# REMEDIAL ENGINEERING, P.C. ENVIRONMENTAL ENGINEERS

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February 8, 2013

Chad Staniszewski, P.E. Project Manager NYSDEC, Region 9 270 Michigan Avenue Buffalo, New York 14203-2915

Re: Addendum No. 1 to the Final AAR for Operable Unit 2 Dated September 28, 2012 Former Buffalo Terminal Site #C915201 ExxonMobil Oil Corporation

Dear Mr. Staniszewski:

On behalf of ExxonMobil Oil Corporation (ExxonMobil), Remedial Engineering, P.C. and Roux Associates, Inc. have prepared this Addendum No. 1 to the document entitled "Final Alternatives Analysis Report (AAR) for Operable Unit 2" (OU-2) of the referenced site dated September 28, 2012. The purpose of this addendum is to provide the attached boring logs that were inadvertently omitted from the Final AAR, in response to your email dated February 4, 2013. The boring logs are from investigation work completed in 2008 and 2009 in OU-2 for delineation of mercury and lead in soil, and are organized into the following two categories:

- "Soil Boring Logs from 2008 Mercury/Lead Delineation Sampling"; and
- "Soil Boring Logs from 2009 Lead Delineation Sampling".

The logs will be added to Appendix B, which will be retitled "Test Pit and Soil Boring Logs". The following reference "Soil boring logs are included in Appendix B" will be added to Section 3.1.3.2 as the last sentence in the section and to Section 3.1.4.1 as the last sentence in the third paragraph.

Sincerely,

REMEDIAL ENGINEERING, P.C.

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Noelle M. Clarke, P.E. Principal Engineer

Attachment

cc: Joseph A. Abel, ExxonMobil

#### **APPENDIX B**

## Test Pit and Soil Boring Logs

- B-1. Soil Boring Logs from 2008, Mercury/Lead Delineation Sampling
- B-2. Soil Boring Logs from 2009, Lead Delineation Sampling

## Addendum No. 1 to the Final AAR for Operable Unit 2

### **APPENDIX B-1**

Soil Boring Logs from 2008 Mercury/Lead Delineation Sampling

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Apparent Water Level

Lab Sample Location

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PROJECT: Buffalo - Former XOM Terminal
ADDRESS: 625 Elk Street, Buffalo, NY

WATER DEPTH: 4 ftbg

CASING EL.: NA

JOB NO. 0901216

BOREHOLE DIA.: 4"

WELL DIA.: NA

Logged By:Bryan MaybackDrilling Method:Hand ClearedDates Drilled:4/16/2008 and 5/23/2008Sampling Method:Hand ClearedDrilling Company:Zebra Environmental, Inc.Soil Class. System:Modified BurmeisterDrill Rig Type:NAField Screening:PID 10.6 eV lamp

	Drill Rig	Гуре:	NA		Field Screening:	PID 10.6 eV lamp		
Depth (feet)	Sample Interval		Blow Counts	Rec.	SAMPLE LITHOLOGY	Comments	COMPLETION DETAILS	S
	0-2'	NR	NA	NR	No data	Soil sample collected from 0-1 ftbg on 4/16/2008 for analysis of Total Mercury	Total Mercury = 1.87 mg/kg	
	2.5-4'	53.9 NR	NA NA	100% NR	Gray, Silty CLAY, rock fragments, black staining and petroleum odor, soft, moderate plasticity (moist)  No data	Soil sample collected from 2-2.5 ftbg on 5/23/2008 for analysis of Total Mercury	Total Mercury = 0.860 mg/kg	
	4-4.5'	39.4	NA	100%	Gray and brown, Silty CLAY, some fine to coarse Sand, black staining and petroleum odor, soft, no plasticity (wet)	Soil sample collected from 4-4.5 ftbg on 5/23/2008 for analysis of Total Mercury	Observed groundwater at approx. 4 ftbg.  Total Mercury = 0.840 mg/kg	**

<u>Location:</u> <u>General Comments:</u> <u>Symbol Key:</u>

Northing/Latitude: NA ftbg = feet below grade Easting/Longitude: NA NA = Not Applicable Horizontal Datum: NA NR = Not Recorded

Vertical Datum: NA BSPA 1-2-3/O p. 1 of 1



JOB NO.

SURFACE ELEV.: NA PROJECT: Buffalo - Former XOM Terminal TOTAL DEPTH: 4.5 ftbg ADDRESS: 625 Elk Street, Buffalo, NY WATER DEPTH: 3.5 ftbg CASING EL.: NABOREHOLE DIA.: 4" 0901216 WELL DIA.: NA

Logged By: Bryan Mayback Drilling Method: **Hand Cleared** 5/23/2008 Sampling Method: Dates Drilled: **Hand Cleared** Drilling Company: Zebra Environmental, Inc. Soil Class. System: Modified Burmeister Drill Rig Type: Field Screening: PID 10.6 eV lamp NA

Depth (feet)	Sample Interval		Blow Counts	Rec.	SAMPLE LITHOLOGY	Comments	COMPLETION DETAILS	s
0-	0-2'	NR	NA	NR	No data			
-	2-2.5'	28.6 NR	NA NA	100% NR	Gray, Silty CLAY, petroleum odor, moderate stiffness, no plasticity (moist)	Soil sample collected from 2-2.5 ftbg for analysis of Total Mercury	Total Mercury = ND	**
-	4-4.5'	71.8	NA	100%	Gray and brown, mottled Silty CLAY, petroleum odor, medium stiffness, moderate plasticity (moist)		Observed groundwater at approx. 3.5 ftbg.	•

Location: **General Comments:** Symbol Key:

Northing/Latitude: NA ftbg = feet below grade Easting/Longitude: NA = Not Applicable NA Horizontal Datum: NR = Not Recorded NA

NA

Vertical Datum:

Apparent Water Level  $\mathbb{X}$ Lab Sample Location

BSPA 1-2-3/OSNEp. 1 of 1



SURFACE ELEV.: NA PROJECT: Buffalo - Former XOM Terminal TOTAL DEPTH: 4.5 ftbg ADDRESS: 625 Elk Street, Buffalo, NY WATER DEPTH: 2.5 ftbg CASING EL.: NABOREHOLE DIA.: 4" JOB NO. 0901216 WELL DIA.: NA

Logged By: Bryan Mayback Drilling Method: **Hand Cleared** 5/23/2008 Sampling Method: Dates Drilled: **Hand Cleared** Drilling Company: Zebra Environmental, Inc. Soil Class. System: Modified Burmeister Drill Rig Type: Field Screening: PID 10.6 eV lamp NA

Location: **General Comments:** Symbol Key:

Northing/Latitude: NA ftbg = feet below grade Easting/Longitude: NA = Not Applicable NA Horizontal Datum: NR = Not Recorded NA

Vertical Datum: NA

BSPA 1-2-3/OSNVØ. 1 of 1

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Apparent Water Level

Lab Sample Location



PROJECT: Buffalo - Former XOM Terminal
ADDRESS: 625 Elk Street, Buffalo, NY

WATER DEPTH: 4 ftbg

CASING EL.: NA

JOB NO. 0901216

BOREHOLE DIA.: 4"

WELL DIA.: NA

Logged By:Bryan MaybackDrilling Method:Hand ClearedDates Drilled:5/23/2008Sampling Method:Hand ClearedDrilling Company:Zebra Environmental, Inc.Soil Class. System:Modified BurmeisterDrill Rig Type:NAField Screening:PID 10.6 eV lamp

:h :)	Sample Interval	Field Screen	Blow Counts	Rec.	SAMPLE LITHOLOGY	Comments	COMPLETION DETAIL	S
)	0-2'	NR	NA	NR	No data			
	2-2.5' 2.5-4'	11.1 NR	NA NA	100% NR	Gray, Silty CLAY, little brick fragments, medium stiffness, no plasticity (moist)  No data	Soil sample collected from 2-2.5 ftbg for analysis of Total Mercury	Total Mercury = ND	B
	4-4.5'	11.8	NA	100%	Gray, Silty CLAY, black staining and petroleum odor, soft, high plasticity (wet)		Observed groundwater at approx. 4 ftbg.	3

<u>Location:</u> <u>General Comments:</u> <u>Symbol Key:</u>

Northing/Latitude: NA ftbg = Feet below gradeEasting/Longitude: NA NA = Not ApplicableHorizontal Datum: NA NR = Not Recorded

Vertical Datum: NA

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SURFACE ELEV.: NA TOTAL DEPTH: 16 ftbg PROJECT: **Buffalo - Former XOM Terminal** WATER DEPTH: 4 ftbg CASING EL.: ADDRESS: 625 Elk Street, Buffalo, NY NA JOB NO. 0901216 BOREHOLE DIA .: 3" WELL DIA .: NA Logged By: Andy Janik and Bryan Mayback **Drilling Method: Direct Push** 4/16/2008 and 5/20/2008 Dates Drilled: Sampling Method: 2" Macro-core Drilling Company: Zebra Environmental, Inc. Soil Class. System: Modified Burmeister Drill Rig Type: **Geoprobe 54DT Track-Mounted Unit** Field Screening: PID 10.6 eV lamp Depth Sample Field Blow Rec. SAMPLE LITHOLOGY COMPLETION DETAILS Comments (feet) Interval Screen Counts 0 0-2 2.1 NA 100% Boring was hand FILL: Dark brown, Silt and brick cleared to 5 ftbg. fragments, little Clay, some rock fragments (moist) 2-4' 8.8 NA 100% FILL: Dark brown to black. granular material, some fine Sand (moist to wet) Observed groundwater at approx. 4 ftbg. FILL: Gray Silty CLAY, some rock 4-5' 6.6 NA 100% fragments, soft, moderate plasticity (moist)  $\mathbb{H}$ 5 5-7' 1.7 NR Soil sample collected Total Lead=401 mg/kg NA FILL: Gray CLAY, some brick from 5-7 ftbg on fragments & black granular 4/16/2008 for analysis material (wet) of Total Lead  $\mathbb{H}$ 7-9' 10.9 NA NR Soil sample collected TCLP Lead=0.206 mg/L FILL: Black granular material, gray from 7-9 ftbg 4/16/2008 Total Lead=212 mg/kg clay (wet) for analyses of TCLP Lead and Total Lead  $\mathbb{H}$ 9-11' 44 NA NR Soil sample collected TCLP Lead = ND FILL: Black granular material, from 9-11 ftbg on Total Lead=1,630 mg/kg some wood debris (wet) 4/16/2008 for analyses 10 of TCLP Lead and Total Lead  $\mathbb{R}$ 11-13' 426 NA 30% Soil sample collected TCLP Lead= 452 mg/L FILL: Black to dark gray, granular from 11-13 ftbg on Total Lead= 450.000 material, some Clay, little red 5/20/2008 for analyses mg/kg material (wet) of TCLP Lead and Total Lead No data 15 15-16' TCLP Lead= 0.982 mg/L 231 NA 25% Soil sample collected Brown, stiff, moderate plasticity from 15-16 ftbg on Total Lead= 580 mg/kg (moist) 5/20/2008 for analyses of TCLP Lead and Total Lead **General Comments:** Symbol Key: Location: Northing/Latitude: NA ftbg = feet below grade Apparent Water Level  $\mathbb{H}$ Easting/Longitude: NA NA = Not Applicable Lab Sample Location Horizontal Datum: NR = Not Recorded NA Vertical Datum: NA SB-107 p. 1 of 1



SURFACE ELEV.: NA PROJECT: Buffalo - Former XOM Terminal TOTAL DEPTH: 15 ftbg WATER DEPTH: 4 ftbg ADDRESS: 625 Elk Street, Buffalo, NY CASING EL.: NABOREHOLE DIA.: 3" JOB NO. 0901216 WELL DIA .: NA

Logged By: Bryan Mayback Drilling Method: **Direct Push** 5/21/2008 Dates Drilled: Sampling Method: 2" Macro-core Drilling Company: Zebra Environmental, Inc. Soil Class. System: Modified Burmeister Drill Rig Type: Geoprobe 54DT Track-Mounted Unit Field Screening: PID 10.6 eV lamp

epth eet)	Sample Interval		Blow Counts	Rec.	SAMPLE LITHOLOGY	Comments	COMPLETION DETAILS
0-					Boring was hand cleared to 5 ftbg.		
5-					Sampling started at 7 ftbg.		Observed groundwater at approx. 4 ftbg.
-	7-9'	186	NA	35%	FILL: Black, granular material, little wood debris, black staining and petroleum odor (wet)		
0 –	9-11'	50	NA	25%	FILL: Black, granular material, black staining and petroleum odor (wet)  FILL: Brown to gray, Silty Clay, soft, high plasticity (wet)		
-	11-13'	85.7	NA	25%	No data	Soil sample collected from 11-13 ftbg for analyses of TCLP Lead and Total Lead	TCLP Lead= 614 mg/L Total Lead= 6,760 mg/kg
-	14-15'	232	NA	25%	Brown, Silty CLAY, medium stiffness, no plasticity (moist)		

Location:		General Comments:	Symbol Key:
Northing/Latitude:	NA	ftbg = feet below grade	Apparent Water Level

Northing/Latitude: ftbg = feet below grade NA Easting/Longitude: NA NA = Not Applicable Horizontal Datum: NR = Not Recorded NA

Vertical Datum:

NA

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Lab Sample Location

 $\mathbb{X}$ 

Lab Sample Location



SURFACE ELEV.: NA TOTAL DEPTH: 15 ftbg PROJECT: Buffalo - Former XOM Terminal ADDRESS: 625 Elk Street, Buffalo, NY WATER DEPTH: 4.5 ftbg CASING EL.: NAJOB NO. 0901216 BOREHOLE DIA .: 3" WELL DIA .: NA

Logged By: Bryan Mayback Drilling Method: **Direct Push** 5/20/2008 Dates Drilled: Sampling Method: 2" Macro-core Drilling Company: Zebra Environmental, Inc. Soil Class. System: Modified Burmeister Drill Rig Type: **Geoprobe 54DT Track-Mounted Unit** Field Screening: PID 10.6 eV lamp

epth feet)	Sample Interval		Blow Counts	Rec.	SAMPLE LITHOLOGY	Comments	COMPLETION DETAILS
0-					Boring was hand cleared to 5 ftbg. Started sampling at 7 ftbg.		
5-							Observed groundwater at approx. 4.5 ftbg.
-	7-9'	12.7	NA	50%	FILL: Gray, Silty CLAY, moderate stiffness, moderate plasticity (moist to wet)		
0 -	9-11'	8.7	NA	15%	FILL: Black, granular material, black staining and petroleum odor (wet)  FILL: Black, granular material, some Silt and Clay, black staining and petroleum odor (wet)		
-	11-13'	177	NA	15%	FILL: Black and white, granular material, black staining and petroleum odor (wet)	Soil sample collected from 11-13 ftbg for analyses of TCLP Lead and Total Lead	TCLP Lead= 0.0765 mg/L Total Lead= 3,590 mg/kg
- 5 -	14-15'	11.6	NA	25%	Brown, Silty CLAY, moderate stiffness, moderate plasticity (moist)		

Location: **General Comments:** Symbol Key: Apparent Water Level

Northing/Latitude: NA ftbg = feet below grade Easting/Longitude: NA = Not Applicable NA Horizontal Datum: NR = Not Recorded NA

Vertical Datum: NA SB-107N p. 1 of 1

SURFACE ELEV .: NA TOTAL DEPTH: 14 ftbg PROJECT: **Buffalo - Former XOM Terminal** WATER DEPTH: 7 ftbg CASING EL.: ADDRESS: 625 Elk Street, Buffalo, NY NA JOB NO. 0901216 BOREHOLE DIA .: 3" WELL DIA .: NA Logged By: **Bryan Mayback** Drilling Method: **Direct Push** 5/21/2008 Dates Drilled: Sampling Method: 2" Macro-core Drilling Company: Zebra Environmental, Inc. Soil Class. System: Modified Burmeister PID 10.6 eV lamp Drill Rig Type: Geoprobe 54DT Track-Mounted Unit Field Screening: Sample Field Blow Rec. SAMPLE LITHOLOGY **COMPLETION DETAILS** Comments (feet) Interval Screen Counts 0 Boring was hand cleared to 5 ftbg. Started sampling at 7 ftbg. 5 Observed groundwater at approx. 7 ftbg.  $\mathbb{X}$ 7-9' 122 NA 25% FILL: Black and yellow, granular material, black staining and petroleum odor (wet) FILL: Gray, Silty CLAY, medium stiffness, moderate plasticity (moist)  $\mathbb{H}$ 9-11' NA 50% 92.9 FILL: Black and yellow, granular material, some Silt and Clay, black staining and petroleum odor 10 (wet) 11-13' 30.6 NA 50% Soil sample collected Total Lead= 19.2 mg/kg Brown Silty CLAY, medium from 11-13 ftbg for stiffness, moderate plasticity analysis of Total Lead (moist)  $\mathbb{H}$ 13-14' 228 NA 20% **General Comments:** Symbol Key: Location: Northing/Latitude: NA ftbg = feet below grade Apparent Water Level  $\mathbb{H}$ Easting/Longitude: NA NA = Not Applicable Lab Sample Location Horizontal Datum: NR = Not Recorded NA Vertical Datum: NA SB-107S p. 1 of 1



SURFACE ELEV.: NA PROJECT: Buffalo - Former XOM Terminal TOTAL DEPTH: 15 ftbg WATER DEPTH: 7 ftbg ADDRESS: 625 Elk Street, Buffalo, NY CASING EL.: NABOREHOLE DIA .: 3" JOB NO. 0901216 WELL DIA .: NA

Logged By: Bryan Mayback Drilling Method: **Direct Push** 5/21/2008 Dates Drilled: Sampling Method: 2" Macro-core Drilling Company: Zebra Environmental, Inc. Soil Class. System: Modified Burmeister Drill Rig Type: Geoprobe 54DT Track-Mounted Unit Field Screening: PID 10.6 eV lamp

epth eet)	Sample Interval		Blow Counts	Rec.	SAMPLE LITHOLOGY	Comments	COMPLETION DETAIL
0-							1
-					Boring was hand cleared to 5 ftbg. Started sampling at 7 ftbg.		
5-							
-	7-9'	159	NA	50%	FILL: Gray, Silty CLAY, little wood fragments, soft, high plasticity (wet)  FILL: White and tan material, petroleum odor, soft		Observed groundwater at approx. 7 ftbg.
0 –	9-11'	189	NA	45%	FILL: Gray, Silty CLAY, soft, high plasticity (wet)  FILL: White and black, granular material (moist)		
-	11-13'	995	NA	45%	FILL: Red and black, granular material  FILL: Gray, Silty CLAY, petroleum odor, soft, high plasticity (wet)  FILL: Black, granular material, black staining and petroleum odor (wet)	Soil sample collected from 11-13 ftbg for analyses of TCLP Lead and Total Lead	TCLP Lead= 257 mg/L Total Lead= 77,500 mg/kg
-	14-15'	1153	NA	25%	Brown, Silty CLAY, medium stiffness, no plasticity (moist)		

Location:		General Comments:	Symbol Key:
Northing/Latitude:	NA	fthg = feet below grade	Apparent Wate

Vertical Datum:

NA

ter Level  $\mathbb{X}$ Easting/Longitude: NA NA = Not Applicable Lab Sample Location Horizontal Datum: NR = Not Recorded NA

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SURFACE ELEV .: NA TOTAL DEPTH: 9 ftbg PROJECT: **Buffalo - Former XOM Terminal** WATER DEPTH: 3 ftbg CASING EL.: ADDRESS: 625 Elk Street, Buffalo, NY NA JOB NO. 0901216 BOREHOLE DIA .: 3" WELL DIA .: NA Logged By: Andy Janik and Bryan Mayback **Drilling Method: Direct Push** 4/16/2008 and 5/21/2008 Dates Drilled: Sampling Method: 2" Macro-core Drilling Company: Zebra Environmental, Inc. Soil Class. System: Modified Burmeister Drill Rig Type: **Geoprobe 54DT Track-Mounted Unit** Field Screening: PID 10.6 eV lamp Depth Sample Field Blow Rec. SAMPLE LITHOLOGY **COMPLETION DETAILS** Comments (feet) Interval Screen Counts 0-2' 0.1 NA 100% Boring was hand 4/16/2008 (0-2'): **TOPSOIL: Organics** cleared to 5 ftbg. TCLP Lead=27 mg/L Total Lead=2,490 mg/kg Soil sample collected 5/21/2008 (0-2'): FILL: Brown, Silt, rock and brick from 0-2 ftbg and 2-2.5 TCLP Lead=34 mg/L fragments (moist) ftbg on 4/16/2008 and Total Lead=2,720 mg/kg 0-2 ftbg on 5/21/2008 4/16/2008 (2-2.5'): for analyses of TCLP TCLP Lead=38.1 mg/L Lead and Total Lead Total Lead=2,430 mg/kg  $\mathbb{H}$ 100% 2-4' 1.6 NA Observed groundwater FILL: Black to dark gray, granular at approx. 3 ftbg material, Silt, some brick  $\mathbb{H}$ fragments (moist to wet) Soil sample collected 4/16/2008 (2.5-4.5'): from 2.5-4.5 ftbg on TCLP Lead=53.2 mg/L 4/16/2008 and 2-4 ftbg Total Lead=5,850 mg/kg lacksquareon 5/21/2008 for 5/21/2008 (2-4'): analyses of TCLP Lead TCLP Lead=122 mg/L and Total Lead Total Lead=9,190 mg/kg  $\mathbb{H}$ 4-5' 2.1 NA 100% Soil sample collected TCLP Lead=27.1 mg/L from 4-5 ftbg on Total Lead=10,500 5/21/2008 for analyses mg/kg of TCLP Lead and Total Lead X 5 5-7' 3.2 NA 100% Soil sample collected TCLP Lead=34.5 mg/L from 5-7 ftbg on Total Lead=1,860 mg/kg 5/21/2008 for analyses of TCLP Lead and Total FILL: Gray Silty CLAY, soft, moderate plasticity (moist) TCLP Lead=0.0513 mg/L 7-9' NA 100% Soil sample collected 2.2 Brown Silty CLAY, medium from 7-9 ftbg on Total Lead=21.4 mg/kg stiffness, no plasticity (moist) 5/21/2008 for analyses of TCLP Lead and Total Lead **General Comments:** Symbol Key: Location: Northing/Latitude: NA ftbg = feet below grade Apparent Water Level ¥  $\mathbb{H}$ Easting/Longitude: NA NA = Not Applicable Lab Sample Location Horizontal Datum: NR = Not Recorded NA Vertical Datum: NA



SURFACE ELEV.: NA PROJECT: Buffalo - Former XOM Terminal TOTAL DEPTH: 9 ftbg WATER DEPTH: 4 ftbg ADDRESS: 625 Elk Street, Buffalo, NY CASING EL.: NABOREHOLE DIA.: 3" JOB NO. 0901216 WELL DIA.: NA

Logged By: Bryan Mayback Drilling Method: **Direct Push** 5/22/2008 Dates Drilled: Sampling Method: 2" Macro-core Drilling Company: Zebra Environmental, Inc. Soil Class. System: Modified Burmeister Drill Rig Type: **Geoprobe 54DT Track-Mounted Unit** Field Screening: PID 10.6 eV lamp

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Rec.	SAMPLE LITHOLOGY	Comments	COMPLETION DETAILS
0-	0-2'	2.3	NA	100%	TOPSOIL: Organics	Boring was hand	
-					FILL: Brown, SILT, rock and brick fragments	cleared to 5 ftbg.	
	2-4'	2.5	NA	100%	FILL: Gray, granular material, Silt and Clay, soft (moist to wet)	Soil sample collected from 2-4 ftbg for analyses of TCLP Lead and Total Lead	TCLP Lead= 13.2 mg/L Total Lead= 411 mg/kg
-	4-5'	2.0	NA	100%	Gray, Silty CLAY, medium stiffness, no plasticity (moist)		Observed groundwater at approx. 4 ftbg.
5-	5-7'	2.4	NA	45%	Brown, fine to coarse SAND, Silt and Clay, soft, no plasticity (wet)		
	7-9'	2.9	NA	45%	Brown, Silty CLAY, medium stiffness, moderate plasticity (moist)		

Location:	General Comments:	<u>Symbol Key:</u>
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Northing/Latitude: NA ftbg = feet below grade Easting/Longitude: NA = Not Applicable NA Horizontal Datum: NR = Not Recorded NA

NA

Vertical Datum:

Apparent Water Level  $\mathbb{X}$ Lab Sample Location

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**SB-110SE** 

p. 1 of 1

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SURFACE ELEV.: NA TOTAL DEPTH: 9 ftbg PROJECT: **Buffalo - Former XOM Terminal** WATER DEPTH: 4 ftbg CASING EL.: ADDRESS: 625 Elk Street, Buffalo, NY NA JOB NO. 0901216 BOREHOLE DIA .: 3" WELL DIA .: NA Logged By: **Bryan Mayback** Drilling Method: **Direct Push** 5/22/2008 Dates Drilled: Sampling Method: 2" Macro-core Drilling Company: Zebra Environmental, Inc. Soil Class. System: Modified Burmeister PID 10.6 eV lamp Drill Rig Type: Geoprobe 54DT Track-Mounted Unit Field Screening: Depth Sample Field Blow Rec. SAMPLE LITHOLOGY **COMPLETION DETAILS** Comments (feet) Interval Screen Counts 0-2' 2.3 NA 100% Boring was hand **TOPSOIL** cleared to 5 ftbg. FILL: Brown, granular material, Silt, brick fragments (moist) 100% TCLP Lead= 0.833 mg/L 2-4' 3.2 NA Soil sample collected FILL: Brown, granular material, from 2-4 ftbg for analyses of TCLP Lead Total Lead= 684 mg/kg some Silt, trace coarse Sand, brick fragments (moist) and Total Lead Gray, Silty CLAY, soft, no plasticity (moist) 4-5' 107 NA Observed groundwater Gray, Silty CLAY, moderate at approx. 4 ftbg. stiffness, medium plasticity (moist to wet) 5 5-7' 9.3 NA 45% Brown, fine to coarse SAND, Silt and Clay, soft, no plasticity (wet) 7-9' 3.6 NA 45% Brown, Silty CLAY, medium stiffness, moderate plasticity (moist) **General Comments:** Symbol Key: Location: Northing/Latitude: NA ftbg = feet below grade Apparent Water Level Lab Sample Location  $\mathbb{H}$ Easting/Longitude: NA NA = Not Applicable Horizontal Datum: NR = Not Recorded NA Vertical Datum: NA



PROJECT: Buffalo - Former XOM Terminal
ADDRESS: 625 Elk Street, Buffalo, NY

WATER DEPTH: NR

JOB NO. 0901216

SURFACE ELEV.: NA

WATER DEPTH: NR

CASING EL.: NA

WELL DIA.: NA

Logged By:Bryan MaybackDrilling Method:Direct PushDates Drilled:5/22/2008Sampling Method:2" Macro-coreDrilling Company:Zebra Environmental, Inc.Soil Class. System:Modified BurmeisterDrill Rig Type:Geoprobe 54DT Track-Mounted UnitField Screening:PID 10.6 eV lamp

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Rec.	SAMPLE LITHOLOGY	Comments	COMPLETION DETAILS
0-	0-2'	0.5	NA	100%	FILL: Brown, granular material, little Silt, brick fragments	Boring was hand cleared to 5 ftbg.	
-	2-4'	0.2	NA	100%	FILL: Gray, granular material, some Silt and Clay, brick fragments (wet)	Soil sample collected from 2-4 ftbg for analyses of TCLP Lead and Total Lead	TCLP Lead= 108 mg/L Total Lead= 13,000 mg/kg
-	4-5'	5.2	NA	100%	Gray, Silty CLAY, medium stiffness, moderate plasticity (moist)		
5-	5-7'	4.4	NA	45%	Gray, SAND, Silt and Clay, soft, no plasticity (wet)		
-	7-9'	3.9	NA	45%	Brown, Silty CLAY, medium stiffness, moderate plasticity (moist)		

<u>Location:</u> <u>General Comments:</u> <u>Symbol Key:</u>

Northing/Latitude: NA ftbg = feet below grade Easting/Longitude: NA NA = Not Applicable Horizontal Datum: NA NR = Not Recorded

Vertical Datum: NA

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WELL DIA.:

Apparent Water Level

Lab Sample Location

 $\mathbb{X}$ 

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NA

PROJECT: Buffalo - Former XOM Terminal

ADDRESS: 625 Elk Street, Buffalo, NY

0901216

JOB NO.

SURFACE ELEV.: NA TOTAL DEPTH: 9 ftbg WATER DEPTH: 3.5 ftbg CASING EL.: NABOREHOLE DIA.: 3"

Logged By: Bryan Mayback Drilling Method: **Direct Push** 5/22/2008 Dates Drilled: Sampling Method: 2" Macro-core Drilling Company: Zebra Environmental, Inc. Soil Class. System: Modified Burmeister Drill Rig Type: **Geoprobe 54DT Track-Mounted Unit** Field Screening: PID 10.6 eV lamp

Dim rug	турс.	Gcoprob	C 34D1 1	rack-Mounted Unit Field Screening:	PID 10.6 eV lamp	
		Blow Counts	Rec.	SAMPLE LITHOLOGY	Comments	COMPLETION DETAILS
0-2'	4.0	NA	100%	FILL: Brown, granular material, little Silt, brick fragments	Boring was hand cleared to 5 ftbg.	
- 2-4'	3.6	NA	100%	FILL: Gray, granular material, Silt and Clay, brick fragments (wet)	Soil sample collected from 2-4 ftbg for analyses of TCLP Lead and Total Lead	TCLP Lead= 17.1 mg/L Total Lead= 1,490 mg/kg
- 4-5'	2.6	NA	100%	Gray, Silty CLAY, soft, moderate plasticity (wet)		Observed groundwater at approx. 3.5 ftbg.
5-7'	4.6	NA	50%	Gray, fine to coarse SAND, Silt and Clay, soft, no plasticity (wet)	_	
- 7-9'	2.7	NA	50%	Brown, Silty CLAY, medium stiffness, moderate plasticity (moist)		
	Sample   Interval	O-2'   4.0	Sample Field Blow Counts    0-2'   4.0   NA	Sample   Field   Blow   Counts   Rec.	Sample   Field   Blow   Counts   Rec.   SAMPLE LITHOLOGY	Sample   Field   Blow   Counts   Rec.   SAMPLE LITHOLOGY   Comments

Location: **General Comments:** Symbol Key:

Northing/Latitude: NA ftbg = feet below grade Easting/Longitude: NA = Not Applicable NA Horizontal Datum: NR = Not Recorded NA

Vertical Datum: NA **SB-110W** p. 1 of 1

SURFACE ELEV .: NA TOTAL DEPTH: 15 ftbg PROJECT: **Buffalo - Former XOM Terminal** WATER DEPTH: 1.5 ftbg CASING EL.: ADDRESS: 625 Elk Street, Buffalo, NY NA JOB NO. 0901216 BOREHOLE DIA .: 3" WELL DIA .: NA Logged By: Andy Janik and Bryan Mayback Drilling Method: **Direct Push** 4/17/2008 and 5/20/2008 Dates Drilled: Sampling Method: 2" Macro-core Drilling Company: Zebra Environmental, Inc. Soil Class. System: Modified Burmeister Drill Rig Type: **Geoprobe 54DT Track-Mounted Unit** Field Screening: PID 10.6 eV lamp Depth Sample Field Blow Rec. SAMPLE LITHOLOGY COMPLETION DETAILS Comments (feet) Interval Screen Counts 0-2' 6.9 NA 100% Boring was hand FILL: Black, Silt and fine to coarse cleared to 5 ftbg. Gravel, granular material, black staining and petroleum odor (moist to wet) Observed groundwater at approx. 1.5 ftbg 2-4' 408 NA 100% FILL: Black, Silt, little Clay, trace fine to coarse Gravel, black staining, no plasticity (wet)  $\mathbb{H}$ 4-6' 295 NA 100% Soil sample collected TCLP Lead=16.8 mg/L FILL: Black, Silt and fine to coarse from 4-6 ftbg on Total Lead=629 mg/kg Gravel, granular material, black 5/20/2008 for analyses staining and petroleum odor (wet) 5 of TCLP Lead and Total Lead No data  $\mathbb{R}$ 9-11' 0.2 NA NR Soil sample collected Total Lead=9.58 mg/kg Brown, Silty CLAY from 9-11 ftbg on 4/17/2008 for analysis 10 of Total Lead  $\mathbb{H}$ 11-13' 0.0 NA NR Soil sample collected TCLP Lead=ND Brown, Silty CLAY from 11-13 ftbg on Total Lead=16.1 mg/kg 4/17/2008 for analyses of TCLP Lead and Total Lead  $\mathbb{H}$ 13-15' 0.0 NA NR Soil sample collected Total Lead=18.0 mg/kg Brown, Silty CLAY from 13-15 ftbg on 4/17/2008 for analysis of Total Lead 15 **General Comments:** Symbol Key: Location: Northing/Latitude: NA ftbg = feet below grade Apparent Water Level  $\mathbb{H}$ Easting/Longitude: NA NA = Not Applicable Lab Sample Location Horizontal Datum: NR = Not Recorded NA Vertical Datum: NA SB-124 p. 1 of 1

## Addendum No. 1 to the Final AAR for Operable Unit 2

#### **APPENDIX B-2**

Soil Boring Logs from 2009 Lead Delineation Sampling



Groundwater & Environmental Services, Inc.

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SURFACE ELEV.: NA TOTAL DEPTH: 12 ftbg PROJECT: Former Buffalo XOM Terminal ADDRESS: 625 Elk St., Buffalo, NY WATER DEPTH: NA CASING EL.: NA JOB NO. 0901297 BOREHOLE DIA .: 3" WELL DIA.: NA

Logged By: **Andy Janik** Drilling Method: **Direct Push** 4/14/2009 Dates Drilled: Sampling Method: Macro core

Drilling Company: Zebra Environmental Inc. Soil Class. System: Modified Burmeister Drill Rig Type: Geoprobe 54DT Track-Mounted Unit Field Screening: PID 10.6 eV Lamp (ppm)

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Rec.	SAMPLE LITHOLOGY	COMMENTS	COMPLETION DETAIL	LS
0	0-5'	326			FILL: Gravel fill, some Silt, brick, wood, petroleum odor  5-7' Silty gravel fill with wood, brick, some black staining, petroleum odor		Sample collected from 0-2 ftbg.	<b>X</b>
5-	5-7'	460					Sample collected from 5-7 ftbg.	***
10 -	7-9' 9-12'	2.4 NR			Gray/brown Silty Clay, moist			
-								

Location: Northing/Latitude: NA Easting/Longitude: NA Horizontal Datum: NA Vertical Datum:

**General Comments:** NR= Not Recorded NA= Not Applicable ftbg= feet below grade Symbol Key: Apparent Water Level Lab Sample Location

**NTYA-570** p. 1 of 1



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Page 1 of 1

PROJECT: Former Buffalo XOM Terminal SURFACE ELEV.: NA TOTAL DEPTH: 12 ftbg
ADDRESS: 625 Elk St., Buffalo, NY WATER DEPTH: NA CASING EL.: NA
JOB NO. 0901297 BOREHOLE DIA.: 3" WELL DIA.: NA

Logged By: Andy Janik Drilling Method: Direct Push
Dates Drilled: 4/14/2009 Sampling Method: Macro core

Drilling Company: Zebra Environmental Inc.

Soil Class. System: Modified Burmeister

Drill Rig Type: Geoprobe 54DT Track-Mounted Unit Field Screening: PID 10.6 eV Lamp (ppm)

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Rec.	SAMPLE LITHOLOGY	COMMENTS	COMPLETION DETAILS
0-	0-2' 2-5'	19.7			FILL: Topsoil, organics, gravel, brick  2-7' Brown/gray Silt and gravel, wet		Sample collected from 0-2 ftbg.
5-	5-7'	2.2					Sample collected from 5-7 ftbg.
-	7-9'	2.2			Brown Silty Clay		
10 -	9-12'	NR					

Location:
Northing/Latitude: NA
Easting/Longitude: NA
Horizontal Datum: NA
Vertical Datum: NA

General Comments: NR= Not Recorded NA= Not Applicable fibg= feet below grade Symbol Key: Apparent Water Level Lab Sample Location

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NTY-T1 p. 1 of 1



Groundwater & Environmental Services, Inc.

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p. 1 of 1

SURFACE ELEV .: NA TOTAL DEPTH: 9 ftbg PROJECT: Former Buffalo XOM Terminal ADDRESS: 625 Elk St., Buffalo, NY WATER DEPTH: NA CASING EL.: NA JOB NO. 0901297 BOREHOLE DIA .: 3" WELL DIA .: NA **Andy Janik** Drilling Method: Logged By: **Direct Push** 4/14/2009 Dates Drilled: Sampling Method: Macro core Drilling Company: Zebra Environmental Inc. Soil Class. System: Modified Burmeister Drill Rig Type: Field Screening: **Geoprobe 54DT Track-Mounted Unit** PID 10.6 eV Lamp (ppm) Depth Sample Field (feet) Interval Screen Blow Rec. SAMPLE LITHOLOGY **COMMENTS COMPLETION DETAILS** Counts 0 0-5' 129 FILL: Black Silty Gravel, brick, wood, mosit/wet Sample collected from 0-2 ftbg. Sample collected from 3-5 ftbg. 5 5-9' NR Gray/brown Silty Clay **General Comments:** Symbol Key: Location: Northing/Latitude: NA NR= Not Recorded Apparent Water Level Easting/Longitude: NA Lab Sample Location  $\mathbb{H}$ NA= Not Applicable Horizontal Datum: NA ftbg= feet below grade Vertical Datum: NTY-T22

Groundwater & Environmental Services, Inc. SURFACE ELEV.: NA TOTAL DEPTH: 7 ftbg PROJECT: Former Buffalo XOM Terminal ADDRESS: 625 Elk St., Buffalo, NY WATER DEPTH: NA CASING EL.: NA JOB NO. 0901297 BOREHOLE DIA .: 3" WELL DIA .: NA Logged By: **Andy Janik** Drilling Method: **Direct Push** 4/21/2009 Dates Drilled: Sampling Method: Macro core Drilling Company: Zebra Environmental Inc. Soil Class. System: Modified Burmeister Drill Rig Type: Field Screening: **Geoprobe 54DT Track-Mounted Unit** PID 10.6 eV Lamp (ppm) Depth Sample Field (feet) Interval Screen Blow Rec. SAMPLE LITHOLOGY **COMMENTS COMPLETION DETAILS** Counts 0 0-5' NR **FILL**  $\mathbb{H}$ Sample collected from 0-2 ftbg. 5-5-7' NR Silty Clay Sample collected from 5-7 ftbg. Location: **General Comments:** Symbol Key: Northing/Latitude: NA NR= Not Recorded Apparent Water Level Easting/Longitude: NA Lab Sample Location  $\mathbb{H}$ NA= Not Applicable Horizontal Datum: NA ftbg = feet below grade Vertical Datum: **SB-OU2-40** p. 1 of 1

ces, Inc. Page 1 of 1

PROJECT: Former XOM Buffalo Terminal SURFACE ELEV.: NA TOTAL DEPTH: 5 ftbg
ADDRESS: 625 Elk St., Buffalo, NY WATER DEPTH: NA CASING EL.: NA
JOB NO. 0901297 BOREHOLE DIA.: 3" WELL DIA.: NA

Logged By: Andy Janik Drilling Method: Hand Clearing

Dates Drilled: 4/21/2009 Sampling Method:

Drilling Company: Zebra Environmental Inc Soil Class. System: Modified Burmeister

Drill Rig Type: NA Field Screening: PID 10.6 eV Lamp (ppm)

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Rec.		SAMPLE LITHOLOGY	COMMENTS	COMPLETION DETAILS
O—	Sample Interval  0-2.5'	Field Screen  0	Blow Counts	Rec.		FILL: Gravel, Silty fill, wet, some petroleum odor  Gray/brown Silty Clay	COMMENTS  Hand cleared to 5 ftbg.	Sample collected from 0-2 ftbg.
5—					王: :: : : : : : : : : : : : : : : : : :			

Location:
Northing/Latitude: NA
Easting/Longitude: NA
Horizontal Datum: NA
Vertical Datum: NA

General Comments: NR= Not Recorded NA= Not Applicable ftbg = feet below grade Symbol Key:
Apparent Water Level
Lab Sample Location

SB-OU2-41 p. 1 of 1

PROJECT: Former Buffalo XOM Terminal SURFACE ELEV.: NA TOTAL DEPTH: 9 ftbg
ADDRESS: 625 Elk St., Buffalo, NY WATER DEPTH: NA CASING EL.: NA
JOB NO. 0901297 BOREHOLE DIA.: 3" WELL DIA.: NA

Logged By:Andy JanikDrilling Method:Direct PushDates Drilled:4/15/2009Sampling Method:Macro core

Drilling Company: Zebra Environmental Inc.

Soil Class. System: Modified Burmeister

Drill Rig Type: Geoprobe 54DT Track-Mounted Unit Field Screening: PID 10.6 eV Lamp (ppm)

Donth	Comple	Tiold.	Dlaw				
(feet)	Sample Interval	Screen	Blow Counts	Rec.	SAMPLE LITHOLOGY	COMMENTS	COMPLETION DETAILS
0-	0-2'	8.3		I	N		
	-				FILL: Black, oily fill and gravel.		
							NZ.
							Sample collected from 0-2 ftbg.
							l and a mage
-	2-5'	NR			Brown Silty Clay		
					±		
					<del>=</del> : <del>=</del> =		
-							
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					<u> </u>		
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					二 : 二 		
5-	5-9'	NR					
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Location:
Northing/Latitude: NA
Easting/Longitude: NA
Horizontal Datum: NA
Vertical Datum: NA

General Comments: NR= Not Recorded NA= Not Applicable fibg= feet below grade

Apparent Water Level
Lab Sample Location

Symbol Key:

SB-OU2-42 p. 1 of 1

PROJECT: Former Buffalo XOM Terminal SURFACE ELEV.: NA TOTAL DEPTH: 9 ftbg
ADDRESS: 625 Elk St., Buffalo, NY WATER DEPTH: NA CASING EL.: NA
JOB NO. 0901297 BOREHOLE DIA.: 3" WELL DIA.: NA

Logged By:Andy JanikDrilling Method:Direct PushDates Drilled:4/15/2009Sampling Method:Macro core

Drilling Company: Zebra Environmental Inc.

Soil Class. System: Modified Burmeister

Drill Rig Type: Geoprobe 54DT Track-Mounted Unit Field Screening: PID 10.6 eV Lamp (ppm)

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Rec.	SAMPLE LITHOLOGY	COMMENTS	COMPLETION DETAILS
0	0-2'	NR			Topsoil, organics, purple sand		Sample collected from 0-2 ftbg.
-	2-5'	2.9			Purple Sand, wet		
5-	5-7'	0.2			Purple Sand, some Silt, wet		Sample collected from 5-7 ftbg.
	7-9'	NR			Gray/brown Clay, moist		

Location:
Northing/Latitude: NA
Easting/Longitude: NA
Horizontal Datum: NA
Vertical Datum: NA

General Comments: NR= Not Recorded NA= Not Applicable ftbg= feet below grade

Apparent Water Level
Lab Sample Location

Symbol Key:

**SB-OU2-43** p. 1 of 1

PROJECT: Former Buffalo XOM Terminal SURFACE ELEV.: NA TOTAL DEPTH: 9 ftbg
ADDRESS: 625 Elk St., Buffalo, NY WATER DEPTH: NA CASING EL.: NA
JOB NO. 0901297 BOREHOLE DIA.: 3" WELL DIA.: NA

Logged By:Andy JanikDrilling Method:Direct PushDates Drilled:4/15/2009Sampling Method:Macro core

Drilling Company: Zebra Environmental Inc.

Soil Class. System: Modified Burmeister

Drill Rig Type: Geoprobe 54DT Track-Mounted Unit Field Screening: PID 10.6 eV Lamp (ppm)

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Rec.	SAMPLE LITHOLOGY	COMMENTS	COMPLETION DETAILS
0	0-5'	1.7			FILL: topsoil, organics, gravel/concrete, purple stained material		Sample collected from 0-2 ftbg.
5-	5-7'	0			Purple Sandy material, wet		Sample collected
-	7-9'	1.3			Olive/gray Clay, moist to wet		from 5-7 ftbg.

Location:
Northing/Latitude: NA
Easting/Longitude: NA
Horizontal Datum: NA
Vertical Datum: NA

General Comments: NR= Not Recorded NA= Not Applicable ftbg= feet below grade Symbol Key: Apparent Water Level

SB-OU2-44 p. 1 of 1

Groundwater & Environmental Services, Inc.

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PROJECT: Former Buffalo XOM Terminal SURFACE ELEV.: NA TOTAL DEPTH: 13 ftbg
ADDRESS: 625 Elk St., Buffalo, NY WATER DEPTH: NA CASING EL.: NA
JOB NO. 0901297 BOREHOLE DIA.: 3" WELL DIA.: NA

Logged By:Andy JanikDrilling Method:Direct PushDates Drilled:4/15/2009Sampling Method:Macro core

Drilling Company: Zebra Environmental Inc.

Soil Class. System: Modified Burmeister

Drill Rig Type: Geoprobe 54DT Track-Mounted Unit Field Screening: PID 10.6 eV Lamp (ppm)

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Rec.	SAMPLE LITHOLOGY	COMMENTS	COMPLETION DE	TAILS
0	0-5'	0.8		XX - XX	FILL: Topsoil, organics, ash, brick, Silty fill, Sand and Clay from liner		Sample collected from 0-2 ftbg.	
5-	5-9'	NR			FILL: Brown fill, tan brick, gravel to black material, moist		Sample collected from 5-7 ftbg.	22
10 —	9-11'	NR					Sample collected from 9-11 ftbg.	Z Z
	11-13'	NR			Brown/gray Clay, moist			

Location:
Northing/Latitude: NA
Easting/Longitude: NA
Horizontal Datum: NA
Vertical Datum: NA

General Comments: NR= Not Recorded NA= Not Applicable fibg= feet below grade Symbol Key:
Apparent Water Level
Lab Sample Location

SB-OU2-45 p. 1 of 1

D-002-40

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PROJECT: Former XOM Buffalo Terminal SURFACE ELEV.: NA TOTAL DEPTH: 13 ftbg
ADDRESS: 625 Elk St., Buffalo, NY WATER DEPTH: NA CASING EL.: NA
JOB NO. 0901297 BOREHOLE DIA.: 3" WELL DIA.: NA

Logged By:Andy JanikDrilling Method:Direct PushDates Drilled:4/14/2009Sampling Method:Macro core

Drilling Company: Zebra Environmental Inc.

Soil Class. System: Modified Burmeister

Drill Rig Type: Geoprobe 54DT Track-Mounted Unit Field Screening: PID 10.6 eV Lamp (ppm)

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Rec.	SAMPLE LITHOLOGY	COMMENTS	COMPLETION DET	ΓAILS
5-	0-5' 5-9'	0.8			FILL: Topsoil, organics, wood, brick  5-9' Black gravel, wet  9-11' Gray ash like material, wet, petroleum odor		Sample collected from 0-2 ftbg.	
-							Sample collected from 5-7 ftbg.	Ž.
10 -	9-11'	7.6					Sample collected from 9-11ftbg.	
	11-13'	NR			Brown Clay, moist			

Location:
Northing/Latitude: NA
Easting/Longitude: NA
Horizontal Datum: NA
Vertical Datum: NA

General Comments: NR= Not Recorded NA= Not Applicable ftbg= feet below grade Symbol Key:
Apparent Water Level
Lab Sample Location

**▼** 

SB-OU2-46 p. 1 of 1

PROJECT: Former Buffalo XOM Terminal SURFACE ELEV.: NA TOTAL DEPTH: 9 ftbg
ADDRESS: 625 Elk St., Buffalo, NY WATER DEPTH: NA CASING EL.: NA
JOB NO. 0901297 BOREHOLE DIA.: 3" WELL DIA.: NA

Logged By:Andy JanikDrilling Method:Direct PushDates Drilled:4/15/2009Sampling Method:Macro core

Drilling Company: Zebra Environmental Inc.

Soil Class. System: Modified Burmeister

Drill Rig Type: Geoprobe 54DT Track-Mounted Unit Field Screening: PID 10.6 eV Lamp (ppm)

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Rec.	SAMPLE LITHOLOGY	COMMENTS	COMPLETION DE	TAILS
0	0-5'	202			FILL: Topsoil, organics, orange (Fe) material to wet, black granular material		Sample collected from 0-2 ftbg.	*
5-	5-7'	3.3						
_	7-9'	NR			Brown Clay		Sample collected from 5-7 ftbg.	*

Location:
Northing/Latitude: NA
Easting/Longitude: NA
Horizontal Datum: NA
Vertical Datum: NA

General Comments: NR= Not Recorded NA= Not Applicable ftbg= feet below grade Symbol Key:
Apparent Water Level
Lab Sample Location

SB-OU2-47 p. 1 of 1

PROJECT: Former Buffalo XOM Terminal SURFACE ELEV.: NA TOTAL DEPTH: 9 ftbg
ADDRESS: 625 Elk St., Buffalo, NY WATER DEPTH: NA CASING EL.: NA
JOB NO. 0901297 BOREHOLE DIA.: 3" WELL DIA.: NA

Logged By:Andy JanikDrilling Method:Direct PushDates Drilled:4/16/2009Sampling Method:Macro core

Drilling Company: Zebra Environmental Inc.

Soil Class. System: Modified Burmeister

Drill Rig Type: Geoprobe 54DT Track-Mounted Unit Field Screening: PID 10.6 eV Lamp (ppm)

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Rec.	SAMPLE LITHOLOGY	COMMENTS	COMPLETION DE	ΓAILS
0	0-5'	6.1			FILL: Black stained Silty fill		Sample collected from 0-2 ftbg.	*
5-	5-7'	NR						
_	7-9'	NR			Brown Clay, moist		Sample collected from 5-7 ftbg.	*

Location:
Northing/Latitude: NA
Easting/Longitude: NA
Horizontal Datum: NA
Vertical Datum: NA

General Comments: NR= Not Recorded NA= Not Applicable fibg= feet below grade Symbol Key:
Apparent Water Level
Lab Sample Location

SB-0U2-48 p. 1 of 1

PID 10.6 eV Lamp (ppm)

Drill Rig Type:

Groundwater & Environmental Services, Inc.

**Geoprobe 54DT Track-Mounted Unit** 

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SURFACE ELEV.: NA TOTAL DEPTH: 16 ftbg PROJECT: Former Buffalo XOM Terminal ADDRESS: 625 Elk St., Buffalo, NY WATER DEPTH: NA CASING EL.: NAJOB NO. 0901297 BOREHOLE DIA .: 3" WELL DIA .: NA Logged By: **Andy Janik** Drilling Method: **Direct Push** 4/16/2009 Dates Drilled: Sampling Method: Macro core Drilling Company: Zebra Environmental Inc. Soil Class. System: Modified Burmeister

Field Screening:

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Rec.	SAMPLE LITHOLOGY	COMMENTS	COMPLETION DETAILS	;
0⊣	0-5'	0		<b>/</b> .	:04			
-	0-5	U		\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	FILL: Topsoil, organics, liner, red Clay and Sand, Silty fill, wet  5-12' Black gravelly material, wet		Sample collected from 0-2 ftbg.	***************************************
5-	5-9'	4.3					Sample collected from 5-7 ftbg.	***
- 10 -	9-12'	NR		\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\			Sample collected from 10-12 ftbg.	**
15 —	12-16'	NR			Silty Clay			

Location:
Northing/Latitude: NA
Easting/Longitude: NA
Horizontal Datum: NA
Vertical Datum: NA

General Comments: NR= Not Recorded NA= Not Applicable ftbg= feet below grade Symbol Key:
Apparent Water Level
Lab Sample Location

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SB-0U2-49 p. 1 of 1

PROJECT: Former Buffalo XOM Terminal SURFACE ELEV.: NA TOTAL DEPTH: 9 ftbg
ADDRESS: 625 Elk St., Buffalo, NY WATER DEPTH: NA CASING EL.: NA
JOB NO. 0901297 BOREHOLE DIA.: 3" WELL DIA.: NA

Logged By:Andy JanikDrilling Method:Direct PushDates Drilled:4/16/2009Sampling Method:Macro core

Drilling Company: Zebra Environmental Inc.

Soil Class. System: Modified Burmeister

Drill Rig Type: Geoprobe 54DT Track-Mounted Unit Field Screening: PID 10.6 eV Lamp (ppm)

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Rec.	SAMPLE LITHOLOGY	COMMENTS	COMPLETION DETAILS
0	0-5'	0			FILL: Topsoil, organics, brick, some black staining of Silty fill		Sample collected from 0-2 ftbg.
5-	5-7'	NR			Black Silty Gravel, wet		57
-	7-9'	NR			Brown Clay		Sample collected from 5-7 ftbg.

Location:
Northing/Latitude: NA
Easting/Longitude: NA
Horizontal Datum: NA
Vertical Datum: NA

General Comments: NR= Not Recorded NA= Not Applicable ftbg= feet below grade Symbol Key:
Apparent Water Level
Lab Sample Location

**▼** 

SB-OU2-50 p. 1 of 1

PROJECT: Former Buffalo XOM Terminal SURFACE ELEV.: NA TOTAL DEPTH: 12 ftbg
ADDRESS: 625 Elk St., Buffalo, NY WATER DEPTH: NA CASING EL.: NA
JOB NO. 0901297 BOREHOLE DIA.: 3" WELL DIA.: NA

Logged By:Andy JanikDrilling Method:Direct PushDates Drilled:4/16/2009Sampling Method:Macro core

Drilling Company: Zebra Environmental Inc.

Soil Class. System: Modified Burmeister

Drill Rig Type: Geoprobe 54DT Track-Mounted Unit Field Screening: PID 10.6 eV Lamp (ppm)

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Rec.	SAMPLE LITHOLOGY	COMMENTS	COMPLETION DETAILS
0	0-5'	0			FILL: Brown Sandy, Silty fill with brick, wet		Sample collected from 0-2 ftbg.
5-	5-7'	0.1					Sample collected from 5-7 ftbg.
-	7-9' 9-12'	0.1			Brown Silty Clay		
10 -	<del>3-</del> 12	IVIK			工 = : : = : = : : = : = : = : : = : = : = : = : = : = : = : = : =		

Location:
Northing/Latitude: NA
Easting/Longitude: NA
Horizontal Datum: NA
Vertical Datum: NA

General Comments: NR= Not Recorded NA= Not Applicable ftbg= feet below grade Symbol Key:
Apparent Water Level
Lab Sample Location

SB-OU2-51 p. 1 of 1

Groundwater & Environmental Services, Inc.

Page 1 of 1

SURFACE ELEV.: NA PROJECT: Former Buffalo XOM Terminal TOTAL DEPTH: 13 ftbg WATER DEPTH: NA CASING EL.: ADDRESS: 625 Elk St., Buffalo, NY NA BOREHOLE DIA .: 3" WELL DIA.: JOB NO. 0901297 NA

Logged By: **Andy Janik** Drilling Method: **Direct Push** 4/15/2009 Dates Drilled: Sampling Method: Macro core

Drilling Company: Zebra Environmental Inc. Soil Class. System: Modified Burmeister Drill Rig Type: Geoprobe 54DT Track-Mounted Unit Field Screening: PID 10.6 eV Lamp (ppm)

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Rec.	SAMPLE LITHOLOGY	COMMENTS	COMPLETION DETAILS
0	0-5'	0.9			FILL:Topsoil, organics, wood, brick, tan Sand, some Silt, some dried paint 5-8'		
5-	5-9'	0					Sample collected from 0-2'.  Sample collected from 6-8'.
10 -	9-13'	0			Brown Clay		

Location:	
Northing/Latitude:	NA
Easting/Longitude:	NA
Horizontal Datum:	NA
Vertical Datum:	NA

<b>General Comments:</b>
NR= Not Recorded
NA= Not Applicable
ftbg= feet below grade

Symbol Key:	
Apparent Water Level	
Lab Sample Location	

SB-OU2-52	p. 1 of 1

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PROJECT: Former Buffalo XOM Terminal SURFACE ELEV.: NA TOTAL DEPTH: 13 ftbg
ADDRESS: 625 Elk St., Buffalo, NY WATER DEPTH: NA CASING EL.: NA
JOB NO. 0901297 BOREHOLE DIA.: 3" WELL DIA.: NA

Logged By:Andy JanikDrilling Method:Direct PushDates Drilled:4/15/2009Sampling Method:Macro core

Drilling Company: Zebra Environmental Inc.

Soil Class. System: Modified Burmeister

Drill Rig Type: Geoprobe 54DT Track-Mounted Unit Field Screening: PID 10.6 eV Lamp (ppm)

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Rec.	SAMPLE LITHOLOGY	COMMENTS	COMPLETION DETAI	LS
0	0-5'	0			FILL: Topsoil, organics, wood, brick, multi-colored/brown/black fill		Sample collected from 0-2 ftbg.	**
5-	5-9'	NR					Sample collected from 6-8 ftbg.	K
10 -	9-13'	NR			Silty Clay  Brown Clay			

Location:
Northing/Latitude: NA
Easting/Longitude: NA
Horizontal Datum: NA
Vertical Datum: NA

General Comments: NR= Not Recorded NA= Not Applicable ftbg= feet below grade Symbol Key:
Apparent Water Level
Lab Sample Location

SB-OU2-53 p. 1 of 1

oundwater & Environmental Services, Inc.
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PROJECT: Former Buffalo XOM Terminal SURFACE ELEV.: NA TOTAL DEPTH: 13 ftbg
ADDRESS: 625 Elk St., Buffalo, NY WATER DEPTH: NA CASING EL.: NA
JOB NO. 0901297 BOREHOLE DIA.: 3" WELL DIA.: NA

Logged By:Andy JanikDrilling Method:Direct PushDates Drilled:4/17/2009Sampling Method:Macro core

Drilling Company: Zebra Environmental Inc.

Soil Class. System: Modified Burmeister

Drill Rig Type: Geoprobe 54DT Track-Mounted Unit Field Screening: PID 10.6 eV Lamp (ppm)

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Rec.	SAMPLE LITHOLOGY	COMMENTS	COMPLETION DETAI	ILS
0-								
5-	0-5'	NR			FILL: Granular/gravel fill, black staining, strong petroleum odor		Sample collected from 0-2 ftbg.	***************************************
-	5-9'	NR					Sample collected from 5-7 ftbg.	*
10 –	9-11'	NR					Sample collected from 9-11 ftbg.	*
-	11-13'	NR			Gray/brown Silty Clay			

Location:	
Northing/Latitude:	NA
Easting/Longitude:	NA
Horizontal Datum:	NA
Vertical Datum:	NA

<b>General Comments:</b>
NR= Not Recorded
NA= Not Applicable
ftbg= feet below grade

Symbol Key:	
Apparent Water Level	•
Lab Sample Location	$\mathbb{X}$

PROJECT: Former Buffalo XOM Terminal SURFACE ELEV.: NA TOTAL DEPTH: 9 ftbg
ADDRESS: 625 Elk St., Buffalo, NY WATER DEPTH: NA CASING EL.: NA
JOB NO. 0901297 BOREHOLE DIA.: 3" WELL DIA.: NA

Logged By:Andy JanikDrilling Method:Direct PushDates Drilled:4/17/2009Sampling Method:Macro core

Drilling Company: Zebra Environmental Inc.

Soil Class. System: Modified Burmeister

Drill Rig Type: Geoprobe 54DT Track-Mounted Unit Field Screening: PID 10.6 eV Lamp (ppm)

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Rec.	SAMPLE LITHOLOGY	COMMENTS	COMPLETION DETAILS
0	0-5'	0			FILL: Gravel and brick, oil stained, little soil		Sample collected from 0-2 ftbg.
5-	5-7'	20.8					Sample collected
-	7-9'	20.8			Gray/brown Silty Clay		Sample collected from 5-7 ftbg.

Location:
Northing/Latitude: NA
Easting/Longitude: NA
Horizontal Datum: NA
Vertical Datum: NA

General Comments:
NR= Not Recorded
NA= Not Applicable
ftbg= feet below grade

Symbol Key: Apparent Water Level Lab Sample Location

**SB-OU2-55** 

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Groundwater & Environmental Services, Inc.

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SURFACE ELEV.: NA PROJECT: Former Buffalo XOM Terminal TOTAL DEPTH: 9 ftbg ADDRESS: 625 Elk St., Buffalo, NY WATER DEPTH: NA CASING EL.: NAJOB NO. 0901297 BOREHOLE DIA .: 3" WELL DIA.: NA Logged By: **Andy Janik** Drilling Method: **Direct Push** 4/16/2009 Dates Drilled: Sampling Method: Macro core Drilling Company: Zebra Environmental Inc. Soil Class. System: Modified Burmeister

	Drill Rig		Geoprobe 5		ack-Mounted Unit		PID 10.6 eV Lamp (ppm)		
Dept (feet	h Sample Interval	Field Screen	Blow Counts	Rec.	SAMPLE I	LITHOLOGY	COMMENTS	COMPLETION DE	ETAILS
0-	0-5'	NR			FILL: Brown wood and br	/black Silty fill with rick, hard		Sample collected from 0-2 ftbg.	X
5-	7-9'	NR NR			Brown Clay			Sample collected from 5-7 ftbg.	***

Location: Northing/Latitude: NA Easting/Longitude: NA Horizontal Datum: NA Vertical Datum:

**General Comments:** NR= Not Recorded NA= Not Applicable ftbg= feet below grade Symbol Key: Apparent Water Level Lab Sample Location

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22 3 6 2 6 .

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PROJECT: Former Buffalo XOM Terminal SURFACE ELEV.: NA TOTAL DEPTH: 9 ftbg
ADDRESS: 625 Elk St., Buffalo, NY WATER DEPTH: NA CASING EL.: NA
JOB NO. 0901297 BOREHOLE DIA.: 3" WELL DIA.: NA

Logged By:Andy JanikDrilling Method:Direct PushDates Drilled:4/16/2009Sampling Method:Macro core

Drilling Company: Zebra Environmental Inc.

Soil Class. System: Modified Burmeister

Drill Rig Type: Geoprobe 54DT Track-Mounted Unit Field Screening: PID 10.6 eV Lamp (ppm)

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Rec.	SAMPLE LITHOLOGY	COMMENTS	COMPLETION DETAILS
0	0-5'	NR NR			FILL: Black ash, bricks, some paint		Sample collected from 0-2 ftbg.
5-	5-7'	NR					
-	7-9'	NR			Silty Clay  Brown Clay		Sample collected from 5-7 ftbg.
-							

Location:
Northing/Latitude: NA
Easting/Longitude: NA
Horizontal Datum: NA
Vertical Datum: NA

General Comments: NR= Not Recorded NA= Not Applicable ftbg= feet below grade Symbol Key: Apparent Water Level Lab Sample Location

SB-OU2-57 p. 1 of 1



SURFACE ELEV.: NA PROJECT: Former Buffalo XOM Terminal TOTAL DEPTH: 9 ftbg ADDRESS: 625 Elk St., Buffalo, NY WATER DEPTH: NA CASING EL.: NAJOB NO. 0901297 BOREHOLE DIA .: 3" WELL DIA .: NA

Logged By: **Andy Janik** Drilling Method: **Direct Push** 4/16/2009 Dates Drilled: Sampling Method: Macro core

Drilling Company: Zebra Environmental Inc. Soil Class. System: Modified Burmeister Drill Rig Type: **Geoprobe 54DT Track-Mounted Unit** Field Screening: PID 10.6 eV Lamp (ppm)

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Rec.	SAMPLE LITHOLOGY	COMMENTS	COMPLETION DET	TAILS
0	0-5'	NR			FILL: Topsoil, organics, brick, Sand		Sample collected from 0-2 ftbg.	***************************************
5-	5-7'	NR						
-	7-9'	NR			Brown Clay		Sample collected from 5-7 ftbg.	***

Location: Northing/Latitude: NA Easting/Longitude: NA Horizontal Datum: NA Vertical Datum:

**General Comments:** NR= Not Recorded NA= Not Applicable ftbg= feet below grade Symbol Key: Apparent Water Level Lab Sample Location

SB-0U2-58 p. 1 of 1

PID 10.6 eV Lamp (ppm)

**Geoprobe 54DT Track-Mounted Unit** 

Drill Rig Type:

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Groundwater & Environmental Services, Inc. SURFACE ELEV.: NA PROJECT: Former Buffalo XOM Terminal TOTAL DEPTH: 9 ftbg ADDRESS: 625 Elk St., Buffalo, NY WATER DEPTH: NA CASING EL.: NAJOB NO. 0901297 BOREHOLE DIA .: 3" WELL DIA .: NA Logged By: **Andy Janik** Drilling Method: **Direct Push** 4/17/2009 Dates Drilled: Sampling Method: Macro core Drilling Company: Zebra Environmental Inc. Soil Class. System: Modified Burmeister

Field Screening:

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Rec.	SAMPLE LITHOLOGY	COMMENTS	COMPLETION DETAILS
0	0-5'	NR			FILL: Brown Silty fill to black oily stained material, petroleum odor 1.5-5'		Sample collected from 0-2 ftbg.
5-	5-7'	NR					***
-	7-9'	NR			Gray/brown Silty Clay		Sample collected from 5-7 ftbg.

Location: Northing/Latitude: NA Easting/Longitude: NA Horizontal Datum: NA Vertical Datum:

**General Comments:** NR= Not Recorded NA= Not Applicable ftbg= feet below grade Symbol Key: Apparent Water Level Lab Sample Location

SB-OU2-59 p. 1 of 1

PROJECT: Former Buffalo XOM Terminal SURFACE ELEV.: NA TOTAL DEPTH: 9 ftbg
ADDRESS: 625 Elk St., Buffalo, NY WATER DEPTH: NA CASING EL.: NA
JOB NO. 0901297 BOREHOLE DIA.: 3" WELL DIA.: NA

Logged By:Andy JanikDrilling Method:Direct PushDates Drilled:4/17/2009Sampling Method:Macro core

Drilling Company: Zebra Environmental Inc.

Soil Class. System: Modified Burmeister

Drill Rig Type: Geoprobe 54DT Track-Mounted Unit Field Screening: PID 10.6 eV Lamp (ppm)

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Rec.	SAMPLE LITHOLOGY	COMMENTS	COMPLETION DETAILS
0	0-5'	NR			FILL: Gravel, concrete, brick to Silty/Sandy fill 5-7' Silty/Sandy fill		Sample collected from 0-2 ftbg.
5-	5-7'	NR					
-	7-9'	NR			Gray/brown Clay		Sample collected from 5-7 ftbg.

Location:
Northing/Latitude: NA
Easting/Longitude: NA
Horizontal Datum: NA
Vertical Datum: NA

General Comments: NR= Not Recorded NA= Not Applicable ftbg= feet below grade <u>Symbol Key:</u> Apparent Water Level

SB-OU2-60 p. 1 of 1

PROJECT: Former Buffalo XOM Terminal SURFACE ELEV.: NA TOTAL DEPTH: 9 ftbg
ADDRESS: 625 Elk St., Buffalo, NY WATER DEPTH: NA CASING EL.: NA
JOB NO. 0901297 BOREHOLE DIA.: 3" WELL DIA.: NA

Logged By:Andy JanikDrilling Method:Direct PushDates Drilled:4/17/2009Sampling Method:Macro core

Drilling Company: Zebra Environmental Inc.

Soil Class. System: Modified Burmeister

Drill Rig Type: Geoprobe 54DT Track-Mounted Unit Field Screening: PID 10.6 eV Lamp (ppm)

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Rec.	SAMPLE LITHOLOGY	COMMENTS	COMPLETION DETAILS
0	0-5'	NR			FILL: Ash, gravel, some Silty Sand		Sample collected from 0-2 ftbg.
5-	5-7'	NR					
-	7-9'	NR			Gray/brown Silty Clay		Sample collected from 5-7 ftbg.

Northing/Latitude: NA
Easting/Longitude: NA
Horizontal Datum: NA
Vertical Datum: NA

Location:

General Comments: NR= Not Recorded NA= Not Applicable ftbg= feet below grade Symbol Key:
Apparent Water Level
Lab Sample Location

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SB-OU2-61 p. 1 of 1

PROJECT: Former Buffalo XOM Terminal SURFACE ELEV.: NA TOTAL DEPTH: 9 ftbg
ADDRESS: 625 Elk St., Buffalo, NY WATER DEPTH: NA CASING EL.: NA
JOB NO. 0901297 BOREHOLE DIA.: 3" WELL DIA.: NA

Logged By:Andy JanikDrilling Method:Direct PushDates Drilled:4/17/2009Sampling Method:Macro core

Drilling Company: Zebra Environmental Inc.

Soil Class. System: Modified Burmeister

Drill Rig Type: Geoprobe 54DT Track-Mounted Unit Field Screening: PID 10.6 eV Lamp (ppm)

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Rec.	SAMPLE LITHOLOGY	COMMENTS	COMPLETION DETAILS
0	0-5'	NR			FILL: Topsoil, organics, brick, gray/black Ash		Sample collected from 0-2 ftbg.
5-	5-7'	NR					Sample collected
-	7-9'	NR			Gray/brown Clay		from 5-7 ftbg.

Location:
Northing/Latitude: NA
Easting/Longitude: NA
Horizontal Datum: NA
Vertical Datum: NA

General Comments: NR= Not Recorded NA= Not Applicable ftbg= feet below grade

Apparent Water Level
Lab Sample Location

Symbol Key:

SB-OU2-62 p. 1 of 1

PROJECT: Former Buffalo XOM Terminal SURFACE ELEV.: NA TOTAL DEPTH: 9 ftbg
ADDRESS: 625 Elk St., Buffalo, NY WATER DEPTH: NA CASING EL.: NA
JOB NO. 0901297 BOREHOLE DIA.: 3" WELL DIA.: NA

Logged By:Andy JanikDrilling Method:Direct PushDates Drilled:4/17/2009Sampling Method:Macro core

Drilling Company: Zebra Environmental Inc.

Soil Class. System: Modified Burmeister

Drill Rig Type: Geoprobe 54DT Track-Mounted Unit Field Screening: PID 10.6 eV Lamp (ppm)

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Rec.	SAMPLE LITHOLOGY	COMMENTS	COMPLETION DETAILS
0	0-5'	NR			FILL: Brown/black Silty/Sandy fill with brick and concrete, wet		Sample collected from 0-2 ftbg.
5-	5-7'	NR					
	7-9'	NR			Brown Clay, moist		Sample collected from 5-7 ftbg.

Location:
Northing/Latitude: NA
Easting/Longitude: NA
Horizontal Datum: NA
Vertical Datum: NA

General Comments: NR= Not Recorded NA= Not Applicable ftbg= feet below grade

Apparent Water Level
Lab Sample Location

Symbol Key:

SB-OU2-63 p. 1 of 1

PROJECT: Former Buffalo XOM Terminal SURFACE ELEV.: NA TOTAL DEPTH: 9 ftbg
ADDRESS: 625 Elk St., Buffalo, NY WATER DEPTH: NA CASING EL.: NA
JOB NO. 0901297 BOREHOLE DIA.: 3" WELL DIA.: NA

Logged By:Andy JanikDrilling Method:Direct PushDates Drilled:4/17/2009Sampling Method:Macro core

Drilling Company: Zebra Environmental Inc.

Soil Class. System: Modified Burmeister

Drill Rig Type: Geoprobe 54DT Track-Mounted Unit Field Screening: PID 10.6 eV Lamp (ppm)

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Rec.	SAMPLE LITHOLOGY	COMMENTS	COMPLETION DETA	AILS
0	0-5' 2-5'	NR NR			FILL: Topsoil, Silty fill 2-5' Silty/Sandy fill with brown oil 5-'7 Fill with trace oil		Sample collected from 0-2 ftbg.	X
5-	5-7'	NR						¥
-	7-9'	NR			Brown Clay, moist		Sample collected from 5-7 ftbg.	***

Location:
Northing/Latitude: NA
Easting/Longitude: NA
Horizontal Datum: NA
Vertical Datum: NA

General Comments: NR= Not Recorded NA= Not Applicable ftbg= feet below grade Symbol Key: Apparent Water Level Lab Sample Location

SB-OU2-64 p. 1 of 1

PROJECT: Former Buffalo XOM Terminal SURFACE ELEV.: NA TOTAL DEPTH: 5 ftbg
ADDRESS: 625 Elk St., Buffalo, NY WATER DEPTH: NA CASING EL.: NA
JOB NO. 0901297 BOREHOLE DIA.: 3" WELL DIA.: NA

Logged By:Andy JanikDrilling Method:Direct PushDates Drilled:4/17/2009Sampling Method:Macro core

Drilling Company: Zebra Environmental Inc.

Soil Class. System: Modified Burmeister

Drill Rig Type: Geoprobe 54DT Track-Mounted Unit Field Screening: PID 10.6 eV Lamp (ppm)

O O-2' NR Sample collected from O-2 fibg.    2-5' NR   Gray/brown Silty Clay   Gray/brown Silty Clay	Depth (feet)	Sample Interval	Field Screen	Blow Counts	Rec.	SAMPLE LITHOLOGY	COMMENTS	COMPLETION DETAILS
		0-2'	NR	Counts		FILL: Brown/black Silty fill with wood and brick  Gray/brown Silty Clay		

Location: Symbol Key:

Northing // etitude: NA Special Comments: Symbol Key:

Northing/Latitude: NA NR= Not Recorded
Easting/Longitude: NA NA= Not Applicable
Horizontal Datum: NA ftbg= feet below grade

Vertical Datum: NA

**SB-OU2-65** p. 1 of 1

PROJECT: Former Buffalo XOM Terminal SURFACE ELEV.: NA TOTAL DEPTH: 12 ftbg
ADDRESS: 625 Elk St., Buffalo, NY WATER DEPTH: NA CASING EL.: NA
JOB NO. 0901297 BOREHOLE DIA.: 3" WELL DIA.: NA

Logged By:Andy JanikDrilling Method:Direct PushDates Drilled:4/17/2009Sampling Method:Macro core

Drilling Company: Zebra Environmental Inc.

Soil Class. System: Modified Burmeister

Drill Rig Type: Geoprobe 54DT Track-Mounted Unit Field Screening: PID 10.6 eV Lamp (ppm)

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Rec.	SAMPLE LITHOLOGY	COMMENTS	COMPLETION DE	TAILS
5-	0-5'	NR			FILL: Black/brown fill with oil, wet  5-11' Gray Sandy fill, oily, wet  5-9' Minimal recovery		Sample collected from 0-2 ftbg.	*
	5-9'	NR					Sample collected from 5-7 ftbg.	**
10 –	9-11'	NR					Sample collected from 9-11 ftbg.	*
	11-12'	NR			Gray Clay			

Location:
Northing/Latitude: NA
Easting/Longitude: NA
Horizontal Datum: NA
Vertical Datum: NA

General Comments: NR= Not Recorded NA= Not Applicable ftbg= feet below grade Symbol Key:
Apparent Water Level
Lab Sample Location

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Groundwater & Environmental Services, Inc.

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PROJECT: Former Buffalo XOM Terminal SURFACE ELEV.: NA TOTAL DEPTH: 9 ftbg
ADDRESS: 625 Elk St., Buffalo, NY WATER DEPTH: NA CASING EL.: NA
JOB NO. 0901297 BOREHOLE DIA.: 3" WELL DIA.: NA

Logged By:Andy JanikDrilling Method:Direct PushDates Drilled:4/17/2009Sampling Method:Macro core

Drilling Company: Zebra Environmental Inc.

Soil Class. System: Modified Burmeister

Drill Rig Type: Geoprobe 54DT Track-Mounted Unit Field Screening: PID 10.6 eV Lamp (ppm)

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Rec.	SAMPLE LITHOLOGY	COMMENTS	COMPLETION DETAILS
0	0-5'	NR			FILL. Black/brown fill, some Sand		Sample collected from 0-2 ftbg.
5-	5-7'	NR			Gray Sand, wet		Sample collected from 5-7 ftbg.
-	7-9'	NR			Brown Clay		HOIII 3-7 Itug.

Location:
Northing/Latitude: NA
Easting/Longitude: NA
Horizontal Datum: NA
Vertical Datum: NA

General Comments: NR= Not Recorded NA= Not Applicable ftbg= feet below grade Symbol Key:
Apparent Water Level
Lab Sample Location

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PROJECT: Former Buffalo XOM Terminal SURFACE ELEV.: NA TOTAL DEPTH: 10 ftbg
ADDRESS: 625 Elk St., Buffalo, NY WATER DEPTH: NA CASING EL.: NA
JOB NO. 0901297 BOREHOLE DIA.: 3" WELL DIA.: NA

Logged By:Andy JanikDrilling Method:Direct PushDates Drilled:4/22/2009Sampling Method:Macro core

Drilling Company: Zebra Environmental Inc.

Soil Class. System: Modified Burmeister

Drill Rig Type: Geoprobe 54DT Track-Mounted Unit Field Screening: PID 10.6 eV Lamp (ppm)

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Rec.	SAMPLE LITHOLOGY	COMMENTS	COMPLETION DETAILS
0	0-5'	NR			FILL: Black stained gravel, wood, brick		Sample collected from 0-2 ftbg.
5-	5-7'	NR					Sample collected
-	7-10'	NR			Gray/brown Silty Clay		Sample collected from 5-7 ftbg.
10							

Location:
Northing/Latitude: NA
Easting/Longitude: NA
Horizontal Datum: NA
Vertical Datum: NA

General Comments: NR= Not Recorded NA= Not Applicable ftbg= feet below grade Symbol Key:
Apparent Water Level
Lab Sample Location

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Groundwater & Environmental Services, Inc.

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SURFACE ELEV .: NA PROJECT: Former Buffalo XOM Terminal TOTAL DEPTH: 10 ftbg ADDRESS: 625 Elk St., Buffalo, NY WATER DEPTH: NA CASING EL.: NA JOB NO. 0901297 BOREHOLE DIA .: 3" WELL DIA .: NA Logged By: **Andy Janik** Drilling Method: **Direct Push** 4/22/2009 Dates Drilled: Sampling Method: Macro core Drilling Company: Zebra Environmental Inc. Soil Class. System: Modified Burmeister Field Screening: Drill Rig Type: **Geoprobe 54DT Track-Mounted Unit** PID 10.6 eV Lamp (ppm) Depth Sample Field (feet) Interval Screen Blow Rec. SAMPLE LITHOLOGY **COMMENTS COMPLETION DETAILS** Counts 0 0-2' NR FILL: Brown Silty fill. gravel, brick Sample collected from 0-2 ftbg. 2-5' NR Gray/brown Silty Clay 5-5-10' NR 10 Location: **General Comments:** Symbol Key: Northing/Latitude: NA NR= Not Recorded Apparent Water Level Lab Sample Location  $\mathbb{H}$ Easting/Longitude: NA NA= Not Applicable Horizontal Datum: NA ftbg= feet below grade Vertical Datum: SB-OU2-69 p. 1 of 1

PROJECT: Former Buffalo XOM Terminal SURFACE ELEV.: NA TOTAL DEPTH: 10 ftbg
ADDRESS: 625 Elk St., Buffalo, NY WATER DEPTH: NA CASING EL.: NA
JOB NO. 0901297 BOREHOLE DIA.: 3" WELL DIA.: NA

Logged By:Andy JanikDrilling Method:Direct PushDates Drilled:4/22/2009Sampling Method:Macro core

Drilling Company: Zebra Environmental Inc.

Soil Class. System: Modified Burmeister

Drill Rig Type: Geoprobe 54DT Track-Mounted Unit Field Screening: PID 10.6 eV Lamp (ppm)

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Rec.	SAMPLE LITHOLOGY	COMMENTS	COMPLETION DETAILS
0	0-5'	30.7			FILL: Brown/black fill with brick, to black granular fill, wet, sheen		Sample collected from 0-2 ftbg.
5-	5-7'	NR					Sample collected
-	7-10'	NR			Brown Silty Clay		Sample collected from 5-7 ftbg.
10							

Location:
Northing/Latitude: NA
Easting/Longitude: NA
Horizontal Datum: NA
Vertical Datum: NA

General Comments: NR= Not Recorded NA= Not Applicable ftbg= feet below grade

Symbol Key: Apparent Water Level Lab Sample Location

SB-OU2-70 p. 1 of 1

PROJECT: Former Buffalo XOM Terminal SURFACE ELEV.: NA TOTAL DEPTH: 6 ftbg
ADDRESS: 625 Elk St., Buffalo, NY WATER DEPTH: NA CASING EL.: NA
JOB NO. 0901297 BOREHOLE DIA.: 3" WELL DIA.: NA

Logged By:Jennifer SiniscalchiDrilling Method:Direct PushDates Drilled:5/11/2009Sampling Method:Macro core

Drilling Company: Zebra Environmental Inc.

Soil Class. System: Modified Burmeister

Drill Rig Type: Geoprobe 54DT Track-Mounted Unit Field Screening: PID 10.6 eV Lamp (ppm)

	Drill Rig	Type:	Geoprobe 5	4DT Track-I	Mounted Unit	Field Screening:	PID 10.6 eV Lamp (ppm)		
Depth (feet)	Sample Interval	Field Screen	Blow Counts	Rec.	SAMPLE I	LITHOLOGY	COMMENTS	COMPLETION DE	ETAILS
0	0-2' 2-4'	NR NR			FILL: Brown granular fill	h/black fill to black		Sample collected from 0-2 ftbg.	*
5-	4-6'	NR						Sample collected from 4-6 ftbg.	Ð

Northing/Latitude: NA
Easting/Longitude: NA
Horizontal Datum: NA
Vertical Datum: NA

Location:

General Comments: NR= Not Recorded NA= Not Applicable ftbg= feet below grade Symbol Key:
Apparent Water Level
Lab Sample Location

SB-OU2-71 p. 1 of 1

PROJECT: Former Buffalo XOM Terminal SURFACE ELEV.: NA TOTAL DEPTH: 2 ftbg
ADDRESS: 625 Elk St., Buffalo, NY WATER DEPTH: NA CASING EL.: NA
JOB NO. 0901297 BOREHOLE DIA.: 3" WELL DIA.: NA

Logged By:Andy JanikDrilling Method:Hand AugerDates Drilled:6/16/2009Sampling Method:Hand Auger

Drilling Company: Zebra Environmental Inc.

Soil Class. System: Modified Burmeister

Drill Rig Type: NA Field Screening: PID 10.6 eV Lamp (ppm)

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Rec.	SAMPLE LITHOLOGY	COMMENTS	COMPLETION DETAILS
0	0-2'	0			FILL: Brown Silty fill, organics		Sample collected from 0-2 ftbg.

Location:
Northing/Latitude: NA
Easting/Longitude: NA
Horizontal Datum: NA
Vertical Datum: NA

General Comments: NR= Not Recorded NA= Not Applicable fibg= feet below grade <u>Symbol Key:</u> Apparent Water Level

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vater & Environmental Services, Inc.

PROJECT: Former Buffalo XOM Terminal SURFACE ELEV.: NA TOTAL DEPTH: 15 ftbg
ADDRESS: 625 Elk St., Buffalo, NY WATER DEPTH: NA CASING EL.: NA
JOB NO. 0901297 BOREHOLE DIA.: 3" WELL DIA.: NA

Logged By:Andy JanikDrilling Method:Direct PushDates Drilled:4/16/2009Sampling Method:Macro core

Drilling Company: Zebra Environmental Inc.

Soil Class. System: Modified Burmeister

Drill Rig Type: Geoprobe 54DT Track-Mounted Unit Field Screening: PID 10.6 eV Lamp (ppm)

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Rec.	SAMPLE LITHOLOGY	COMMENTS	COMPLETION DETA	ILS
0	0-5'	NR			FILL. Brown Silty fill with brick.			
5-	5-9'	NR			Black fill material from 8-13', wet			
10 –	9-11'	NR						
-	11-15'	NR					Sample collected from 11-13 ftbg.	*
15					Gray Silty Clay			

Location:
Northing/Latitude: NA
Easting/Longitude: NA
Horizontal Datum: NA
Vertical Datum: NA

General Comments: NR= Not Recorded NA= Not Applicable ftbg= feet below grade Symbol Key:
Apparent Water Level
Lab Sample Location

**▼** 

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Vertical Datum:

Groundwater & Environmental Services, Inc.

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SURFACE ELEV.: NA TOTAL DEPTH: 9 ftbg PROJECT: Former Buffalo XOM Terminal ADDRESS: 625 Elk St., Buffalo, NY WATER DEPTH: NA CASING EL.: NA JOB NO. 0901297 BOREHOLE DIA .: 3" WELL DIA .: NA Logged By: **Andy Janik** Drilling Method: Direct Push 4/16/2009 Dates Drilled: Sampling Method: Macro core Drilling Company: Zebra Environmental Inc. Soil Class. System: Modified Burmeister Drill Rig Type: Field Screening: **Geoprobe 54DT Track-Mounted Unit** PID 10.6 eV Lamp (ppm) Depth Sample Field (feet) Interval Screen Blow Rec. SAMPLE LITHOLOGY **COMMENTS COMPLETION DETAILS** Counts 0 0-5' NR FILL: Topsoil, organics, brick, glass, black Ash Sample collected from 0-2 ftbg. 5 5-7' NR Sample collected from 5-7 ftbg. 7-9' NR **Brown Clay** Location: **General Comments:** Symbol Key: Northing/Latitude: NA NR= Not Recorded Apparent Water Level Easting/Longitude: NA Lab Sample Location  $\mathbb{H}$ NA= Not Applicable Horizontal Datum: NA ftbg= feet below grade



Groundwater & Environmental Services, Inc.

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SURFACE ELEV.: NA TOTAL DEPTH: 13 ftbg PROJECT: Former Buffalo XOM Terminal WATER DEPTH: NA CASING EL.: ADDRESS: 625 Elk St., Buffalo, NY NABOREHOLE DIA .: 3" WELL DIA.: JOB NO. 0901297 NA

Logged By: **Andy Janik** Drilling Method: **Direct Push** 4/13/2009 Dates Drilled: Sampling Method: Macro core

Drilling Company: Zebra Environmental Inc. Soil Class. System: Modified Burmeister Drill Rig Type: Geoprobe 54DT Track-Mounted Unit Field Screening: PID 10.6 eV Lamp (ppm)

12.3		FILL: Brown gravel fill			
27.1		1-7' Black granular material		Sample collected from 0-2 ftbg.	***
72.2		Olive Silt, moist		Sample collected from 5-7 ftbg.	*
1' 16.9 3' 1.2		Gray Silty Sand, wet		Sample collected from 9-11 ftbg.	*
	10.3	10.3	10.3 Olive Silt, moist  Gray Silty Sand, wet  Brown Silty Clay	10.3 Olive Silt, moist  Gray Silty Sand, wet  Brown Silty Clay	Sample collected from 5-7 ftbg.  Olive Silt, moist  Gray Silty Sand, wet  Sample collected from 9-11 ftbg.

Location:
Northing/Latitude: NA
Easting/Longitude: NA
Horizontal Datum: NA
Vertical Datum: NA

<b>General Comments:</b>
NR= Not Recorded
NA= Not Applicable
ftbg= feet below grade

Symbol Key:	
Apparent Water Level	
Lab Sample Location	

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mental Services, Inc. Page 1 of 1

PROJECT: Former Buffalo XOM Terminal SURFACE ELEV.: NA TOTAL DEPTH: 12 ftbg
ADDRESS: 625 Elk St., Buffalo, NY WATER DEPTH: NA CASING EL.: NA
JOB NO. 0901297 BOREHOLE DIA.: 3" WELL DIA.: NA

Logged By:Andy JanikDrilling Method:Direct PushDates Drilled:4/14/2009Sampling Method:Macro core

Drilling Company: Zebra Environmental Inc.

Soil Class. System: Modified Burmeister

Drill Rig Type: Geoprobe 54DT Track-Mounted Unit Field Screening: PID 10.6 eV Lamp (ppm)

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Rec.	SAMPLE LITHOLOGY	COMMENTS	COMPLETION DETAILS
0	0-5'	5.1			FILL: Black Silty and Gravel fill, wood, brick, tan Sand, moist/wet		Sample collected from 0-2 ftbg.
5-	5-7' 7-9'	4.7					Sample collected from 5-7 ftbg.
-	9-12'	NR			Gray/brown Silty Clay		
10 -							

Location:	
Northing/Latitude: NA	
Easting/Longitude: NA	
Horizontal Datum: NA	
Vertical Datum: NA	

General Comments: NR= Not Recorded NA= Not Applicable ftbg= feet below grade Symbol Key:
Apparent Water Level
Lab Sample Location

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PID 10.6 eV Lamp (ppm)



Drill Rig Type:

Groundwater & Environmental Services, Inc.

Geoprobe 54DT Track-Mounted Unit

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SURFACE ELEV.: NA PROJECT: Former Buffalo XOM Terminal TOTAL DEPTH: 12 ftbg WATER DEPTH: NA CASING EL.: ADDRESS: 625 Elk St., Buffalo, NY NA BOREHOLE DIA .: 3" WELL DIA.: JOB NO. 0901297 NA Logged By: **Andy Janik** Drilling Method: **Direct Push** 4/13/2009 Dates Drilled: Sampling Method: Macro core Drilling Company: Zebra Environmental Inc. Soil Class. System: Modified Burmeister

	Sample Interval	Blow Counts	Rec.	SAMPLE LITHOLOGY	COMMENTS	COMPLETION DETAILS
0						

Field Screening:

(1001)	interval	Oorcon	Counts				
0-	0-2'	NR				1	
	0-2	INK			FILL: Silty topsoil, organics, concrete  2-4' Sandy gravel, some Silt, wet		Ð
					4-5' Brown Silty Sand	Sample collected from 0-2 ftbg.	
-	2-4'	16.3			5-10' Brown Silty fill, some black granular material, petroleum odor		
_							
				7. · . / . / . / . / . / . / . / . / . /			
-	4-5'	NR					
5-	5-8'	91.4					
	J-0	91.4		); (\frac{1}{2});			
-				; <u>(</u>		Sample collected from 5-7 ftbg.	₽
				<u>\(\)</u>			
_	8-10'	94.1					
-							
10 –	10-12'	10.2		= : = = :	Brown Silty Clay		
				= : : : :: : : : : : : : : : : : : : : :		Sample collected	₽
				= : = : = : : : : : : : : : : : : : : :		from 10-12 ftbg.	

Location:	General Comments:	Symbol Key:
Northing/Latitude: NA	NR= Not Recorded	Apparent Water Level 🗨
Easting/Longitude: NA	NA= Not Applicable	Lab Sample Location 🔀
Horizontal Datum: NA	ftbg= feet below grade	
Vertical Datum: NA		SB-131 p. 1 of 1

Groundwater & Environmental Services, Inc.

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PROJECT: Former Buffalo XOM Terminal SURFACE ELEV.: NA TOTAL DEPTH: 16 ftbg
ADDRESS: 625 Elk St., Buffalo, NY WATER DEPTH: NA CASING EL.: NA
JOB NO. 0901297 BOREHOLE DIA.: 3" WELL DIA.: NA

Logged By:Andy JanikDrilling Method:Direct PushDates Drilled:4/13/2009Sampling Method:Macro core

Drilling Company: Zebra Environmental Inc.

Soil Class. System: Modified Burmeister

Drill Rig Type: Geoprobe 54DT Track-Mounted Unit Field Screening: PID 10.6 eV Lamp (ppm)

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Rec.	SAMPLE LITHOLOGY	COMMENTS	COMPLETION DETA	AILS
0	0-2'	2.6			FILL: Brown fill with brick and gravel			
-	2-4'	445			2-6' Black oil stained gravel/fill, moist to wet		Sample collected from 0-2 ftbg.	<b>X</b>
5-	4-6'	83.1						
-	6-8'	44.8			Olive/brown Silty Clay		Sample collected from 5-7 ftbg.	*
-	8-12'	19.3			Sandy Gravel, intervals of Silty Clay, wet			
10 -							Sample collected from 10-13 ftbg.	*
-	12-16'	2.9			Gray Silty Clay			
15 –								

Location:
Northing/Latitude: NA
Easting/Longitude: NA
Horizontal Datum: NA
Vertical Datum: NA

General Comments: NR= Not Recorded NA= Not Applicable fibg= feet below grade Symbol Key:
Apparent Water Level
Lab Sample Location

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