

**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
Wells Containing LPH: None
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 ¾ 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.)

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Hess Contact: John Schenkewitz	

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

*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	Date	Gauge Pt. Elevation (feet)	Depth to Water (fbg)	Product Depth (fbg)	Product Thickness (feet)	Water Level Elevation (feet)	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Xylenes (ug/L)	BTEX (ug/L)	MTBE (ug/L)
MW-1	3/23/1999 ^a	39.26	33.00			6.26	14	1,200	650	7,700	9,564	14
	3/13/2000 ^b	39.26	33.60			5.66	2.4	3,300	2,300	16,000	21,602.4	6.2
	11/20/2007	39.26	34.04			5.22	<10	11	420	1,980	2,411	<10
	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	597	4,230	4,865.1	ND
	11/19/2008	39.26	33.72			5.54	<1.3	51.5	819	5,170	6,041	ND
MW-2	3/23/1999 ^{ac}	38.30	30.03			8.27	ND	ND	ND	ND	ND	800
	7/26/1999 ^b	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	ND
	7/2/2008	38.30	32.96			5.34	<1.0	ND	ND	ND	<MDL	ND
	11/19/2008	38.30	32.69			5.61	ND	ND	ND	ND	ND	ND
MW-3	3/23/1999 ^a	36.69	30.35			6.34	ND	ND	ND	ND	ND	2.3
	3/13/2000 ^b	36.69	30.95			5.74	ND	1.2	1.7	12	14.9	3.4
	11/20/2001 ^c	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	ND
	7/2/2008	36.69	31.30			5.39	<1.0	ND	ND	ND	<MDL	ND
	11/19/2008	36.69	31.00			5.69	ND	ND	ND	ND	ND	ND
MW-4	3/23/1999 ^{ab}	38.69	32.40			6.29	9	8.5	690	6,100	6,807.5	33
	7/15/2002 ^c	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	2/23/2000 ^{ab}	39.37	33.80			5.57	26	22	780	3,600	4,428	17
	11/26/2002 ^c	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 ^a	38.95	33.21			5.74	7.9	68	780	2,300	3,155.9	140
	7/24/2000 ^c	38.95	32.16			6.79	21	150	1,200	5,400	6,771	180
	1/24/2004 ^b	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 ^a	38.99	33.29			5.70	1	1	9.1	6.4	17.5	<1
	7/16/2001 ^b	38.99	33.18			5.81	<0.5	<1	10	39	49	<1
	7/15/2002 ^c	38.99	34.12			4.87	<1	<1	<1	<2	<MDL	1.3
	11/20/2007	38.99	33.99			5.00	<1	<1	<1	<3	ND	<1
	3/28/2008	38.99	33.81			5.18	<1.0	ND	ND	ND	<MDL	ND
	7/2/2008	38.99	33.90			5.09	<1.0	ND	ND	ND	<MDL	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

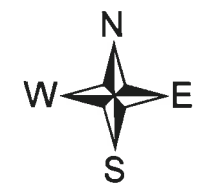


Figure 1
Aerial Photograph

Hess Station 32518
2880 Atlantic Avenue
Brooklyn, NY

Digital Imagery taken in
2002-2004

0 30 60 120 180 240 Feet



EnviroTrac

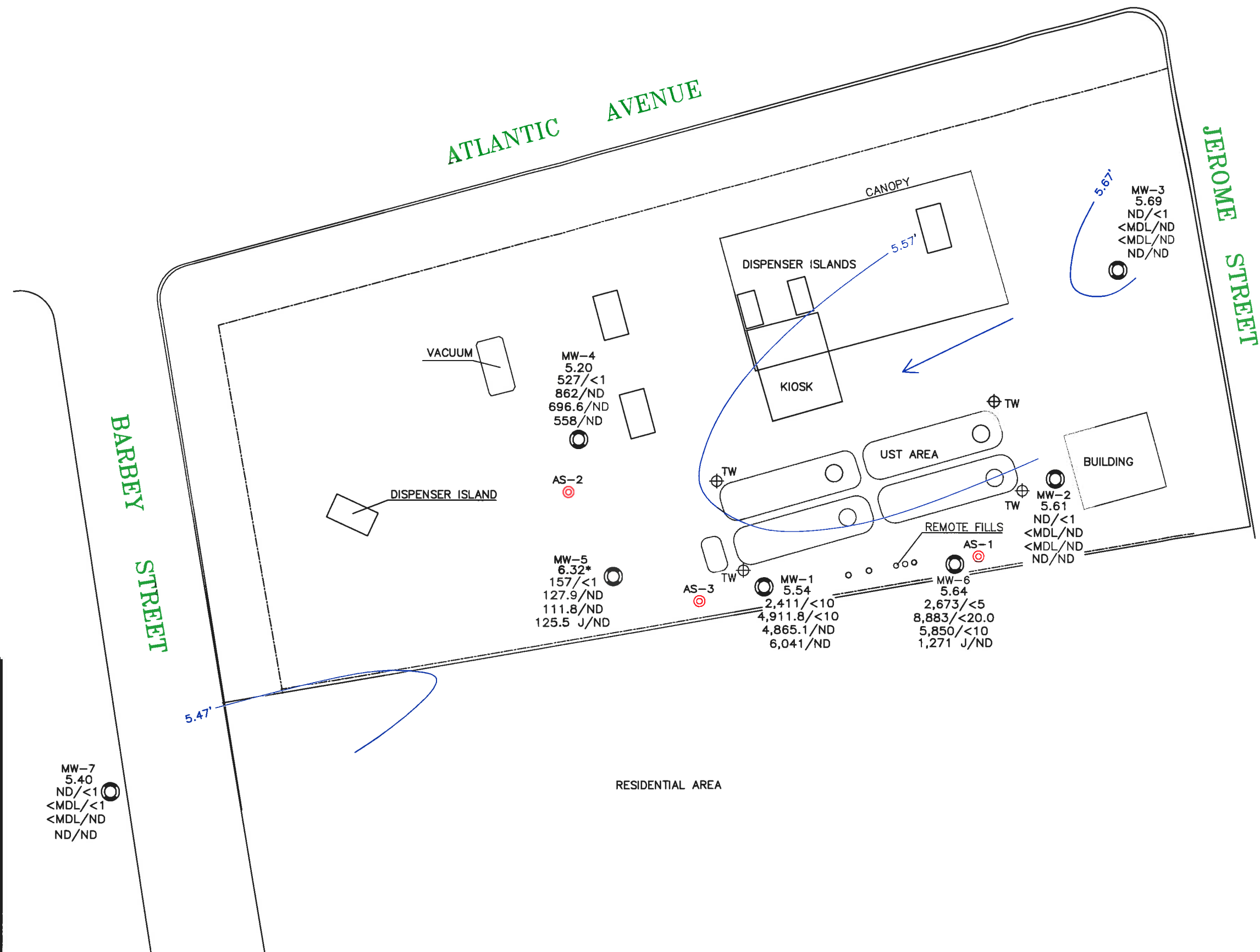
Environmental Services

5 Old Dock Road

Yaphank, NY 11980

P: 631-924-3001 F: 631-924-5001





LEGEND:

- MONITORING WELL
- ⊕ TANK FIELD WELL
- ⊙ AIR SPARGE WELL

ND = NOT DETECTED
MDL = METHOD DETECTION LIMIT
CONTOUR INTERVAL = 0.10 FEET
* NOT INCLUDED IN CONTOUR CALCULATION

INFERRED GROUND WATER
FLOW DIRECTION

SAMPLE WELL:

○ MW-1 = MONITORING WELL ID
5.54 = WATER-TABLE ELEVATION
2,411/<10 = NOVEMBER 20, 2007
4,911.8/<10 = MARCH 28, 2008
4,865.1/ND = JULY 2, 2008
6,041/ND = NOVEMBER 19, 2008

TOTAL BTEX/MTBE CONCENTRATIONS IN ug/L

Base map taken from DELTA map dated 12/28/07



5 OLD DOCK ROAD, YAPHANK, NEW YORK 11980
PHONE: (631)924-3001 FAX: (631)924-5001



REVISION DATE:
JANUARY 12, 2009

SCALE:
1" = 30 FEET

REVISED BY: TB



HESS STATION # 32518
2880 ATLANTIC AVENUE
BROOKLYN, NEW YORK

WATER-TABLE ELEVATION ON NOVEMBER 19, 2008
AND TOTAL BTEX/MTBE CONCENTRATIONS MAP

FIGURE #

2

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

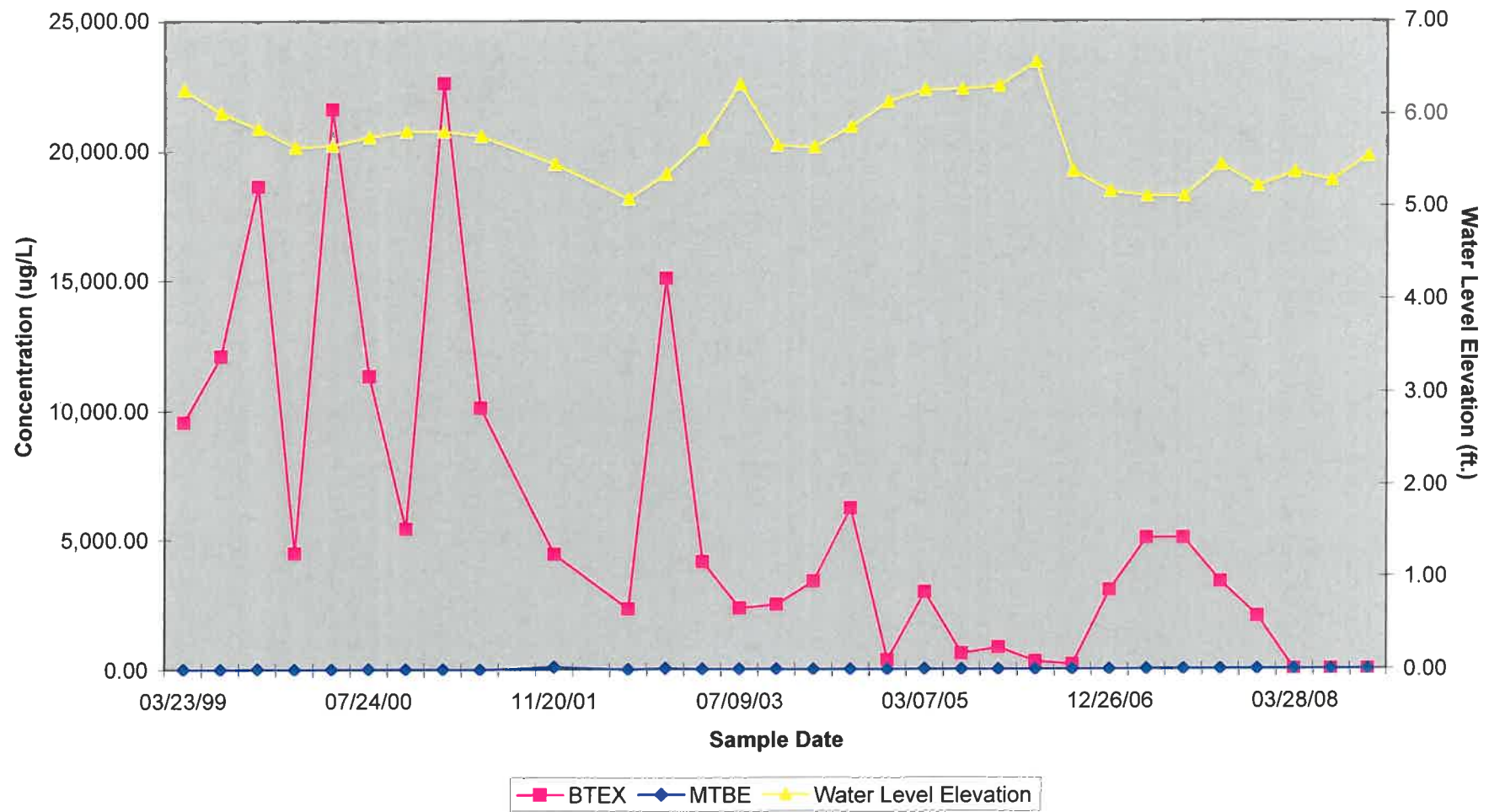


FIGURE 4
Hydrograph of MW-2
Hess Station #32518
2880 Atlantic Avenue
Brooklyn, NY

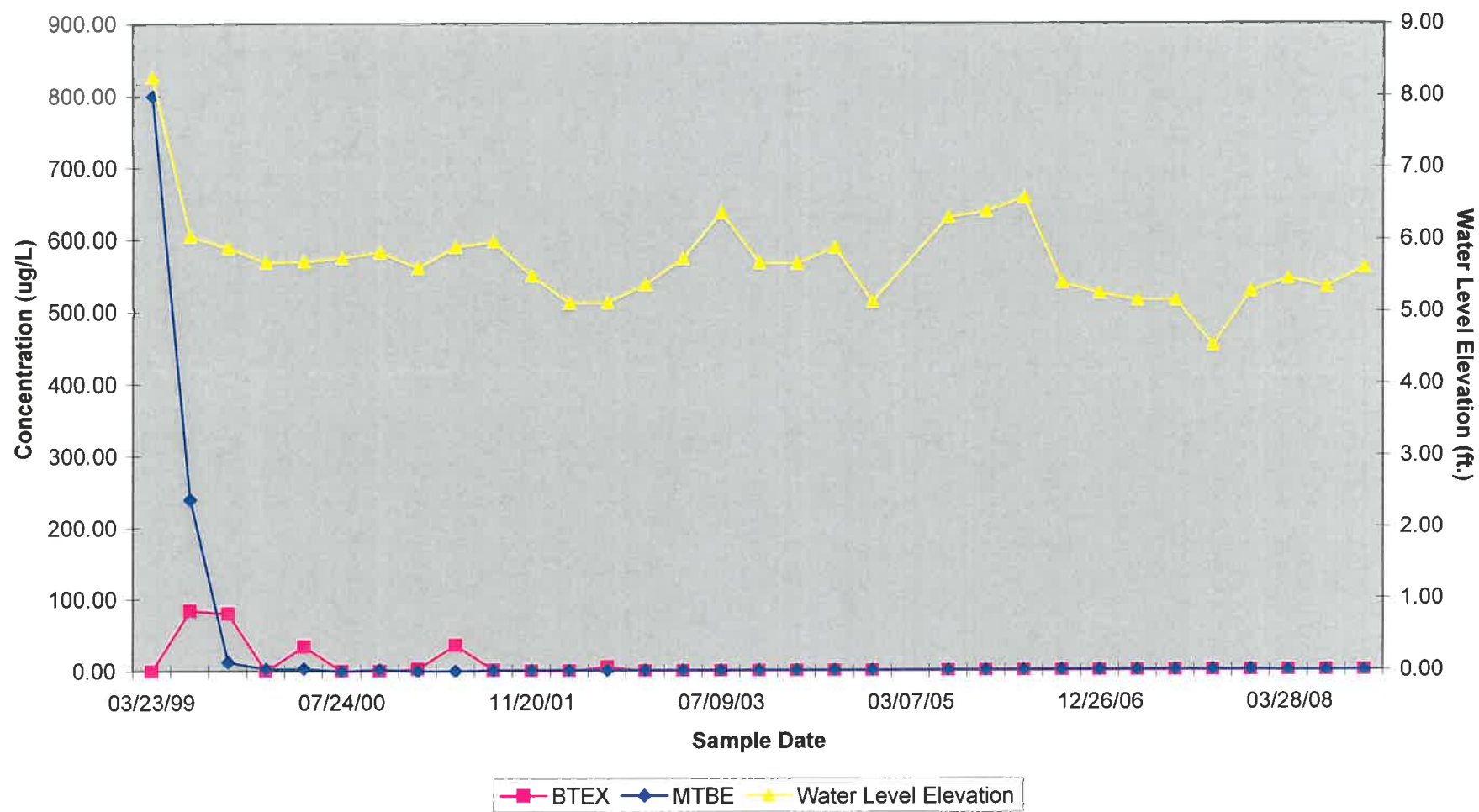


FIGURE 5
Hydrograph of MW-4
Hess Station #32518
2880 Atlantic Avenue
Brooklyn, NY

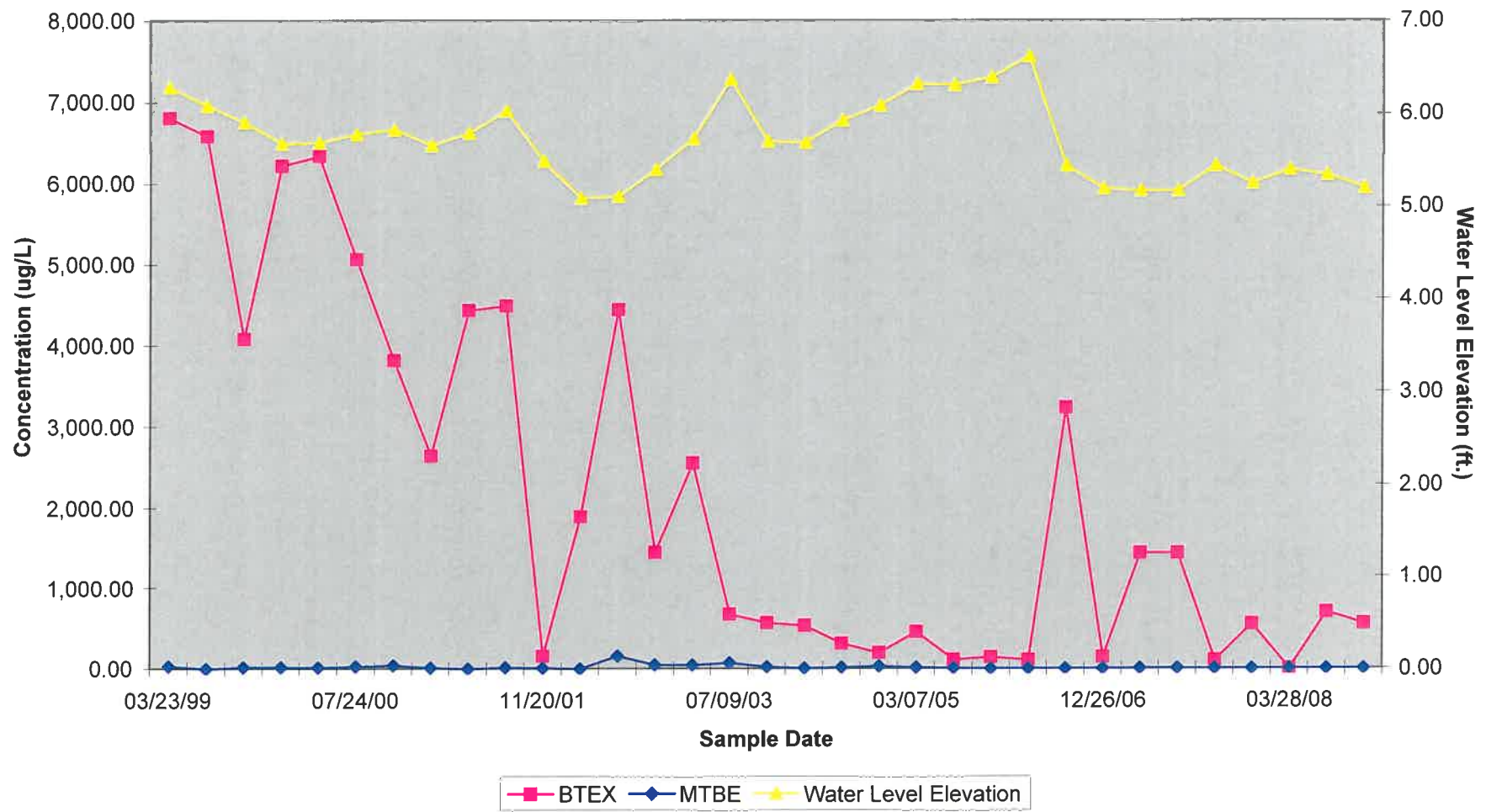


FIGURE 6
Hydrograph of MW-5
Hess Station #32518
2880 Atlantic Avenue
Brooklyn, NY

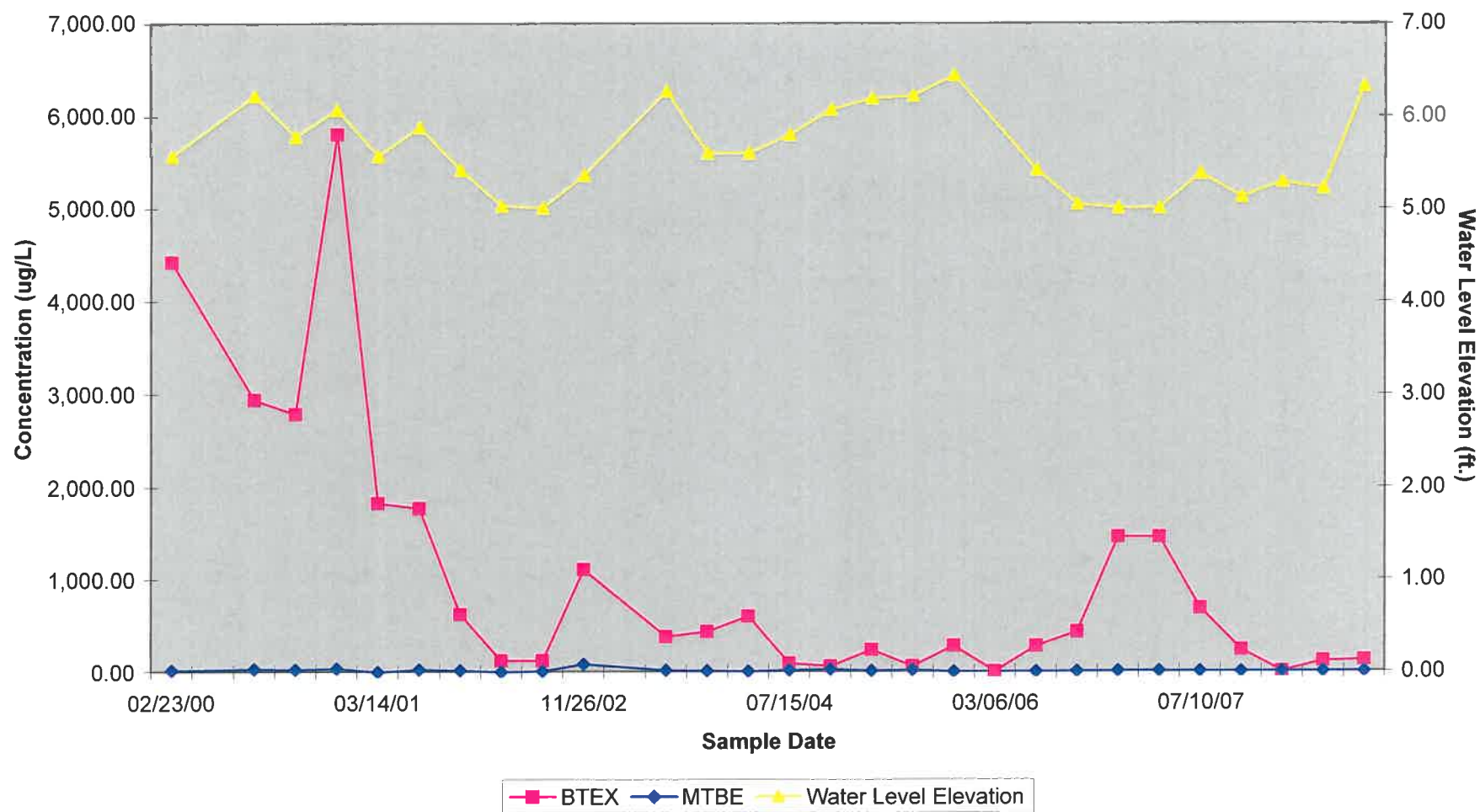
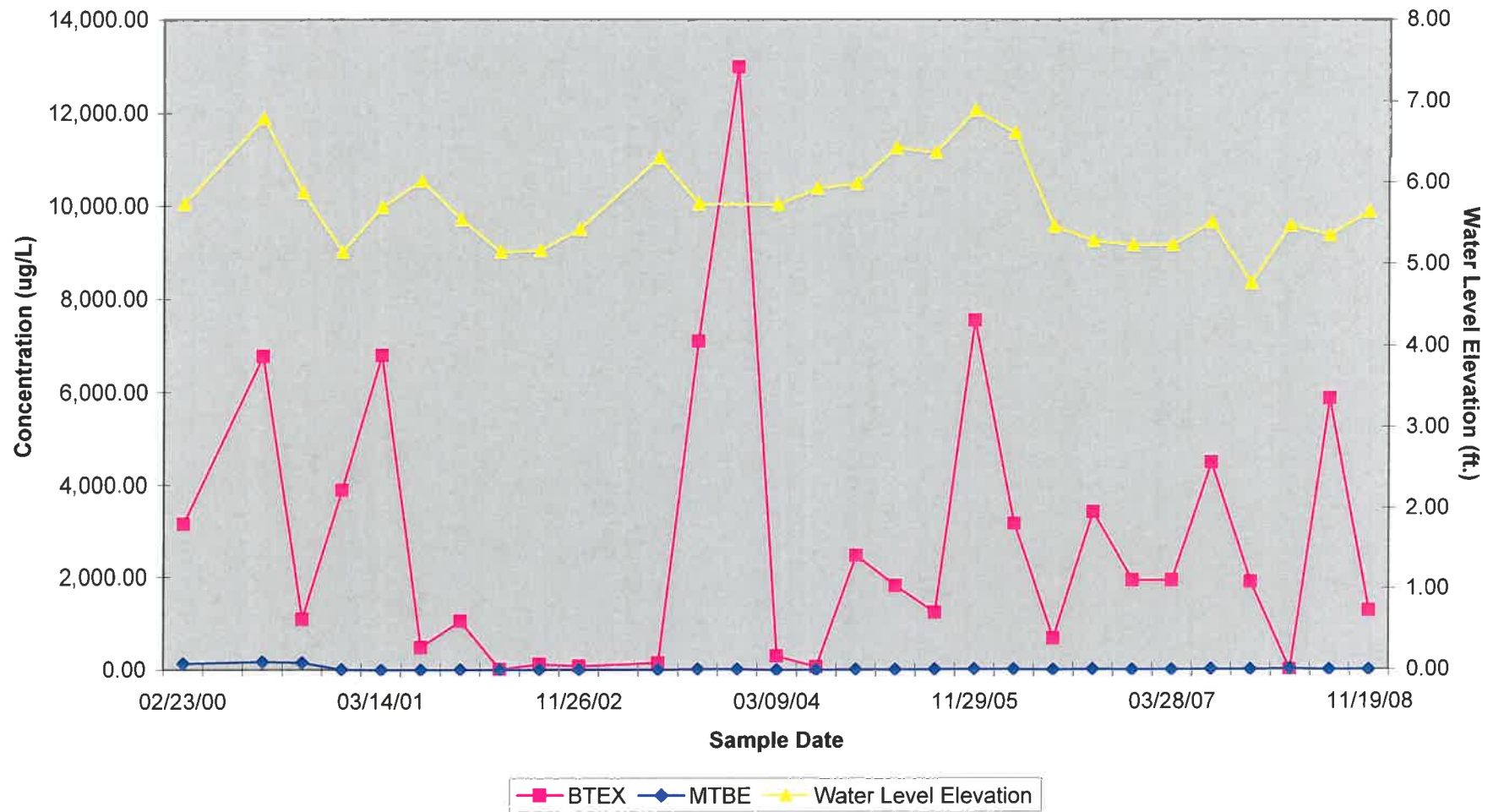


FIGURE 7
Hydrograph of MW-6
Hess Station #32518
2880 Atlantic Avenue
Brooklyn, NY



Geologic Log and Well Construction Details

Log of Air Sparge Well 1

EnviroTrac Ltd.

5 Old Dock Road, Yaphank, NY 11980

Client: Hess Corporation		Depth to Water (ft. from measuring pt.)		Site Elevation Datum	
Site Name: Hess Station # 32518		Address: 2880 Atlantic Ave., Brooklyn, NY		Date 10/15/2008	DTW ~33'
Drilling Company: Associated Environmental Services		Method: Hollow Stem Auger		Measuring Point Elevation	
Date Started: 10/15/2008		Date Completed: 10/15/2008		NM	
Completion Depth: 47'		ENVIROTRAC Scientist: Amber Kennedy		NM	

CONSTRUCTION (NTS)	DEPTH (ft. below grade)	SAMPLES			SOIL DESCRIPTION
		Reco- very (in.)	Blow per 6 in.	PID (ppm)	
	0		Hand dug		Land surface was asphalt. Asphalt, concrete, bricks - apparent fill, sand, orange-brown, medium grain, some gravel, dry, no odor
	5				Sand, orange-brown, medium to coarse grain, some gravel, dry, no odor
	8-10	20	NM	0	Sand, orange-brown, medium to coarse grain, and cobbles, some gravel dry, no odor.
	10				↓
	13-15	19	NM	0	Sand, orange-brown, medium to coarse grain, some gravel, dry, no odor
	15				↓
	18-20	17	NM	0	↓
	20				Sand, orange-brown, medium to coarse grain, some gravel, damp, no odor
	23-25	20	NM	0	↓
	25				↓
	28-30	17	NM	3.2	Sand, orange-brown, medium to very coarse grain, some gravel, damp, no odor
	30				Sand, orange-brown, medium to coarse grain, some gravel, damp, no odor
33-35	17	NM	418	Top 11" Sand, orange-brown, medium to coarse grain, some gravel, damp, no odor Lower 6" Sand, gray, medium to coarse grain, wet, strong petroleum odor	
35					
38-40	24	NM	131.6	Sand, orange-brown, coarse to very coarse, with gravel, wet, petroleum odor	
40					
43-45	24	NM	8.5	Sand, orange-brown, medium to coarse grain, some gravel, damp, no odor.	
45					
50					

LEGEND:

- Cement
- Bentonite Seal
- Gravel pack (morie #2)
- Screen
- End/Top Cap

Well Construction Details

Bottom of Well: 47'

Screen Zone: 45-47'

Screen material: # 20 slot, 2", schedule 40 PVC

Casing material: Schedule 40 PVC

Bentonite Seal: 5-10 feet below grade

Sand Pack: Morie #2

ND - Not Detected

NM - Not Monitored

DTW - Depth to Water

Geologic Log and Well Construction Details

Log of Air Sparge Well 2

EnviroTrac Ltd.

5 Old Dock Road, Yaphank, NY 11980

Client: Hess Corporation		Depth to Water (ft. from measuring pt.)		Site Elevation Datum	
Site Name: Hess Station # 32518		Address: 2880 Atlantic Ave., Brooklyn, NY		Date 10/15/2008	DTW ~33'
Drilling Company: Associated Environmental Services		Method: Hollow Stem Auger		Measuring Point Elevation	
Date Started: 10/15/2008		Date Completed: 10/15/2008		NM	
Completion Depth: 47'		ENVIROTRAC Scientist: Amber Kennedy		NM	
CONSTRUCTION (NTS)	DEPTH (ft. below grade)	SAMPLES			SOIL DESCRIPTION
		Reco- very (in.)	Blow per 6 in.	PID (ppm)	
	0		Hand dug	18.4	Land surface was asphalt. Sand, orange-brown, fine to medium grain, with gravel, dry, no odor.
	5				
	8-10	24	NM	28.3	Sand, orange-brown, medium to coarse grain, some cobbles, dry, no odor
	10				↓
	13-15	19	NM	11.4	Sand, orange-brown, coarse grain, some cobbles, slightly damp, no odor
	15				Sand, orange-brown, medium to coarse grain, some gravel, damp, no odor
	18-20	18	NM	26.6	Sand, orange-brown, medium to coarse grain, some gravel, dry, no odor
	20				Sand, orange-brown, fine to medium grain, trace gravel, damp, no odor
	23-25	16	NM	6.3	Sand, orange-brown, medium to coarse grain, trace gravel, damp, no odor
	25				Sand, orange-brown, fine to medium, damp, no odor.
	28-30	18	NM	14.6	Sand, orange-brown, medium to coarse grain, trace gravel, damp, no odor
	30				Sand, orange-brown, fine to medium grain, trace gravel, damp, no odor
	33-35	18	NM	26.7	Sand, gray and brown, medium to coarse grain, some gravel, wet, petroleum odor
	35				Sand, orange-brown, fine to medium grain, trace gravel, damp, no odor
	38-40	24	NM	368	Sand, gray, coarse grain, with gravel, rocks, cobbles, wet, strong petroleum odor
	40				Sand, orange-brown, fine to medium grain, trace gravel, damp, no odor
	43-45	20	NM	262.7	Sand, gray, coarse to very coarse grain, wet, strong petroleum odor
	45				
	50				
LEGEND:		<p> Cement</p> <p> Bentonite Seal</p> <p> Gravel pack (morie #2)</p> <p> Screen</p> <p> End/Top Cap</p>			
		<p><u>Well Construction Details</u></p> <p>Bottom of Well: 47'</p> <p>Screen Zone: 45-47'</p> <p>Screen material: # 20 slot, 2", schedule 40 PVC</p> <p>Casing material: Schedule 40 PVC</p> <p>Bentonite Seal: 5-10 feet below grade</p> <p>Sand Pack: Morie #2</p>			
		<p>ND - Not Detected NM - Not Monitored DTW - Depth to Water</p>			

Geologic Log and Well Construction Details

Log of Air Sparge Well 3

EnviroTrac Ltd.

5 Old Dock Road, Yaphank, NY 11980

Client: Hess Corporation		Depth to Water (ft. from measuring pt.)		Site Elevation Datum	
Site Name: Hess Station # 32518		Address: 2880 Atlantic Ave., Brooklyn, NY		Date 10/15/2008	DTW ~33'
Drilling Company: Associated Environmental Services		Method: Hollow Stem Auger		Measuring Point Elevation	
Date Started: 10/16/2008		Date Completed: 10/16/2008		NM	
Completion Depth: 47'		ENVIROTRAC Scientist: Amber Kennedy		NM	

CONSTRUCTION (NTS)	DEPTH (ft. below grade)	SAMPLES			SOIL DESCRIPTION
		Reco- very (in.)	Blow per 6 in.	PID (ppm)	
	0	NM	Hand dug	58.6	Land surface was asphalt. Rocks and bricks - apparent fill, sand, orange-brown, medium grain, with gravel, dry, no odor.
	5	NM	NM	20.2	Sand, orange-brown, medium grain, some gravel, dry, no odor
	10	NM	NM	150.2	↓
	15	NM	NM	45	Sand, orange-brown, medium to coarse grain, some gravel, dry, no odor.
	20	NM	NM	120.1	↓
	25	NM	NM	64.4	Sand, orange-brown, medium to coarse grain, trace gravel, damp, no odor
	30	NM	NM	72.7	↓
	35	NM	NM	317	Sand, orange-brown and gray, medium to coarse grain, trace gravel, damp, petroleum odor.
	40	NM	NM	1,344	Sand, gray and some orange-brown, coarse to very coarse grain, damp, strong petroleum odor.
	45				
	50				

LEGEND:

- Cement
- Bentonite Seal
- Gravel pack (morie #2)
- Screen
- End/Top Cap

Well Construction Details

Bottom of Well: 47'

Screen Zone: 45-47'

Screen material: # 20 slot, 2", schedule 40 PVC

Casing material: Schedule 40 PVC

Bentonite Seal: 5-10 feet below grade

Sand Pack: Morie #2

ND - Not Detected

NM - Not Monitored

DTW - Depth to Water