#### HESS CORPORATION UPDATE REPORT

Site Address: Hess Station #32518

2880 Atlantic Avenue

Brooklyn, NY

Regulatory Agency: NYSDEC - Region 2

Regulatory Contact: Sarah Carlson

Spill #: 98-30002

Consultant: EnviroTrac Ltd. Project Manager: Ed Russo

Hess Contact: John Schenkewitz

Report Date:

February 2009

**Current Site Status:** 

Active Hess station

**Monitoring Period:** 

August 2008 - November 2008

Work Performed:

Gauged and sampled seven (7) monitoring wells on November 19, 2008.

Installed three (3) air sparge (AS) wells on October 15 &16, 2008.

Conducted two (2) short-term remediation events (STRE) on October 23 and

November 15, 2008.

**Groundwater Monitoring:** 

Wells Gauged:

MW-1 through MW-7

None

Wells Containing LPH: Groundwater Depth:

31.00 feet – 33.72 feet

Groundwater Flow:

Southwest

Wells Sampled:

MW-1 through MW-7

Maximum Benzene Concentration:

<1.3 ug/L (MW-1)

Maximum MTBE Concentration:

Non-detect in all wells

**Potential Sensitive Receptors:** 

Adjacent to the site are local businesses and residential properties with basements. Two miles south of the site is the Fresh Creek Basin, which flows into Jamaica Bay. The Ridgewood Reservoir (decommissioned) is located 3/4

miles north of the site.

**Current Plans/Proposals:** 

The monitoring for this site has been moved to a quarterly sampling schedule with the next event scheduled for March 2009. An Update Report summarizing

this event will be submitted to the NYSDEC in May 2009.

Although residual BTEX concentrations remain in MW-1 and MW-6, the breakdown components of these concentrations (mostly xylenes) indicate a more degraded, less mobile impact to the subsurface environment. Three (3) AS wells were installed on-site on October 15 & 16, 2008. Following AS well installation, two (2) STRE events were conducted on October 23, 2008 and

November 15, 2008.

Due to favorable results of the two STRE events, EnviroTrac plans to continue with these remediation efforts. EnviroTrac and Hess will develop an action plan to address the degraded impact in these wells and will submit the plan to the NYSDEC under separate cover in an effort to move this site towards closure.

# HESS CORPORATION UPDATE REPORT (con't.)

Site Address: Hess Station #32518 Regulatory Agency: NYSDEC – Region 2

2880 Atlantic Avenue Regulatory Contact: Sarah Carlson

Brooklyn, NY

Spill #: 98-30002

Consultant: EnviroTrac Ltd.

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List of Attachments: Tables: Table 1 – Summary of Well Gauging and

Groundwater Analytical Data\*

Table 2 – Summary of Soil Vapor Extraction/Air Sparge

Pilot Test Events

Figures: Figure 1 – Aerial Photograph

Figure 2 - Water-Table Elevation on November 19, 2008 and

Total BTEX/MTBE Concentration Map Figure 3 – Hydrograph of MW-1 Figure 4 – Hydrograph of MW-2 Figure 5 – Hydrograph of MW-4 Figure 6 – Hydrograph of MW-5 Figure 7 – Hydrograph of MW-6

Attachments: Well Logs for AS-1, AS-2, and AS-3

<sup>\*</sup>Note – Table 1 includes data from the initial sampling event, the sampling events with the highest BTEX and MTBE concentrations and the last four (4) sampling events. All historical data is available upon request.

Table 1 Summary of Well Gauging and Groundwater Analytical Data Hess Station # 32518 2880 Atlantic Avenue Brooklyn, NY

Well ID	Data	Gauge Pt. Elevation (feet)	Depth to Water	Product Depth (fbg)	Product Thickness (feet)	Water Level Elevation (feet)	Benzene	Toluene	Ethylbenzene (ug/L)	Xylenes	BTEX	MTBE
MW-1	Date	39.26	(fbg) 33.00	(lbg)	(leet)	6.26	(ug/L) 14	(ug/L) 1,200	( <b>ug/L</b> ) 650	(ug/L) 7,700	(ug/L) 9,564	(ug/L) 14
IAIAA- I	3/23/1999 <sup>8</sup>		33.60					3,300	2,300	16,000	21,602.4	6.2
	3/13/2000 <sup>b</sup>	39.26				5.66	2.4 <10	3,300	∠,300 420			<10
	11/20/2007	39.26	34.04			5.22				1,980	2,411	
	3/28/2008	39.26	33.89			5.37	<10	33.8	708	4,170	4,911.8	<10
	7/2/2008	39.26	33.98			5.28	<5 :	38.1 51.5	597 819	4,230	4,865.1	ND ND
	11/19/2008	39.26	33.72			5.54	<1.3	51.5	019	5,170	6,041	ND
MW-2	3/23/1999 <sup>ac</sup>	38.30	30.03			8.27	ND	ND	ND	ND	ND	800
	7/26/1999 <sup>b</sup>	38.30	32.25			6.05	ND	ND	29	56	85	240
	11/20/2007	38.30	33.02			5.28	<1	<1	<1	<3	ND	<1
	3/28/2008	38.30	32.84			5.46	<1.0	ND	ND	ND	<mdl< td=""><td>ND</td></mdl<>	ND
	7/2/2008	38.30	32.96			5.34	<1.0	ND	ND	ND	<mdl< td=""><td>ND</td></mdl<>	ND
	11/19/2008	38.30	32.69			5.61	ND	ND	ND	ND	ND	ND
MW-3	3/23/1999 <sup>8</sup>	36.69	30.35			6.34	ND	ND	ND	ND	ND	2.3
	3/13/2000 <sup>b</sup>	36.69	30.95			5.74	ND	1.2	1.7	12	14.9	3.4
	11/20/2001°	36.69	32.65			4.04	1	<1	<1	<2	1	5.1
	11/20/2007	36.69	31.33			5.36	<1	<1	<1	<3	ND	<1
	3/28/2008	36.69	31.15			5.54	<1.0	ND	ND	ND	<mdl< td=""><td>ND</td></mdl<>	ND
	7/2/2008	36.69	31.30			5.39	<1.0	ND	ND	ND	<mdl< td=""><td>ND</td></mdl<>	ND
	11/19/2008	36.69	31.00			5.69	ND	ND	ND	ND	ND	ND
MW-4	3/23/1999 <sup>ab</sup>	38.69	32.40			6.29	9	8.5	690	6,100	6,807.5	33
	7/15/2002°	38.69	33.58			5.11	<5	11	1,400	3,020	4,431	160
	11/20/2007	38.69	33.44			5.25	<1	<1	110	417	527	<1
	3/28/2008	38.69	33.29			5.40	<1.0	ND	174	688	862	ND
	7/2/2008	38.69	33.35			5.34	<1.0	5.6	195	496	696.6	ND
	11/19/2008	38.69	33.49			5.20	ND	0.34 J	138	420	558	ND
MW-5	2/23/2000ab	39.37	33.80			5.57	26	22	780	3,600	4,428	17
	11/26/2002°	39.37	34.01			5.36	22	18	250	821	1,111	83
	11/20/2007	39.37	34.24			5.13	<1	<1	84	73	157	<1
	3/28/2008	39.37	34.08			5.29	<1.0	ND	51.7	76.2	127.9	ND
	7/2/2008	39.37	34.15			5.22	<1.0	ND	51.3	60.5	111.8	ND
	11/19/2008	39.37	33.05			6.32	0.56 J	ND	25.5	99.4	125.5 J	ND
MW-6	2/23/2000°	38.95	33.21			5.74	7.9	68	780	2,300	3,155.9	140
	7/24/2000°	38.95	32.16			6.79	21	150	1,200	5,400	6,771	180
	1/24/2004 <sup>b</sup>	38.95	NM			NM	<20	79	2,700	10,200	12,979	<20
	11/20/2007	38.95	34.19			4.76	<5	<5	990	1,683	2,673	<5
	3/28/2008	38.95	33.48			5.47	<20.0	<20.0	2,370	6,513	8,883	<20.0
	7/2/2008	38.95	33.60			5.35	<10	<10	2,430	3,420	5,850	<10
	11/19/2008	38.95	33.31			5.64	ND	1.4 J	240	1,030	1,271 J	ND
MW-7	8/30/2000°	38.99	33.29			5.70	1	1	9.1	6.4	17.5	<1
	7/16/2001 <sup>b</sup>	38.99	33.18			5.81	<0.5	<1	10	39	49	<1
		38.99	34.12			4.87	<1	<1	<1	<2	<mdl< td=""><td>1.3</td></mdl<>	1.3
	7/15/2002°	38.99	33.99			5.00	<1	<1	<1	<3	ND	1.3 <1
	11/20/2007 3/28/2008	38.99	33.89			5.18	<1.0	ND	ND	ND	<mdl< td=""><td>ND</td></mdl<>	ND
		38.99	33.90			5.18	<1.0	ND	ND	ND	<mdl< td=""><td></td></mdl<>	
	7/2/2008					5.40	ND	ND				ND
	11/19/2008	38.99	33.59			5.40	ND	ND	ND	ND	ND	ND

Notes:

a Initial Sample/Gauging

b Total BTEX Historical High

c MTBE Historical High

J = Estimated Value

MDL = Method Detection Limit

ND = Not Detected

NS = Not Sampled

NM = Not Measured

Table 2
Summary of Soil Vapor Extraction/Air Sparge Pilot Test Events
Hess Station 32518 (Jerome)
2880 Atlantic Avenue
Brooklyn, NY

Date	SVE Well	AS Well	SVE Vacuum ("H2O)	SVE Flow (cfm)	AS Pressure (psi)	AS Flow (cfm)	SVE Effluent PID (ppm)
10/23/08	MW-1	AS-3	12	50	5.5	16	745
	MW-4	AS-2	10	30	5.5	18	373
11/15/08	MW-1	AS-3	14	50	3	17	717
	MW-6	AS-1	10	30	3	18	920

#### Notes:

cfm - Cubic Feet per Minute

psi - Pounds per Square Inch

ppm - Parts per Million

# **AERIAL PHOTOGRAPH**



Figure 1
Aerial Photograph
Hess Station 32518
2880 Atlantic Avenue
Brooklyn, NY

Digital Imagery taken in 2002-2004

0 30 60 120 180 240 Fee





5 Old Dock Road

Yaphank, NY 11980 P: 631-924-3001 F:631-924-5001



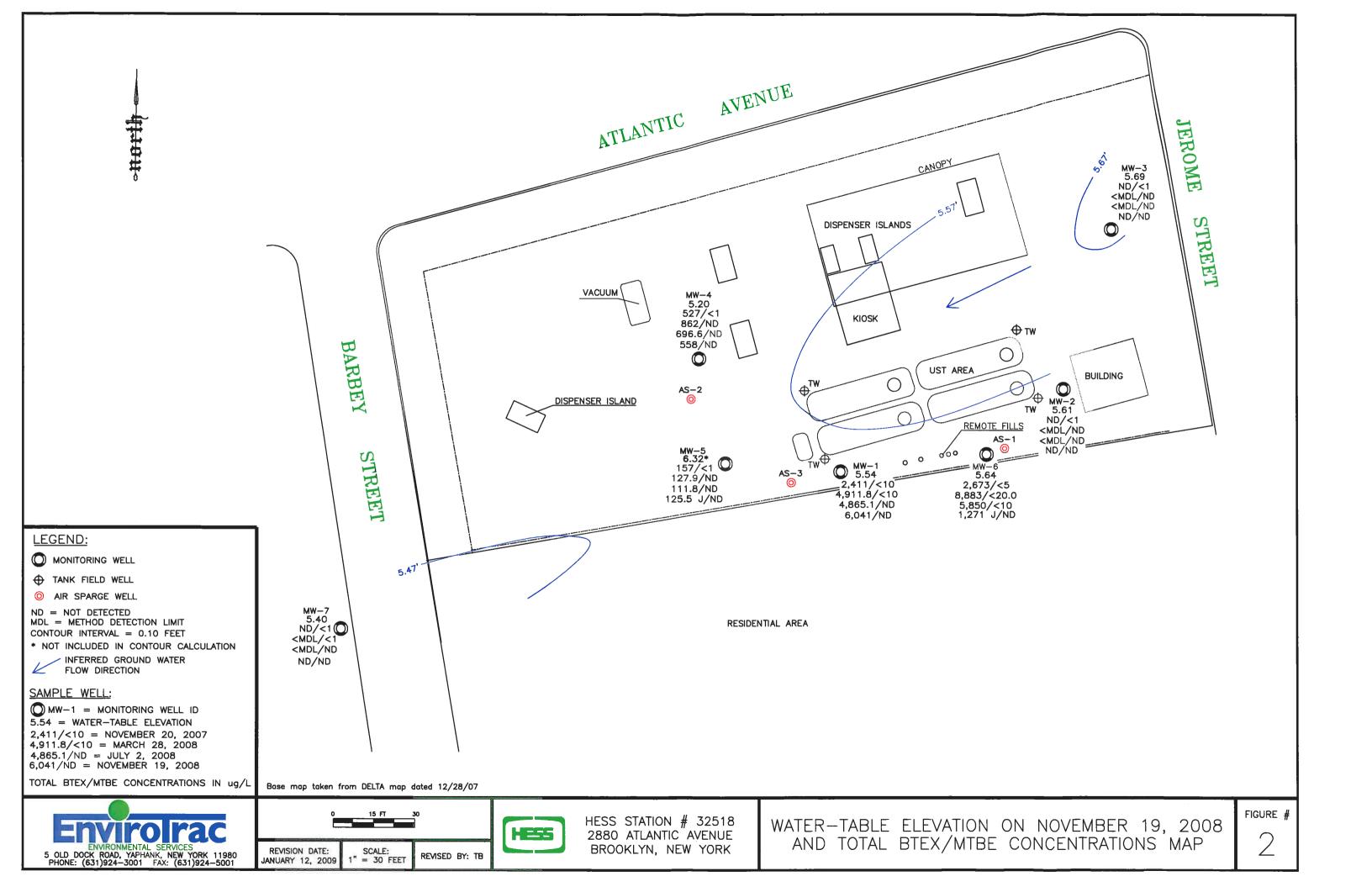


FIGURE 3 Hydrograph of MW-1 Hess Station #32518 2880 Atlantic Avenue Brooklyn, NY

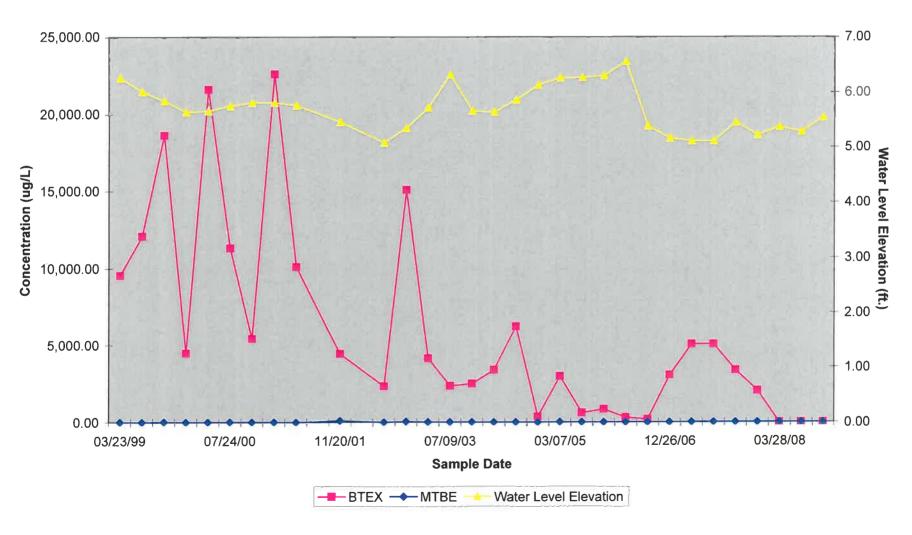


FIGURE 4 Hydrograph of MW-2 Hess Station #32518 2880 Atlantic Avenue Brooklyn, NY

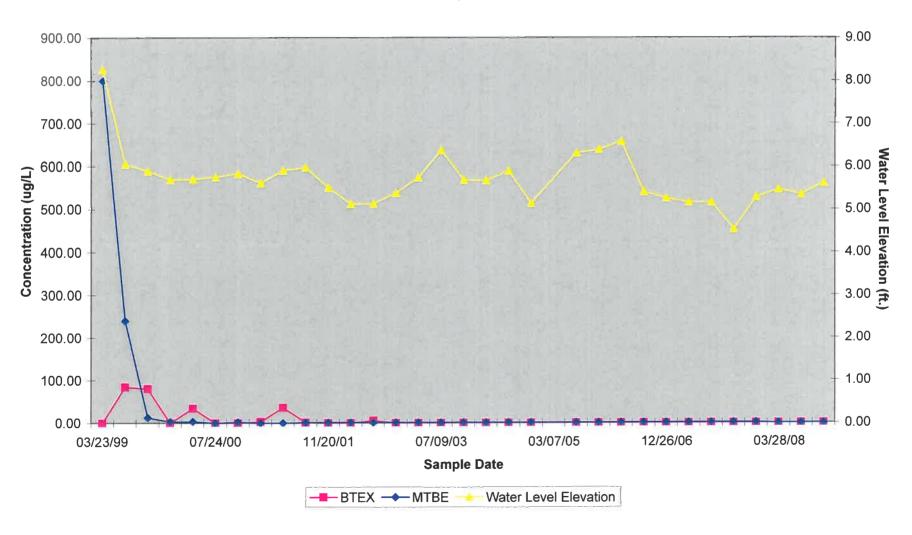


FIGURE 5 Hydrograph of MW-4 Hess Station #32518 2880 Atlantic Avenue Brooklyn, NY

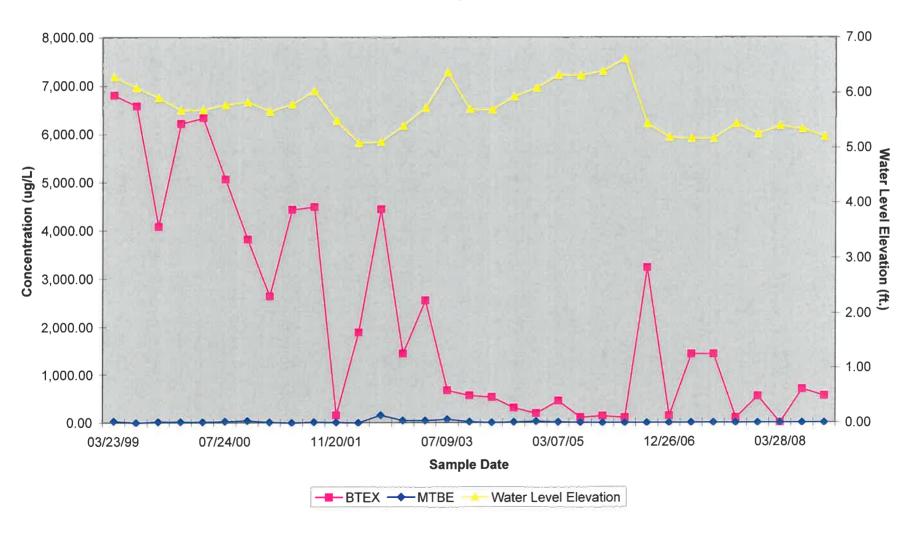


FIGURE 6 Hydrograph of MW-5 Hess Station #32518 2880 Atlantic Avenue Brooklyn, NY

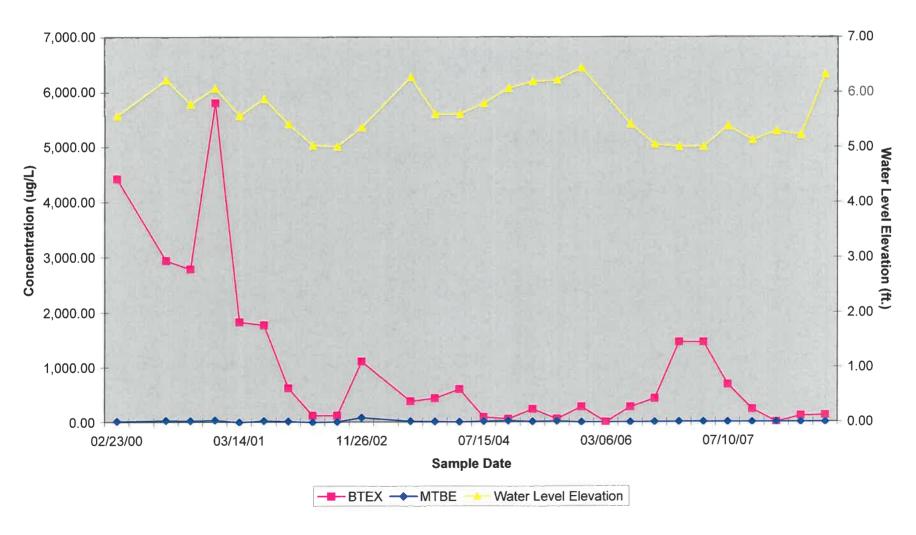
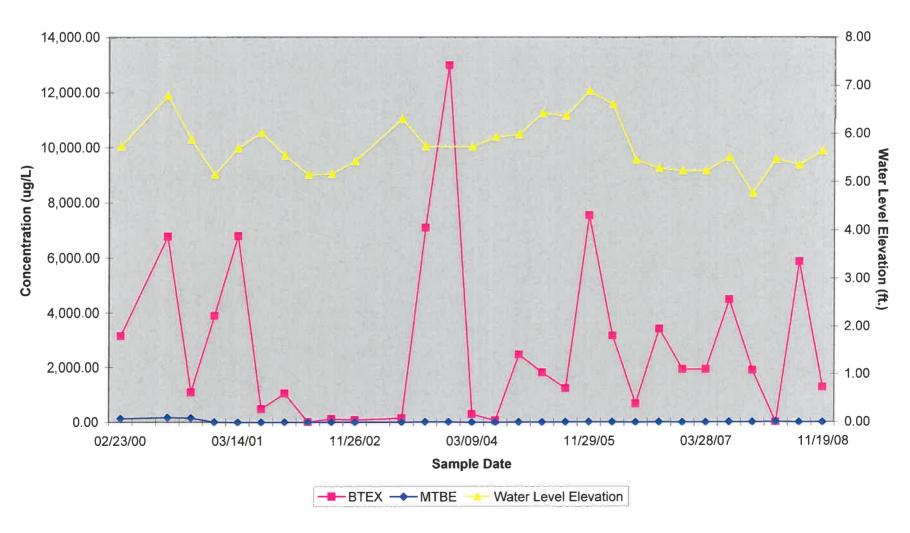


FIGURE 7 Hydrograph of MW-6 Hess Station #32518 2880 Atlantic Avenue Brooklyn, NY



# **Geologic Log and Well Construction Details**

# Log of Air Sparge Well 1

Enviro	irac Ltd.		
5 Old Dock Road,	Yaphank,	NY	11980

				0.0.00	J.( 1 ( )	au, rapilalik, it	1 11000			
Client:							Depth to	o Water	Site Elevation Datum	
Hess Corporation_							(ft. from me	asuring pt.)		
Site Name:			Address	:			Date	DTW	] NM	
Hess Station # 32518		2880 Ati	antic Ave., I	Brooklyn	NY	10/15/2008	~33'	1		
Drilling Company:			Method:		Diooniyi	1,141	10/10/2000	33		
:										
Associated Environmental Services				Stem Auger			]		Measuring Point Elevation	
Date Started:			Date Co	mpleted:						
10/15/2008			10/15/20	800					NM	
Completion Depth:				TRAC Scie	ntiet:		1		7411	
The state of the s					illist.					
47'			Amber K	enneay			<u> </u>			
				SAMPLES						
CONSTRUCTION	D	EPTH	Reco-	Blow		]	so	IL DESCRIPT	ION	
(NTS)	(ft bel	ow grade)	very	per	PID					
y	( ==-	g,	(in.)	6 in.	I .					
	<del></del>		1 (111.)	O III.	(ppm)	1				
Watering	_ 0		]							
				Hand dug		Land surface was as	sphalt. Asphal	t, concrete, bi	icks - apparent fill, sand,	
والمتناف المناف المناف والمناف				I -		orange-brown, me				
								3 ,		
	5					Sand orange-broy	vn. medium to	n coarse gra	in, some gravel, dry, no odor	
State of the late	ľ						, modium (	_ 500.00 gra	, some graver, ery, no oder	
		8-10	20	NM	0	Sand, orange-brov	vn. medium to	o coarse ora	in, and cobbles, some gravel	
				,	"		, modiani (	- Jourge gra	, and oobbies, some graver	
The second secon						dry, no odor.				
Market No. 10 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	10									
The state of the s	[		1			↓				
	1									
	1	13-15	19	NM	0	Sand, orange-brown	n, medium to co	oarse grain, s	ome gravel, dry, no odor	
	15									
	1			ļ		1				
						*				
		18-20	17	NM	Ιo	Li.				
	20				ı	*				
	<b>-</b>		1		1	Sand, orange-brown	medium to c	oarse orain s	ome gravel, damp, no odor	
						land, crange are in	.,	ou.oo gruii, o	omo gravor, damp, no odor	
	1	23-25	20	NM	0	1				
	25					*				
						1.1				
						ľ				
	i	28-30	17	NM	3.2	Sand, orange-broy	vn medium to	o very coarsi	e grain, some gravel, damp, no odor	
	30	20 00	''		"	Joana, Grange Brot	m, mediam c	o very cours	e gram, some graver, damp, no odor	
	-		1			Sand orange-broy	vn. medium t	o coarse ara	in, some gravel, damp, no odor	
▼	1			1		Joana, Grange Brot	Tit, modiani	o ocaroc gra	in, come graver, damp, no odor	
	1	33-35	17	NM	418	Ton 11" Sand ora	nge-brown n	nedium to co	arse grain, some gravel, damp, no odor	
	35		''			I ower 6" Sand gra	av medium t	n coarse ara	in, wet. strong petroleum odor	
						Lower o Garia, gir	ay, mealam t	o course gra	in, wet, strong petroleum odor	
	1									
	]	38-40	24	NM	131 6	Sand orange brow	ND COORCE to	VOD/ COOFEE	with graval wat potestaries and	
	40	30-40	44	INIVI	131.0	Joanu, Grange-Drov	vii, coarse to	very coarse,	, with gravel, wet, petroleum odor	
	- TO		1			Cand are to				
						Sand, orange-brown	n, medium to c	oarse grain, s	ome gravel, damp, no odor.	
		42.45	24	NIA A	0.5	1,				
	1	43-45	24	NM	8.5	↓				
	45									
	1									
	1									
	ŀ									
	50									
()	Γ		1							
LEGEND:						1				
						Well Construction	Details			
Cement						Bottom of Well:	47'			
Cement						Screen Zone:	45-47'			
	Bentonite Seal						# 20 slot, 2",	echedulo 40 F	DVC	
Bentonite Seal						Screen material: Casing material:	Schedule 40		VO	
Bentonite Seal	1			1		Bentonite Seal:	5-10 feet belo			
Table						IDENIONIE SESI	o- to reet bein	w grade		
Gravel						Sand Pack	Morie #2	•		
Table						Sand Pack:	Morie #2	J		
Gravel pack (morie #2)						Sand Pack:	Morie #2	J		
Gravel						Sand Pack:	Morie #2	Š		
Gravel pack (morie #2)						Sand Pack:	Morie #2	Ü		

# **Geologic Log and Well Construction Details**

### Log of Air Sparge Well 2

EnviroTrac Ltd.

5 Old Dock	Road,	Yaphank,	NY	11980

		5 (	סט מוכ	CK RO	ad, Yaphank, N	1 11980		
Client:						Depth to	o Water	Site Elevation Datum
Hess Corporation						(ft. from me	asuring pt.)	
Site Name:		Address:				Date	DTW	MM
Hess Station # 32518		2880 Atlar	ntic Ave., I	Brooklyn	n, NY	10/15/2008	~33'	
Drilling Company:		Method:						
Associated Environmental Services		Hollow Ste					Measuring Point Elevation	
Date Started:		Date Com						
10/15/2008		10/15/200		-1:-1.				NM
Completion Depth:		ENVIROT.		enust:				
47'		Amber Ke			<del></del>			<u> </u>
CONSTRUCTION	DEPTH	Reco-	Blow		-	200	L DESCRIPT	TION
(NTS)	(ft. below grade)		per	PID		501	IL DESCRIPT	ION
(1410)	(it. below grade)	(in.)	6 in.	(ppm)				
		(111.)	0 111.	(ppiii)	ì			
	0							
		1  ⊦	Hand dug	18.4	Land surface was as	phalt. Sand, o	orange-brown	, fine to medium grain, with gravel, dry,
			Ī		no odor.		_	
	_							
	5				1			
	8-10	24	NM	28.3	Sand, orange-brow	n, medium to	coarse ora	in, some cobbles, dry, no odor
						,	3	,
The state of the s	10							
		1			<b> </b>			
	40.45	1 40			0			
	13-15 15	19	NM	11.4	Sand, orange-brown	, coarse grain,	some cobble	es, slightly damp, no odor
	10				Sand, orange-brow	n. medium to	o coarse gra	in, some gravel, damp, no odor
		1			_		•	•
	18-20	18	NM	26.6	Sand, orange-brow	n, medium to	o coarse gra	in, some gravel, dry, no odor
	20	- 1			Sand orange-brow	ın fine to me	dium arain	trace gravel, damp, no odor
							-	•
	23-25	16	NM	6.3	Sand, orange-brow	n, medium to	o coarse gra	in, trace gravel, damp, no odor
	25				Sand, orange-brow	in fine to me	dium dama	no odor
					Joanu, Orange-brow	vii, iiiie to iiie	ululli, uallip	, 110 0001.
	28-30	18	NM	14.6	Sand, orange-brow	vn, medium to	o coarse gra	in, trace gravel, damp, no odor
	30	4			Cand arongs brown		-	trans are reliable to the reli
▼ 11 20 mm 11 Tel = 1					Saliu, Orange-blow	vii, line to me	ulum grain,	trace gravel, damp, no odor
	33-35	18	NM	26.7	Sand, gray and bro	own, medium	to coarse gi	rain, some gravel, wet, petroleum odor
	35				Cand assume have			
					Sand, orange-brow	vn, tine to me	dium grain,	trace gravel, damp, no odor
	38-40	24	NM	368	Sand, grav. coarse	grain, with o	ravel, rocks	, cobbles, wet, strong petroleum odor
	40				, 5, 27, 223, 9	J ,		,
					Sand, orange-brow	vn, fine to me	dium grain,	trace gravel, damp, no odor
100	43-45	20	NM	262.7	Sand dray coarse	to very coar	se orain we	t, strong petrolum odor
	45		1 4141	202.1	Jana, gray, coarse	. to very coal	oc grain, we	s, saong perolam oddi
- " - " - " - " - " - " - " - " - " - "	50							
	50	1						
LEGEND:								
					Well Construction I			
Cement						47' 45-47'		
Bentonite Sea						# 20 slot, 2",	schedule 40 F	PVC
					Casing material:	Schedule 40	PVC	
Gravel						5-10 feet belo	w grade	
pack (morie #2)					Sand Pack:	Morie #2		
Screen								
=								
End/Top Cap	ND	- Not Deter	ctod		NM - Not Monitored		DTW - Depth	- t- 14/-t

# **Geologic Log and Well Construction Details**

### Log of Air Sparge Well 3

EnviroTrac Ltd.
5 Old Dock Road, Yaphank, NY 11980

		3 (	JIU DOC	K NOa	d, Yaphank, NY	11300		
Client:				Depth to Water		Site Elevation Datum		
Hess Corporation						(fl. from me	asuring pt.)	
Site Name:		Address:				Date	DTW	l nm
Hess Station # 32518		2880 Atla	ntic Ave., I	Brooklyn	. NY	10/15/2008	~33'	
Drilling Company:		Method:		,		1	""	1
Associated Environmental Services			tem Auger					Macauring Daint Flavetics
Date Started:		Date Con			· ·	1		Measuring Point Elevation
10/16/2008		10/16/200						NM
Completion Depth:			TRAC Scie	entist:				
47'		Amber Ke	ennedy					
			SAMPLES					
CONSTRUCTION	DEPTH	Reco-	Blow			so	IL DESCRIPT	TON
(NTS)	(ft. below grade)	very	per	PID				
		(in.)	6 in.	(ppm)				
					<del></del>			<del></del>
	0							
	-	NM	Hand dug	58.6	Land surface was as	nhalf Dacks	and bricks of	pparent fill, sand, orange-brown,
	,	14141	riana aag	30.0	Land Surface was as	spirali. Rocks	and bricks - ap	pparent IIII, sand, orange-prown,
					medium grain, with	n gravei, dry,	no odor.	
	5	NM	NM	20.2	Sand aranga hear		:	
	ľ	IAIAI	IAIAI	20.2	Sand, Grange-brov	vii, mealum g	ıraın, some ç	gravel, dry, no odor
	10							
	- '° ——	NM	NM	150.2	<sub>1</sub>			
		i ''''	14141	100.2	*			
	15	NM	NM	45	Sand, orange-brown	, medium to co	oarse grain, so	ome gravel, dry, no odor.
					ľ			3,,
	20							
		NM	NM	120.1	↓			
	05							
	25	NM	NM	64.4	Sand, orange-brov	vn, medium t	o coarse gra	in, trace gravel, damp, no odor
	30							
	- " —	NM	NM	72.7	lı			
▼		''''	7 11 11		*			
	35	NM	NM	317	Sand, orange-brov	vn and gray,	medium to c	oarse grain, trace gravel, damp,
					petroleum odor.	- •		
	40							
		NM	NM	1,344	Sand, gray and so	me orange-b	rown, coarse	e to very coarse grain, damp, stronç
					petroleum odor.			
	45							
	40							
	50							
	- <sup>30</sup>							
LEGEND:								
					Well Construction	Details		
Cement					Bottom of Well:	47'		
					Screen Zone:	45-47'		
Bentonite Seal					Screen material:	# 20 slot, 2", s		VC
h					Casing material:	Schedule 40 I	PVC	
Gravel					Bentonite Seal:	5-10 feet belo	w grade	
pack (morie #2)					Sand Pack:	Morie #2		
B c								
Screen								
End/Top Cap	_	- Not Dete			NM - Not Monitored		DTW - Depth	