ethylbenzene	<0.164	*	0.164		mg/Kg	☼	12/30/15 12:10	12/31/15 02:19	1
Methyl tert-butyl ether	<0.164		0.164		mg/Kg	☼	12/30/15 12:10	12/31/15 02:19	1
Toluene	<0.164		0.164		mg/Kg	☼	12/30/15 12:10	12/31/15 02:19	1
Wisconsin GRO	<16.4		16.4		mg/Kg	☼	12/30/15 12:10	12/31/15 02:19	1
Xylenes, Total	<0.492		0.492		mg/Kg	☼	12/30/15 12:10	12/31/15 02:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*96*		*80 - 120*	*12/30/15 12:10*	*12/31/15 02:19*	*1*

Method: WI-DRO - Wisconsin - Diesel Range Organics (GC) - Silica Gel Cleanup

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO)	<5.69	*	5.69		mg/Kg	☼	12/30/15 11:31	01/06/16 20:10	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	<4.96		4.96		mg/Kg	☼	12/30/15 16:01	12/30/15 16:15	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**17.8**		0.100		%			12/29/15 13:35	1
Percent Solids	**82.2**		0.100		%			12/29/15 13:35	1

Client Sample Results

Client: WSB & Associates, Inc
Project/Site: Pleasant Park - Tonka Bay

TestAmerica Job ID: 310-71794-1
SDG: 01987-570

Client Sample ID: TP-3 (4-6)

Date Collected: 12/22/15 10:00
Date Received: 12/29/15 09:30

Lab Sample ID: 310-71794-3

Matrix: Soil
Percent Solids: 88.5

Method: 8270D SIM - Semivolatile Organic Compound (GC/MS SIM LL)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	<0.0104		0.0104		mg/Kg	☼	12/30/15 11:32	12/31/15 12:18	1
Acenaphthene	<0.0104		0.0104		mg/Kg	☼	12/30/15 11:32	12/31/15 12:18	1
Acenaphthylene	<0.0104		0.0104		mg/Kg	☼	12/30/15 11:32	12/31/15 12:18	1
Anthracene	<0.0104		0.0104		mg/Kg	☼	12/30/15 11:32	12/31/15 12:18	1
Benzo[a]anthracene	<0.0104		0.0104		mg/Kg	☼	12/30/15 11:32	12/31/15 12:18	1
Benzo[a]pyrene	<0.0104		0.0104		mg/Kg	☼	12/30/15 11:32	12/31/15 12:18	1
Benzo[b]fluoranthene	<0.0104		0.0104		mg/Kg	☼	12/30/15 11:32	12/31/15 12:18	1
Benzo[g,h,i]perylene	<0.0104		0.0104		mg/Kg	☼	12/30/15 11:32	12/31/15 12:18	1
Benzo[k]fluoranthene	<0.0104		0.0104		mg/Kg	☼	12/30/15 11:32	12/31/15 12:18	1
Chrysene	<0.0104		0.0104		mg/Kg	☼	12/30/15 11:32	12/31/15 12:18	1
Dibenz(a,h)anthracene	<0.0104		0.0104		mg/Kg	☼	12/30/15 11:32	12/31/15 12:18	1
Fluoranthene	<0.0104		0.0104		mg/Kg	☼	12/30/15 11:32	12/31/15 12:18	1
Fluorene	<0.0104		0.0104		mg/Kg	☼	12/30/15 11:32	12/31/15 12:18	1
Indeno[1,2,3-cd]pyrene	<0.0104		0.0104		mg/Kg	☼	12/30/15 11:32	12/31/15 12:18	1
Naphthalene	<0.0104		0.0104		mg/Kg	☼	12/30/15 11:32	12/31/15 12:18	1
Phenanthrene	<0.0104		0.0104		mg/Kg	☼	12/30/15 11:32	12/31/15 12:18	1
Pyrene	<0.0104		0.0104		mg/Kg	☼	12/30/15 11:32	12/31/15 12:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*65*		*10 - 110*	*12/30/15 11:32*	*12/31/15 12:18*	*1*
Nitrobenzene-d5 (Surr)	*67*		*10 - 110*	*12/30/15 11:32*	*12/31/15 12:18*	*1*
Terphenyl-d14 (Surr)	*67*		*20 - 110*	*12/30/15 11:32*	*12/31/15 12:18*	*1*

Method: WI-GRO - Wisconsin - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.117		0.117		mg/Kg	☼	12/30/15 12:10	12/31/15 02:59	1
Ethylbenzene	<0.117	*	0.117		mg/Kg	☼	12/30/15 12:10	12/31/15 02:59	1
Methyl tert-butyl ether	<0.117		0.117		mg/Kg	☼	12/30/15 12:10	12/31/15 02:59	1
Toluene	<0.117		0.117		mg/Kg	☼	12/30/15 12:10	12/31/15 02:59	1
Wisconsin GRO	<11.7		11.7		mg/Kg	☼	12/30/15 12:10	12/31/15 02:59	1
Xylenes, Total	<0.350		0.350		mg/Kg	☼	12/30/15 12:10	12/31/15 02:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*	*12/30/15 12:10*	*12/31/15 02:59*	*1*

Method: WI-DRO - Wisconsin - Diesel Range Organics (GC) - Silica Gel Cleanup

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO)	<6.82	*	6.82		mg/Kg	☼	12/30/15 11:31	01/06/16 20:42	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	<5.41		5.41		mg/Kg	☼	12/30/15 16:01	12/30/15 16:17	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**11.5**		0.100		%			12/29/15 13:35	1
Percent Solids	**88.5**		0.100		%			12/29/15 13:35	1

Client Sample Results

Client: WSB & Associates, Inc
Project/Site: Pleasant Park - Tonka Bay

TestAmerica Job ID: 310-71794-1
SDG: 01987-570

Client Sample ID: TP-8 (2-4)

Date Collected: 12/22/15 12:30
Date Received: 12/29/15 09:30

Lab Sample ID: 310-71794-4

Matrix: Soil
Percent Solids: 86.3

Method: 8270D SIM - Semivolatile Organic Compound (GC/MS SIM LL)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	<0.0113		0.0113		mg/Kg	☼	12/30/15 11:32	12/31/15 12:41	1
Acenaphthene	<0.0113		0.0113		mg/Kg	☼	12/30/15 11:32	12/31/15 12:41	1
Acenaphthylene	<0.0113		0.0113		mg/Kg	☼	12/30/15 11:32	12/31/15 12:41	1
Anthracene	<0.0113		0.0113		mg/Kg	☼	12/30/15 11:32	12/31/15 12:41	1
Benzo[a]anthracene	<0.0113		0.0113		mg/Kg	☼	12/30/15 11:32	12/31/15 12:41	1
Benzo[a]pyrene	<0.0113		0.0113		mg/Kg	☼	12/30/15 11:32	12/31/15 12:41	1
Benzo[b]fluoranthene	<0.0113		0.0113		mg/Kg	☼	12/30/15 11:32	12/31/15 12:41	1
Benzo[g,h,i]perylene	<0.0113		0.0113		mg/Kg	☼	12/30/15 11:32	12/31/15 12:41	1
Benzo[k]fluoranthene	<0.0113		0.0113		mg/Kg	☼	12/30/15 11:32	12/31/15 12:41	1
Chrysene	<0.0113		0.0113		mg/Kg	☼	12/30/15 11:32	12/31/15 12:41	1
Dibenz(a,h)anthracene	<0.0113		0.0113		mg/Kg	☼	12/30/15 11:32	12/31/15 12:41	1
Fluoranthene	<0.0113		0.0113		mg/Kg	☼	12/30/15 11:32	12/31/15 12:41	1
Fluorene	<0.0113		0.0113		mg/Kg	☼	12/30/15 11:32	12/31/15 12:41	1
Indeno[1,2,3-cd]pyrene	<0.0113		0.0113		mg/Kg	☼	12/30/15 11:32	12/31/15 12:41	1
Naphthalene	<0.0113		0.0113		mg/Kg	☼	12/30/15 11:32	12/31/15 12:41	1
Phenanthrene	<0.0113		0.0113		mg/Kg	☼	12/30/15 11:32	12/31/15 12:41	1
Pyrene	<0.0113		0.0113		mg/Kg	☼	12/30/15 11:32	12/31/15 12:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*66*		*10 - 110*	*12/30/15 11:32*	*12/31/15 12:41*	*1*
Nitrobenzene-d5 (Surr)	*69*		*10 - 110*	*12/30/15 11:32*	*12/31/15 12:41*	*1*
Terphenyl-d14 (Surr)	*68*		*20 - 110*	*12/30/15 11:32*	*12/31/15 12:41*	*1*

Method: WI-GRO - Wisconsin - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.152		0.152		mg/Kg	☼	12/30/15 12:10	12/31/15 03:39	1
Ethylbenzene	<0.152	*	0.152		mg/Kg	☼	12/30/15 12:10	12/31/15 03:39	1
Methyl tert-butyl ether	<0.152		0.152		mg/Kg	☼	12/30/15 12:10	12/31/15 03:39	1
Toluene	<0.152		0.152		mg/Kg	☼	12/30/15 12:10	12/31/15 03:39	1
Wisconsin GRO	<15.2		15.2		mg/Kg	☼	12/30/15 12:10	12/31/15 03:39	1
Xylenes, Total	<0.457		0.457		mg/Kg	☼	12/30/15 12:10	12/31/15 03:39	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*83*		*80 - 120*	*12/30/15 12:10*	*12/31/15 03:39*	*1*

Method: WI-DRO - Wisconsin - Diesel Range Organics (GC) - Silica Gel Cleanup

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO)	<7.75	*	7.75		mg/Kg	☼	12/30/15 11:31	01/06/16 21:15	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	<5.61		5.61		mg/Kg	☼	12/30/15 16:01	12/30/15 16:19	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**13.7**		0.100		%			12/29/15 13:35	1
Percent Solids	**86.3**		0.100		%			12/29/15 13:35	1

Definitions/Glossary

Client: WSB & Associates, Inc
Project/Site: Pleasant Park - Tonka Bay

TestAmerica Job ID: 310-71794-1
SDG: 01987-570

Qualifiers

GC VOA

Qualifier	Qualifier Description
*	LCS or LCSD is outside acceptance limits.

GC Semi VOA

Qualifier	Qualifier Description
*	RPD of the LCS and LCSD exceeds the control limits

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Surrogate Summary

Client: WSB & Associates, Inc
Project/Site: Pleasant Park - Tonka Bay

TestAmerica Job ID: 310-71794-1
SDG: 01987-570

Method: 8270D SIM - Semivolatile Organic Compound (GC/MS SIM LL)

Matrix: Soil **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)		
		FBP	NBZ	TPH
Lab Sample ID	Client Sample ID	(10-110)	(10-110)	(20-110)
310-71794-1	TP-1 (0-2)	66	68	61
310-71794-1 MS	TP-1 (0-2)	58	55	49
310-71794-1 MSD	TP-1 (0-2)	62	63	63
310-71794-2	TP-1 (14-16)	59	59	34
310-71794-3	TP-3 (4-6)	65	67	67
310-71794-4	TP-8 (2-4)	66	69	68

Surrogate Legend

FBP = 2-Fluorobiphenyl (Surr)
NBZ = Nitrobenzene-d5 (Surr)
TPH = Terphenyl-d14 (Surr)

Method: 8270D SIM - Semivolatile Organic Compound (GC/MS SIM LL)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)		
		FBP	NBZ	TPH
Lab Sample ID	Client Sample ID	(10-110)	(10-110)	(20-110)
LCS 310-113838/2-A	Lab Control Sample	50	48	50
MB 310-113838/1-A	Method Blank	50	52	56

Surrogate Legend

FBP = 2-Fluorobiphenyl (Surr)
NBZ = Nitrobenzene-d5 (Surr)
TPH = Terphenyl-d14 (Surr)

Method: WI-GRO - Wisconsin - Gasoline Range Organics (GC)

Matrix: Soil **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		BFB
Lab Sample ID	Client Sample ID	(80-120)
310-71794-1	TP-1 (0-2)	97
310-71794-2	TP-1 (14-16)	96
310-71794-3	TP-3 (4-6)	99
310-71794-4	TP-8 (2-4)	83

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)

Method: WI-GRO - Wisconsin - Gasoline Range Organics (GC)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		BFB
Lab Sample ID	Client Sample ID	(80-120)
LCS 310-113847/2-A	Lab Control Sample	103
LCSD 310-113847/23-A	Lab Control Sample Dup	118
MB 310-113847/1-A	Method Blank	81

Surrogate Legend

Surrogate Summary

Client: WSB & Associates, Inc
Project/Site: Pleasant Park - Tonka Bay

TestAmerica Job ID: 310-71794-1
SDG: 01987-570

BFB = 4-Bromofluorobenzene (Surr)

QC Sample Results

Client: WSB & Associates, Inc
Project/Site: Pleasant Park - Tonka Bay

TestAmerica Job ID: 310-71794-1
SDG: 01987-570

Method: 8270D SIM - Semivolatile Organic Compound (GC/MS SIM LL)

Lab Sample ID: MB 310-113838/1-A
Matrix: Solid
Analysis Batch: 113936

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 113838

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	<0.0100		0.0100		mg/Kg		12/30/15 11:32	12/31/15 09:57	1
Acenaphthene	<0.0100		0.0100		mg/Kg		12/30/15 11:32	12/31/15 09:57	1
Acenaphthylene	<0.0100		0.0100		mg/Kg		12/30/15 11:32	12/31/15 09:57	1
Anthracene	<0.0100		0.0100		mg/Kg		12/30/15 11:32	12/31/15 09:57	1
Benzo[a]anthracene	<0.0100		0.0100		mg/Kg		12/30/15 11:32	12/31/15 09:57	1
Benzo[a]pyrene	<0.0100		0.0100		mg/Kg		12/30/15 11:32	12/31/15 09:57	1
Benzo[b]fluoranthene	<0.0100		0.0100		mg/Kg		12/30/15 11:32	12/31/15 09:57	1
Benzo[g,h,i]perylene	<0.0100		0.0100		mg/Kg		12/30/15 11:32	12/31/15 09:57	1
Benzo[k]fluoranthene	<0.0100		0.0100		mg/Kg		12/30/15 11:32	12/31/15 09:57	1
Chrysene	<0.0100		0.0100		mg/Kg		12/30/15 11:32	12/31/15 09:57	1
Dibenz(a,h)anthracene	<0.0100		0.0100		mg/Kg		12/30/15 11:32	12/31/15 09:57	1
Fluoranthene	<0.0100		0.0100		mg/Kg		12/30/15 11:32	12/31/15 09:57	1
Fluorene	<0.0100		0.0100		mg/Kg		12/30/15 11:32	12/31/15 09:57	1
Indeno[1,2,3-cd]pyrene	<0.0100		0.0100		mg/Kg		12/30/15 11:32	12/31/15 09:57	1
Naphthalene	<0.0100		0.0100		mg/Kg		12/30/15 11:32	12/31/15 09:57	1
Phenanthrene	<0.0100		0.0100		mg/Kg		12/30/15 11:32	12/31/15 09:57	1
Pyrene	<0.0100		0.0100		mg/Kg		12/30/15 11:32	12/31/15 09:57	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*50*		*10 - 110*	*12/30/15 11:32*	*12/31/15 09:57*	*1*
Nitrobenzene-d5 (Surr)	*52*		*10 - 110*	*12/30/15 11:32*	*12/31/15 09:57*	*1*
Terphenyl-d14 (Surr)	*56*		*20 - 110*	*12/30/15 11:32*	*12/31/15 09:57*	*1*

Lab Sample ID: LCS 310-113838/2-A
Matrix: Solid
Analysis Batch: 113936

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 113838

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2-Methylnaphthalene	0.200	0.09237		mg/Kg		46	15 - 110
Acenaphthene	0.200	0.09095		mg/Kg		45	20 - 110
Acenaphthylene	0.200	0.09158		mg/Kg		46	20 - 110
Anthracene	0.200	0.09949		mg/Kg		50	30 - 110
Benzo[a]anthracene	0.200	0.1010		mg/Kg		50	50 - 110
Benzo[a]pyrene	0.200	0.1066		mg/Kg		53	45 - 110
Benzo[b]fluoranthene	0.200	0.1010		mg/Kg		50	40 - 110
Benzo[g,h,i]perylene	0.200	0.09933		mg/Kg		50	20 - 110
Benzo[k]fluoranthene	0.200	0.1045		mg/Kg		52	45 - 110
Chrysene	0.200	0.1123		mg/Kg		56	45 - 110
Dibenz(a,h)anthracene	0.200	0.06377		mg/Kg		32	10 - 110
Fluoranthene	0.200	0.09832		mg/Kg		49	40 - 110
Fluorene	0.200	0.09515		mg/Kg		48	25 - 110
Indeno[1,2,3-cd]pyrene	0.200	0.09511		mg/Kg		48	40 - 110
Naphthalene	0.200	0.09136		mg/Kg		46	15 - 110
Phenanthrene	0.200	0.09112		mg/Kg		46	25 - 110
Pyrene	0.200	0.09213		mg/Kg		46	40 - 110

Method: 8270D SIM - Semivolatile Organic Compound (GC/MS SIM LL) (Continued)

Lab Sample ID: LCS 310-113838/2-A
Matrix: Solid
Analysis Batch: 113936

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 113838

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorobiphenyl (Surr)	*50*		*10 - 110*
Nitrobenzene-d5 (Surr)	*48*		*10 - 110*
Terphenyl-d14 (Surr)	*50*		*20 - 110*

Lab Sample ID: 310-71794-1 MS
Matrix: Soil
Analysis Batch: 113936

Client Sample ID: TP-1 (0-2)
Prep Type: Total/NA
Prep Batch: 113838

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
2-Methylnaphthalene	<0.0110		0.211	0.1128		mg/Kg	☼	53	15 - 110
Acenaphthene	<0.0110		0.211	0.1122		mg/Kg	☼	53	20 - 110
Acenaphthylene	<0.0110		0.211	0.1167		mg/Kg	☼	55	20 - 110
Anthracene	<0.0110		0.211	0.1199		mg/Kg	☼	57	30 - 110
Benzo[a]anthracene	<0.0110		0.211	0.1211		mg/Kg	☼	54	35 - 115
Benzo[a]pyrene	<0.0110		0.211	0.1293		mg/Kg	☼	57	30 - 110
Benzo[b]fluoranthene	<0.0110		0.211	0.1228		mg/Kg	☼	53	35 - 110
Benzo[g,h,i]perylene	<0.0110		0.211	0.1302		mg/Kg	☼	58	15 - 110
Benzo[k]fluoranthene	<0.0110		0.211	0.1164		mg/Kg	☼	53	35 - 110
Chrysene	<0.0110		0.211	0.1302		mg/Kg	☼	58	35 - 110
Dibenz(a,h)anthracene	<0.0110		0.211	0.08247		mg/Kg	☼	38	10 - 110
Fluoranthene	0.0121		0.211	0.1167		mg/Kg	☼	49	25 - 115
Fluorene	<0.0110		0.211	0.1181		mg/Kg	☼	56	25 - 110
Indeno[1,2,3-cd]pyrene	<0.0110		0.211	0.1238		mg/Kg	☼	56	30 - 110
Naphthalene	<0.0110		0.211	0.1132		mg/Kg	☼	54	15 - 110
Phenanthrene	<0.0110		0.211	0.1132		mg/Kg	☼	52	25 - 110
Pyrene	<0.0110		0.211	0.1107		mg/Kg	☼	47	25 - 115

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
2-Fluorobiphenyl (Surr)	*58*		*10 - 110*
Nitrobenzene-d5 (Surr)	*55*		*10 - 110*
Terphenyl-d14 (Surr)	*49*		*20 - 110*

Lab Sample ID: 310-71794-1 MSD
Matrix: Soil
Analysis Batch: 113936

Client Sample ID: TP-1 (0-2)
Prep Type: Total/NA
Prep Batch: 113838

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
2-Methylnaphthalene	<0.0110		0.210	0.1263		mg/Kg	☼	60	15 - 110	11	40
Acenaphthene	<0.0110		0.210	0.1383		mg/Kg	☼	66	20 - 110	21	40
Acenaphthylene	<0.0110		0.210	0.1401		mg/Kg	☼	67	20 - 110	18	40
Anthracene	<0.0110		0.210	0.1400		mg/Kg	☼	67	30 - 110	15	40
Benzo[a]anthracene	<0.0110		0.210	0.1376		mg/Kg	☼	62	35 - 115	13	40
Benzo[a]pyrene	<0.0110		0.210	0.1504		mg/Kg	☼	68	30 - 110	15	40
Benzo[b]fluoranthene	<0.0110		0.210	0.1575		mg/Kg	☼	70	35 - 110	25	40
Benzo[g,h,i]perylene	<0.0110		0.210	0.1540		mg/Kg	☼	70	15 - 110	17	40
Benzo[k]fluoranthene	<0.0110		0.210	0.1518		mg/Kg	☼	70	35 - 110	26	40
Chrysene	<0.0110		0.210	0.1483		mg/Kg	☼	67	35 - 110	13	40
Dibenz(a,h)anthracene	<0.0110		0.210	0.09256		mg/Kg	☼	43	10 - 110	12	40

Method: 8270D SIM - Semivolatile Organic Compound (GC/MS SIM LL) (Continued)

Lab Sample ID: 310-71794-1 MSD — **Client Sample ID: TP-1 (0-2)**
Matrix: Soil — **Prep Type: Total/NA**
Analysis Batch: 113936 — **Prep Batch: 113838**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fluoranthene	0.0121		0.210	0.1532		mg/Kg	☼	67	25 - 115	27	40
Fluorene	<0.0110		0.210	0.1451		mg/Kg	☼	69	25 - 110	20	40
Indeno[1,2,3-cd]pyrene	<0.0110		0.210	0.1391		mg/Kg	☼	63	30 - 110	12	40
Naphthalene	<0.0110		0.210	0.1273		mg/Kg	☼	61	15 - 110	12	40
Phenanthrene	<0.0110		0.210	0.1341		mg/Kg	☼	62	25 - 110	17	40
Pyrene	<0.0110		0.210	0.1468		mg/Kg	☼	65	25 - 115	28	40

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
2-Fluorobiphenyl (Surr)	*62*		*10 - 110*
Nitrobenzene-d5 (Surr)	*63*		*10 - 110*
Terphenyl-d14 (Surr)	*63*		*20 - 110*

Method: WI-GRO - Wisconsin - Gasoline Range Organics (GC)

Lab Sample ID: MB 310-113847/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 113861 — **Prep Batch: 113847**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.0975		0.0975		mg/Kg		12/30/15 12:10	12/30/15 16:22	1
Ethylbenzene	<0.0975		0.0975		mg/Kg		12/30/15 12:10	12/30/15 16:22	1
Methyl tert-butyl ether	<0.0975		0.0975		mg/Kg		12/30/15 12:10	12/30/15 16:22	1
Toluene	<0.0975		0.0975		mg/Kg		12/30/15 12:10	12/30/15 16:22	1
Wisconsin GRO	<9.75		9.75		mg/Kg		12/30/15 12:10	12/30/15 16:22	1
Xylenes, Total	<0.292		0.292		mg/Kg		12/30/15 12:10	12/30/15 16:22	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*81*		*80 - 120*	*12/30/15 12:10*	*12/30/15 16:22*	*1*

Lab Sample ID: LCS 310-113847/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 113861 — **Prep Batch: 113847**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	3.79	4.553		mg/Kg		120	80 - 120
Ethylbenzene	3.79	4.645	*	mg/Kg		123	80 - 120
Methyl tert-butyl ether	3.79	4.512		mg/Kg		119	80 - 120
Toluene	3.79	4.383		mg/Kg		116	80 - 120
Wisconsin GRO	37.9	43.79		mg/Kg		116	80 - 120
Xylenes, Total	11.4	13.49		mg/Kg		119	80 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*103*		*80 - 120*

Method: WI-GRO - Wisconsin - Gasoline Range Organics (GC) (Continued)

Lab Sample ID: LCSD 310-113847/23-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 113861 — **Prep Batch: 113847**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	3.87	4.555		mg/Kg		118	80 - 120	0	20
Ethylbenzene	3.87	4.589		mg/Kg		119	80 - 120	1	20
Methyl tert-butyl ether	3.87	4.547		mg/Kg		117	80 - 120	1	20
Toluene	3.87	4.362		mg/Kg		113	80 - 120	0	20
Wisconsin GRO	38.7	42.60		mg/Kg		110	80 - 120	3	20
Xylenes, Total	11.6	13.38		mg/Kg		115	80 - 120	1	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*118*		*80 - 120*

Method: WI-DRO - Wisconsin - Diesel Range Organics (GC)

Lab Sample ID: MB 310-113837/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Silica Gel Cleanup**
Analysis Batch: 114317 — **Prep Batch: 113837**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO)	<7.00		7.00		mg/Kg		12/30/15 11:31	01/06/16 19:06	1

Lab Sample ID: LCS 310-113837/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Silica Gel Cleanup**
Analysis Batch: 114317 — **Prep Batch: 113837**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Diesel Range Organics (DRO)	100	88.28		mg/Kg		88	70 - 120

Lab Sample ID: LCSD 310-113837/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Silica Gel Cleanup**
Analysis Batch: 114317 — **Prep Batch: 113837**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Diesel Range Organics (DRO)	100	115.5	*	mg/Kg		115	70 - 120	27	20

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 310-113759/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 113931 — **Prep Batch: 113759**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	<4.19		4.19		mg/Kg		12/30/15 16:01	12/30/15 15:36	1

Lab Sample ID: LCS 310-113759/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 113931 — **Prep Batch: 113759**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Lead	172	156.6		mg/Kg		91	80 - 120

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: 310-71794-1 DU
Matrix: Soil
Analysis Batch: 113931

Client Sample ID: TP-1 (0-2)
Prep Type: Total/NA
Prep Batch: 113759

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Lead	<5.18			<5.64		mg/Kg	☼			NC	20

Method: Moisture - Percent Moisture

Lab Sample ID: 310-71794-2 DU
Matrix: Soil
Analysis Batch: 113733

Client Sample ID: TP-1 (14-16)
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Percent Moisture	17.8			18.2		%				2	20
Percent Solids	82.2			81.8		%				0.5	20

QC Association Summary

Client: WSB & Associates, Inc
Project/Site: Pleasant Park - Tonka Bay

TestAmerica Job ID: 310-71794-1
SDG: 01987-570

GC/MS Semi VOA

Prep Batch: 113838

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-71794-1	TP-1 (0-2)	Total/NA	Soil	3546	
310-71794-1 MS	TP-1 (0-2)	Total/NA	Soil	3546	
310-71794-1 MSD	TP-1 (0-2)	Total/NA	Soil	3546	
310-71794-2	TP-1 (14-16)	Total/NA	Soil	3546	
310-71794-3	TP-3 (4-6)	Total/NA	Soil	3546	
310-71794-4	TP-8 (2-4)	Total/NA	Soil	3546	
LCS 310-113838/2-A	Lab Control Sample	Total/NA	Solid	3546	
MB 310-113838/1-A	Method Blank	Total/NA	Solid	3546	

Analysis Batch: 113936

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-71794-1	TP-1 (0-2)	Total/NA	Soil	8270D SIM	113838
310-71794-1 MS	TP-1 (0-2)	Total/NA	Soil	8270D SIM	113838
310-71794-1 MSD	TP-1 (0-2)	Total/NA	Soil	8270D SIM	113838
310-71794-2	TP-1 (14-16)	Total/NA	Soil	8270D SIM	113838
310-71794-3	TP-3 (4-6)	Total/NA	Soil	8270D SIM	113838
310-71794-4	TP-8 (2-4)	Total/NA	Soil	8270D SIM	113838
LCS 310-113838/2-A	Lab Control Sample	Total/NA	Solid	8270D SIM	113838
MB 310-113838/1-A	Method Blank	Total/NA	Solid	8270D SIM	113838

GC VOA

Prep Batch: 113847

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-71794-1	TP-1 (0-2)	Total/NA	Soil	WI GRO	
310-71794-2	TP-1 (14-16)	Total/NA	Soil	WI GRO	
310-71794-3	TP-3 (4-6)	Total/NA	Soil	WI GRO	
310-71794-4	TP-8 (2-4)	Total/NA	Soil	WI GRO	
LCS 310-113847/2-A	Lab Control Sample	Total/NA	Solid	WI GRO	
LCSD 310-113847/23-A	Lab Control Sample Dup	Total/NA	Solid	WI GRO	
MB 310-113847/1-A	Method Blank	Total/NA	Solid	WI GRO	

Analysis Batch: 113861

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-71794-1	TP-1 (0-2)	Total/NA	Soil	WI-GRO	113847
310-71794-2	TP-1 (14-16)	Total/NA	Soil	WI-GRO	113847
310-71794-3	TP-3 (4-6)	Total/NA	Soil	WI-GRO	113847
310-71794-4	TP-8 (2-4)	Total/NA	Soil	WI-GRO	113847
LCS 310-113847/2-A	Lab Control Sample	Total/NA	Solid	WI-GRO	113847
LCSD 310-113847/23-A	Lab Control Sample Dup	Total/NA	Solid	WI-GRO	113847
MB 310-113847/1-A	Method Blank	Total/NA	Solid	WI-GRO	113847

GC Semi VOA

Prep Batch: 113837

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-71794-1	TP-1 (0-2)	Silica Gel Cleanup	Soil	WI DRO PREP	
310-71794-2	TP-1 (14-16)	Silica Gel Cleanup	Soil	WI DRO PREP	
310-71794-3	TP-3 (4-6)	Silica Gel Cleanup	Soil	WI DRO PREP	
310-71794-4	TP-8 (2-4)	Silica Gel Cleanup	Soil	WI DRO PREP	

GC Semi VOA (Continued)

Prep Batch: 113837 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 310-113837/2-A	Lab Control Sample	Silica Gel Cleanup	Solid	WI DRO PREP	
LCSD 310-113837/3-A	Lab Control Sample Dup	Silica Gel Cleanup	Solid	WI DRO PREP	
MB 310-113837/1-A	Method Blank	Silica Gel Cleanup	Solid	WI DRO PREP	

Analysis Batch: 114317

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-71794-1	TP-1 (0-2)	Silica Gel Cleanup	Soil	WI-DRO	113837
310-71794-2	TP-1 (14-16)	Silica Gel Cleanup	Soil	WI-DRO	113837
310-71794-3	TP-3 (4-6)	Silica Gel Cleanup	Soil	WI-DRO	113837
310-71794-4	TP-8 (2-4)	Silica Gel Cleanup	Soil	WI-DRO	113837
LCS 310-113837/2-A	Lab Control Sample	Silica Gel Cleanup	Solid	WI-DRO	113837
LCSD 310-113837/3-A	Lab Control Sample Dup	Silica Gel Cleanup	Solid	WI-DRO	113837
MB 310-113837/1-A	Method Blank	Silica Gel Cleanup	Solid	WI-DRO	113837

Metals

Prep Batch: 113759

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-71794-1	TP-1 (0-2)	Total/NA	Soil	3050B	
310-71794-1 DU	TP-1 (0-2)	Total/NA	Soil	3050B	
310-71794-2	TP-1 (14-16)	Total/NA	Soil	3050B	
310-71794-3	TP-3 (4-6)	Total/NA	Soil	3050B	
310-71794-4	TP-8 (2-4)	Total/NA	Soil	3050B	
LCS 310-113759/2-A	Lab Control Sample	Total/NA	Solid	3050B	
MB 310-113759/1-A	Method Blank	Total/NA	Solid	3050B	

Analysis Batch: 113931

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-71794-1	TP-1 (0-2)	Total/NA	Soil	6010C	113759
310-71794-1 DU	TP-1 (0-2)	Total/NA	Soil	6010C	113759
310-71794-2	TP-1 (14-16)	Total/NA	Soil	6010C	113759
310-71794-3	TP-3 (4-6)	Total/NA	Soil	6010C	113759
310-71794-4	TP-8 (2-4)	Total/NA	Soil	6010C	113759
LCS 310-113759/2-A	Lab Control Sample	Total/NA	Solid	6010C	113759
MB 310-113759/1-A	Method Blank	Total/NA	Solid	6010C	113759

General Chemistry

Analysis Batch: 113733

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-71794-1	TP-1 (0-2)	Total/NA	Soil	Moisture	
310-71794-2	TP-1 (14-16)	Total/NA	Soil	Moisture	
310-71794-2 DU	TP-1 (14-16)	Total/NA	Soil	Moisture	
310-71794-3	TP-3 (4-6)	Total/NA	Soil	Moisture	
310-71794-4	TP-8 (2-4)	Total/NA	Soil	Moisture	

Lab Chronicle

Client: WSB & Associates, Inc
Project/Site: Pleasant Park - Tonka Bay

TestAmerica Job ID: 310-71794-1
SDG: 01987-570

Client Sample ID: TP-1 (0-2)
Lab Sample ID: 310-71794-1
Date Collected: 12/22/15 08:10
Matrix: Soil
Date Received: 12/29/15 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	113733	12/29/15 13:35	SAS	TAL CF

Client Sample ID: TP-1 (0-2)
Lab Sample ID: 310-71794-1
Date Collected: 12/22/15 08:10
Matrix: Soil
Date Received: 12/29/15 09:30
Percent Solids: 87.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			113838	12/30/15 11:32	EEE	TAL CF
Total/NA	Analysis	8270D SIM		1	113936	12/31/15 11:31	TRM	TAL CF
Total/NA	Prep	WI GRO			113847	12/30/15 12:10	CMM	TAL CF
Total/NA	Analysis	WI-GRO		1	113861	12/31/15 01:39	CMM	TAL CF
Silica Gel Cleanup	Prep	WI DRO PREP			113837	12/30/15 11:31	EEE	TAL CF
Silica Gel Cleanup	Analysis	WI-DRO		1	114317	01/06/16 21:47	LLS	TAL CF
Total/NA	Prep	3050B			113759	12/30/15 16:01	JNR	TAL CF
Total/NA	Analysis	6010C		1	113931	12/30/15 16:11	OAD	TAL CF

Client Sample ID: TP-1 (14-16)
Lab Sample ID: 310-71794-2
Date Collected: 12/22/15 08:00
Matrix: Soil
Date Received: 12/29/15 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	113733	12/29/15 13:35	SAS	TAL CF

Client Sample ID: TP-1 (14-16)
Lab Sample ID: 310-71794-2
Date Collected: 12/22/15 08:00
Matrix: Soil
Date Received: 12/29/15 09:30
Percent Solids: 82.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			113838	12/30/15 11:32	EEE	TAL CF
Total/NA	Analysis	8270D SIM		1	113936	12/31/15 11:55	TRM	TAL CF
Total/NA	Prep	WI GRO			113847	12/30/15 12:10	CMM	TAL CF
Total/NA	Analysis	WI-GRO		1	113861	12/31/15 02:19	CMM	TAL CF
Silica Gel Cleanup	Prep	WI DRO PREP			113837	12/30/15 11:31	EEE	TAL CF
Silica Gel Cleanup	Analysis	WI-DRO		1	114317	01/06/16 20:10	LLS	TAL CF
Total/NA	Prep	3050B			113759	12/30/15 16:01	JNR	TAL CF
Total/NA	Analysis	6010C		1	113931	12/30/15 16:15	OAD	TAL CF

Lab Chronicle

Client: WSB & Associates, Inc
Project/Site: Pleasant Park - Tonka Bay

TestAmerica Job ID: 310-71794-1
SDG: 01987-570

Client Sample ID: TP-3 (4-6)
Date Collected: 12/22/15 10:00
Date Received: 12/29/15 09:30

Lab Sample ID: 310-71794-3
Matrix: Soil

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	113733	12/29/15 13:35	SAS	TAL CF

Client Sample ID: TP-3 (4-6)
Date Collected: 12/22/15 10:00
Date Received: 12/29/15 09:30

Lab Sample ID: 310-71794-3
Matrix: Soil
Percent Solids: 88.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			113838	12/30/15 11:32	EEE	TAL CF
Total/NA	Analysis	8270D SIM		1	113936	12/31/15 12:18	TRM	TAL CF
Total/NA	Prep	WI GRO			113847	12/30/15 12:10	CMM	TAL CF
Total/NA	Analysis	WI-GRO		1	113861	12/31/15 02:59	CMM	TAL CF
Silica Gel Cleanup	Prep	WI DRO PREP			113837	12/30/15 11:31	EEE	TAL CF
Silica Gel Cleanup	Analysis	WI-DRO		1	114317	01/06/16 20:42	LLS	TAL CF
Total/NA	Prep	3050B			113759	12/30/15 16:01	JNR	TAL CF
Total/NA	Analysis	6010C		1	113931	12/30/15 16:17	OAD	TAL CF

Client Sample ID: TP-8 (2-4)
Date Collected: 12/22/15 12:30
Date Received: 12/29/15 09:30

Lab Sample ID: 310-71794-4
Matrix: Soil

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	113733	12/29/15 13:35	SAS	TAL CF

Client Sample ID: TP-8 (2-4)
Date Collected: 12/22/15 12:30
Date Received: 12/29/15 09:30

Lab Sample ID: 310-71794-4
Matrix: Soil
Percent Solids: 86.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			113838	12/30/15 11:32	EEE	TAL CF
Total/NA	Analysis	8270D SIM		1	113936	12/31/15 12:41	TRM	TAL CF
Total/NA	Prep	WI GRO			113847	12/30/15 12:10	CMM	TAL CF
Total/NA	Analysis	WI-GRO		1	113861	12/31/15 03:39	CMM	TAL CF
Silica Gel Cleanup	Prep	WI DRO PREP			113837	12/30/15 11:31	EEE	TAL CF
Silica Gel Cleanup	Analysis	WI-DRO		1	114317	01/06/16 21:15	LLS	TAL CF
Total/NA	Prep	3050B			113759	12/30/15 16:01	JNR	TAL CF
Total/NA	Analysis	6010C		1	113931	12/30/15 16:19	OAD	TAL CF

Laboratory References:
TAL CF = TestAmerica Cedar Falls, 704 Enterprise Drive, Cedar Falls, IA 50613, TEL (319)277-2401

Certification Summary

Client: WSB & Associates, Inc
Project/Site: Pleasant Park - Tonka Bay

TestAmerica Job ID: 310-71794-1
SDG: 01987-570

Laboratory: TestAmerica Cedar Falls

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program	EPA Region	Certification ID	Expiration Date
Minnesota	NELAP	5	019-999-319	12-31-16

The following analytes are included in this report, but certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
Moisture		Soil	Percent Moisture
Moisture		Soil	Percent Solids

Method Summary

Client: WSB & Associates, Inc
Project/Site: Pleasant Park - Tonka Bay

TestAmerica Job ID: 310-71794-1
SDG: 01987-570

Method	Method Description	Protocol	Laboratory
8270D SIM	Semivolatile Organic Compound (GC/MS SIM LL)	SW846	TAL CF
WI-GRO	Wisconsin - Gasoline Range Organics (GC)	WI-GRO	TAL CF
WI-DRO	Wisconsin - Diesel Range Organics (GC)	WI-DRO	TAL CF
6010C	Metals (ICP)	SW846	TAL CF
Moisture	Percent Moisture	EPA	TAL CF

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

WI-DRO = "Modified DRO: Method For Determining Diesel Range Organics", Wisconsin DNR, Publ-SW-141, September, 1995.

WI-GRO = "Modified GRO: Method For Determining Gasoline Range Organics", Wisconsin DNR, Publ-SW-140, September, 1995.

Laboratory References:

TAL CF = TestAmerica Cedar Falls, 704 Enterprise Drive, Cedar Falls, IA 50613, TEL (319)277-2401

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

310-71794 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: WSB Associates

City/State: | Project:

Receipt Information

Date/Time Received: 12/29/15 930 | Received By: BB

Delivery Type: ☐ UPS ☒ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee ☐ TA Courier ☐ TA Field Services ☐ Client Drop-off ☐ Other:_____

Condition of Cooler/Containers

Sample(s) received in Cooler? ☒ Yes ☐ No *If yes:* Cooler ID:

Multiple Coolers? ☐ Yes ☒ No *If yes:* Cooler # 1 of 1

Cooler Custody Seals Present? ☒ Yes ☐ No *If yes:* Cooler custody seals intact? ☐ Yes ☐ No

Sample Custody Seals Present? ☐ Yes ☒ No *If yes:* Sample custody seals intact? ☐ Yes ☐ No

Trip Blank Present? ☒ Yes ☐ No *If yes:* Which VOA samples are in cooler? ↓

Temperature Record

Coolant: ☒ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other:_____ ☐ NONE

Temperature Blank? ☒ Yes ☐ No ID & Bottle Type:

NOTE: If yes, use temp blank for measurement. If no, specify sample ID(s) and bottle type used to take measurement.

Thermometer ID: G | Correction Factor (°C): -0.1

Uncorrected Temp (°C): 0.7c | Corrected Temp (°C): 0.6c

Exceptions Noted

1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No
   a) *If yes:* Is there evidence that the chilling process began? ☐ Yes ☐ No

2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles?) ☐ Yes ☐ No

NOTE: If yes, contact PM before proceeding. If no, proceed with login

Additional Comments

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Cedar Falls Division
704 Enterprise Drive
Cedar Falls, IA 50613

Phone 319-277-2401 or 800-750-2401
Fax 319-277-2425

To assist us in using the proper analytical methods, is this work being conducted for regulatory purposes?
Compliance Monitoring _____

Client Name: WSB & Associates
Client #: _____
Address: 701 Xenia Avenue South Suite 300
City/State/Zip Code: Minneapolis, MN 55416
Project Manager: Jeff Rice
Email Address: jrice@wsbeng.com
Telephone Number: _____ Fax: _____
Sampler Name: (Print Name) Dan Rungitsch
Sampler Signature: [signature]

Project Name: Pleasant Park - Tonka Bay
Project #: 61987-520
Site/Location ID: Pleasant Park State: MN
Report To: Jeff Rice / Dan Rungitsch
Invoice To: Jeff Rice / Dan Rungitsch
Quote #: _____ PO#: _____

TAT
X Standard
___ Rush (surcharges may apply)
Date Needed: _____
Fax Results: Y N
Email Results: (Y) N

QC Deliverables
___ None
___ Level 2 (Batch QC)
___ Level 3
___ Level 4
Other: _____

SAMPLE ID	Date Sampled	Time Sampled	G = Grab, C = Composite	Field Filtered	Matrix (SL - Sludge, DW - Drinking Water, GW - Groundwater, S - Soil/Solid, WW - Wastewater, Specify, Other)	HNO_3	HCl	NaOH	H_2SO_4	Methanol	None	Other (Specify)	DRO silica Gel	GRO	BTEX / MTBE	Lead	PAHs	Moisture	REMARKS
TP-1 (0-2)	12/22/15	0810	G		S					1	4		X	X	X		X	X	
TP-1 (14-16)		0800																	
TP-3 (4-6)		1000																	
TP-8 (2-4)		1230																	

Special Instructions:

LABORATORY COMMENTS:

	Date	Time		Date	Time
Relinquished By: [signature]	12/22/15	10:00	Received By: Barb Rutter	12/23	10:00
Relinquished By: Barb Rutter	12/23	7:00	Received By: Ashley Wortley	12.29.15	4:30
Relinquished By:	12/28	1:00	Received By:		

TAL-0033 (0708)

Page _____ of _____

Login Sample Receipt Checklist

Client: WSB & Associates, Inc

Job Number: 310-71794-1
SDG Number: 01987-570

Login Number: 71794
List Number: 1
Creator: Worthy, Ashley L

List Source: TestAmerica Cedar Falls

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	