Appendix B

Hydrogeologic Information

- Appendix B-1 Boring Logs and Well Construction Diagrams Used for Cross-section
- Appendix B-2 Other Boring Logs and Well Construction Diagrams
- Appendix B-3 Table of Well Construction Info and March 2012 to April 2014 Water Levels

Appendix B-1

Boring Logs and Well Construction Diagrams Used for Cross-section

BORING LOG

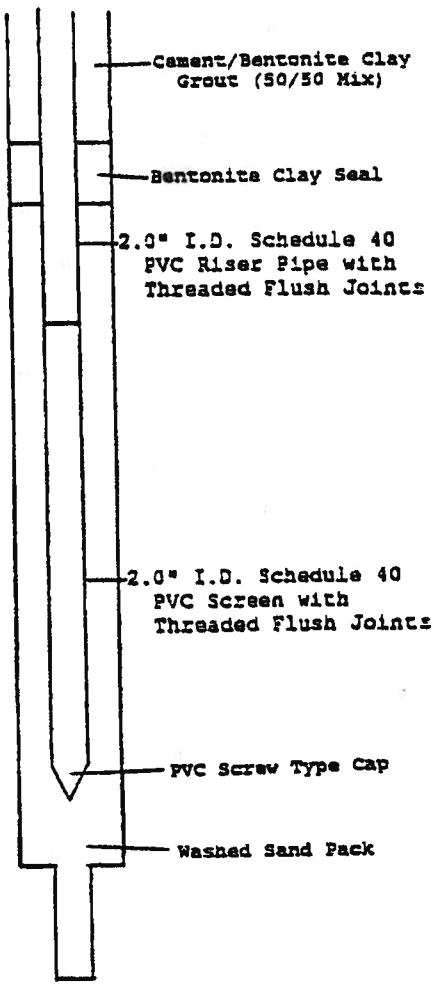
HYDRO-TERRA

Project: East Station Contaminant Investigation - Phase II.
Test Boring No. 16 (MW4) Elevation 5.7' Date May 19, 1988.
Location: Next to the Anacostia River, East of Stueart Petroleum's pipelines, 102' East and 61' North of G-8.

Ft.	A	B	Ground Surface
	S-1	9	Gray and Red SILTY SAND FILL, Trace Brick Fragments, Cinders and Gravel, Moist, No Volatile Odor
2			
4	S-2	11	
6	S-3	93	
8			
	S-4	16	Black CINDER and SHALE FILL, Coarse, Saturated, Very Loose, Visible Tar/Oil, Fuel Oil Odor
10			
	S-5	16	
12			
14	S-6	2	Gray ORGANIC SILT, Moist, Very Soft, No Evidence of Contamination
16	S-7	ST	Stopped at 16.0'
18			
20			

Notes:

1. Inspected and logged by Scott Sandberg
2. Drilled by National Foundation Engineering (Driller: Richard Sies)



"A" - Depth of lower limit of split barrel sample, bottom of core run, or depth of RQD

"B" - Blows for last 12 in. (except as noted) on split barrel sampler, or % of core recovery

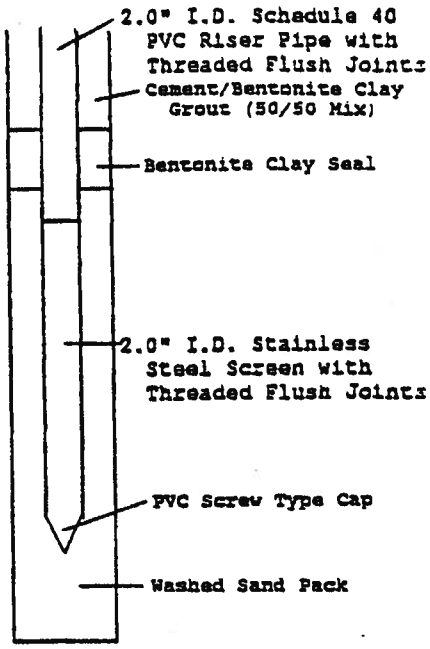
Ground Water Measurements		
Date	Elapsed Hrs.	Depth
5/19	1	4.5'
1/13/89		8.58'

BORING LOG

HYDRO-TERRA

Project: East Station Contaminant Investigation - Phase II.
Test Boring No. 17 (MW5) Elevation 3.9' Date June 7, 1988.
Location: Next to the Anacostia River just east of the Wash. Gas Pumphouse property, 75' East and 44' North of F-7.

Ft.	A	B	Description
			Ground Surface
	S-1	9	Red-Brown SILTY SAND and GRAVEL FILL, Trace Cinder, Dry, No Volatile Odor
2			
			3.7'
4	S-2	18	Black CINDER and SHALE FILL, Coarse, Very Loose, Saturated, Visible Tar/Oil, Fuel Oil Odor
6	S-3	4	
			7.0'
8	S-4	WOR	Gray ORGANIC SILT, Trace Sand and Gravel, Moist, Soft, No Evidence of Contamination
10			
	S-5	2	
12			Stopped at 11.5'
14			Notes: 1. Inspected and logged by Scott Sandberg 2. Drilled by National Foundation Engineering (Driller: Richard Sies).
16			
18			
20			



"A" - Depth of lower limit of split barrel sample, bottom of core run, or depth of RQD
"B" - Blows for last 12 in. (except as noted) on split barrel sampler, or % of core recovery

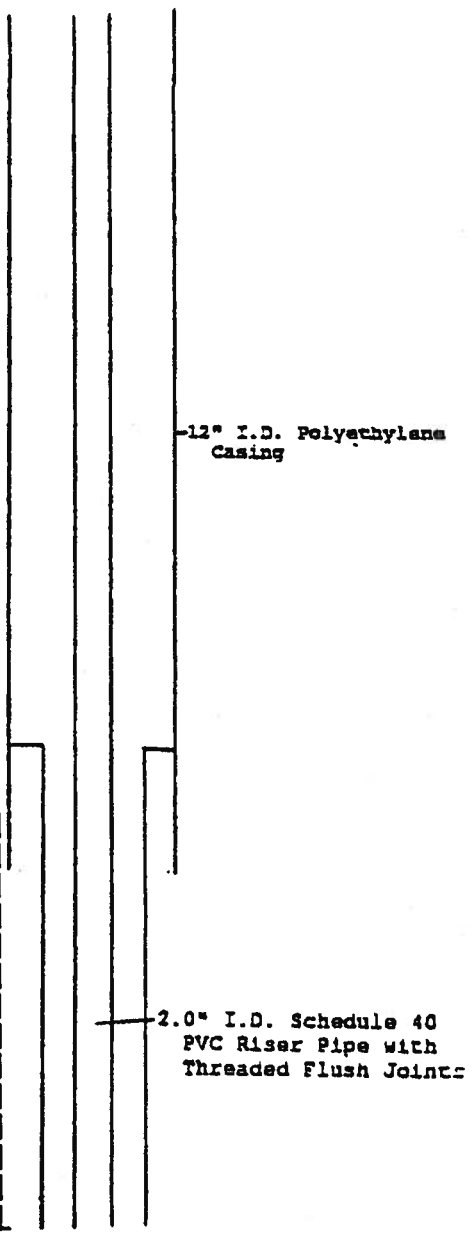
Ground Water Measurements		
Date	Elapsed Hrs.	Depth
1/13/89		6.5'

BORING LOG

HYDRO-TERRA

Project: East Station Contaminant Investigation - Phase II.
Test Boring No. 18 (MW6) Elevation 3.8' Date May 25 & 26, 1988.
Location: Next to the Washington Gas Pump House, 73' West and 73' South of F-7.

Ft.	A	B	
			Ground Surface
	S-18	8	
2			Black and Brown SAND and GRAVEL FILL, Wet, Loose, Visible Tar/Oil below the water table
4	S-19	8	
6	S-20	6	6.0'
8	S-21	2	
10	S-22	2	Gray ORGANIC SILT, Trace Black Organic Material, Plant Fragments and Shell Fragments, Moist, Soft, Possible Tar/Oil Contamination in the first 4'
12			
14	S-23	2	
16			
18	S-24	ST	
	S-1	5	
20			Continued



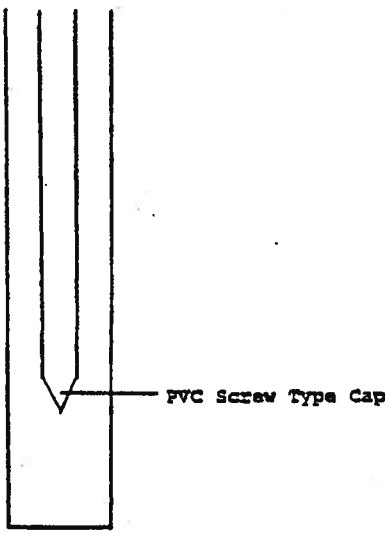
"A" - Depth of lower limit of split barrel sample, bottom of core run, or depth of RQD
"B" - Blows for last 12 in. (except as noted) on split barrel sampler, or % of core recovery

Ground Water Measurements		
Date	Elapsed Hrs.	Depth
5/26	16	2'
1/11/89		4.58'

Ft.	A	B	
			Continued
22	S-2	6	
24	S-3	7	
26	S-4	7	
28	S-5	9	
30	S-6	6	
32	S-7	10	
34			
36	S-8	15	36.0'
38	S-9	13	Gray to Dark Gray ORGANIC SILTY SAND, Trace Wood Fragments, Wet,
40	S-10	--	Gray Brown SAND, Fine to Medium Grained, Wet, Loose, No Evidence of Contamination
42			
44	S-11	>50	43.5' Yellow SAND and GRAVEL, Medium to Coarse Grained, Very Loose, No Evidence of Contamination
46	S-12	>50	
48			Continued

Test Boring No. 18.
Sheet 3 of 3.

Ft.	A	B	Continued
			48.5'
	S-13	24	
50			Mottled Yellow, Brown and Red CLAY, CLAYEY SILT and CLAYEY SAND, Varved Texture, Moist, Dense, No Evidence of Contamination
52	S-14	ST	
54	S-15	92	
56	S-16	92	
			56.5'
58			Notes:
60			1. Inspected and logged by Frank Anderson and Scott Sandberg
			2. Drilled by National Foundation Engineering (Driller: Richard Sies)
62			3. Drillers experienced running sand between the depths of 40' to 50'.
64			
66			
68			
70			
72			
74			
76			

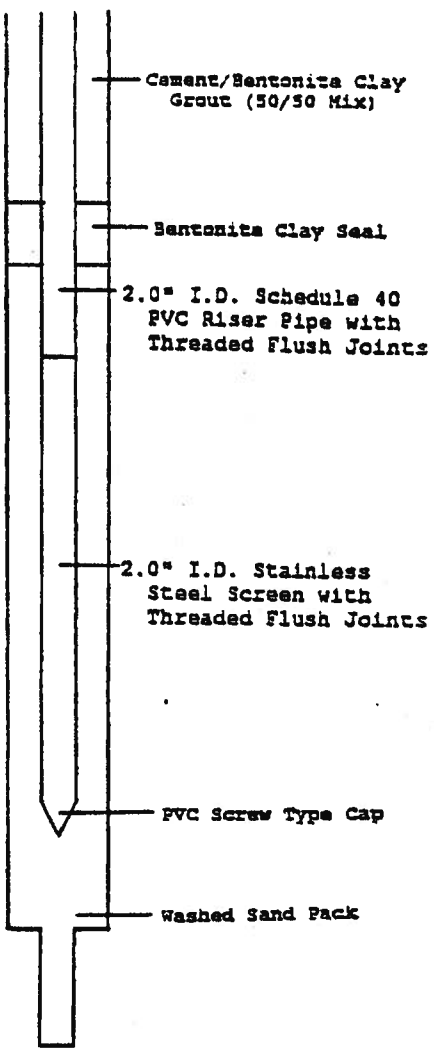


BORING LOG

HYDRO-TERRA

Project: East Station Contaminant Investigation - Phase II.
Test Boring No. 19 (MW7) Elevation 6.1' Date May 17, 1988.
Location: In the D.C. Government Parking area next to the Anacostia River, 67' East and 20' South of E-5.

Ft.	A	B	
			Ground Surface
	S-1	3	
2			
			Black CINDER FILL, Some Sand and Gravel, Trace Brick Fragments and Shells, Moist, No Contamination Odor
4	S-2	44	
6	S-3	25	
8	S-4	13	
			9.5'
10			Black CINDER FILL, Saturated, Very Loose, Visible Tar/Oil
			11.0'
	S-5	10	
12			Gray ORGANIC SILT, Trace Wood Fragments, Moist, Plastic, No evidence that contamination is moving through the silt
14	S-6	ST	
16			
	S-7	ST	
			Stopped at 17.0'
18			
20			Continued



"A" - Depth of lower limit of split barrel sample, bottom of core run, or depth of RQD
"B" - Blows for last 12 in. (except as noted) on split barrel sampler, or % of core recovery

Ground Water Measurements		
Date	Elapsed Hrs.	Depth
1/13/89		9.75'

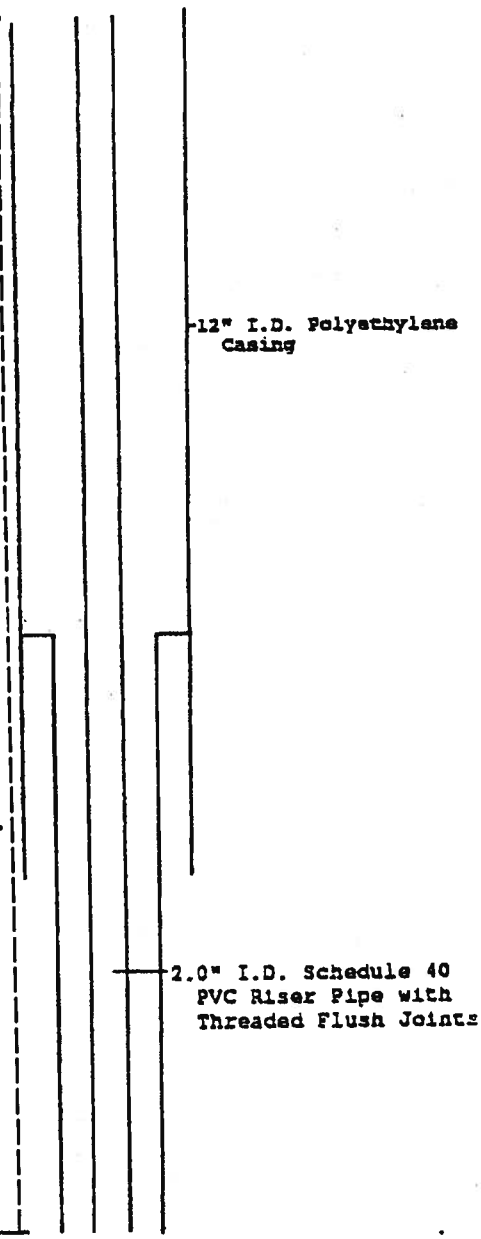
Ft.	A	B	Continued
22			Notes: 1. Inspected and logged by Scott Sandberg. 2. Drilled by National Foundation Engineering (Driller: Richard Sies)
24			
26			
28			
30			
32			
34			
36			
38			
40			
42			
44			
46			
48			

BORING LOG

HYDRO-TERRA

Project: East Station Contaminant Investigation - Phase II.
Test Boring No. 20 (MW8) Elevation 7.2' Date May 31 & June 2, 1988.
Location: East of the 11th street bridge, 55' West and 103' South of E-5.

Ft.	A	B	Description
			Ground Surface
	S-18	5	Red CLAYEY SAND and GRAVEL FILL, Some Cinders, Dry to Moist, Dense, Slight Volatile odor
2			
4	S-19	20	
6	S-20	34	
8	S-21	37	
10			Black CINDER and SAND FILL, Some Organic Silt, Trace Plant Material, Wet, Loose, Visible Coal Tar
12	S-22	6	
14	S-23	27	Light and Dark Gray ORGANIC SILT, Trace Plant and Shell Fragments, Moist, Plastic, No Evidence of Contamination
16	S-1	2	
18	S-2	8	
20			Continued



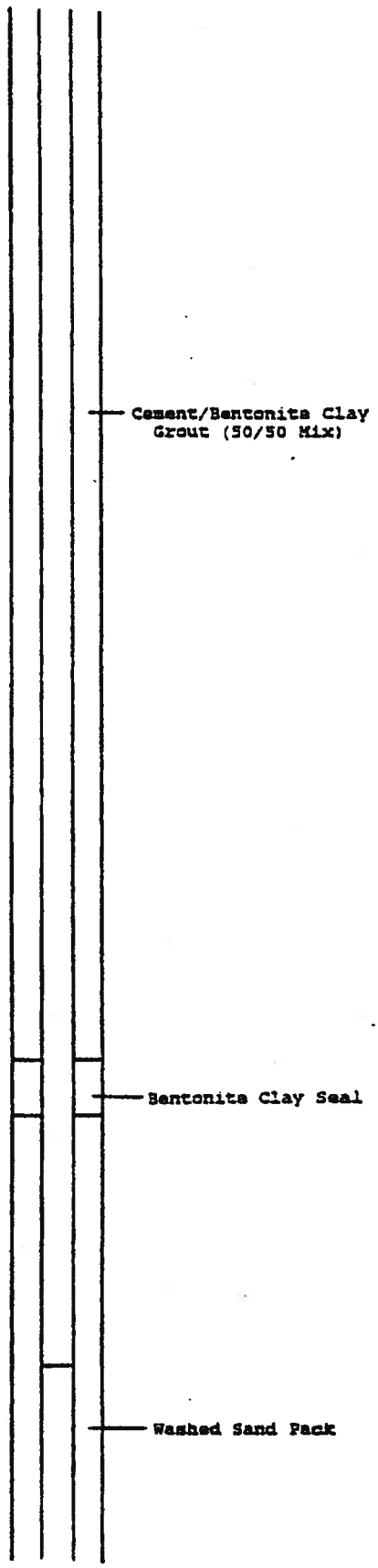
"A" - Depth of lower limit of split barrel sample, bottom of core run, or depth of RQD

"B" - Blows for last 12 in. (except as noted) on split barrel sampler, or % of core recovery

Ground Water Measurements		
Date	Elapsed Hrs.	Depth
1/13/89		10.75'

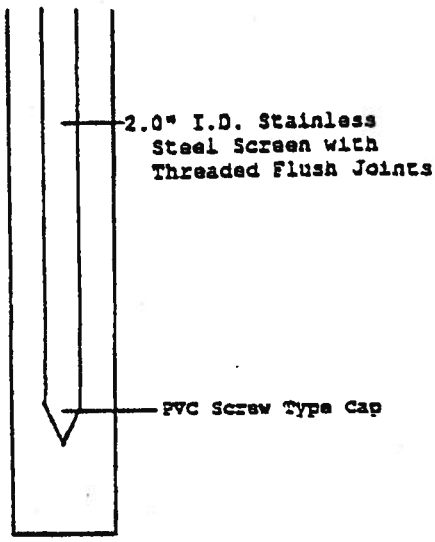
Test Boring No. 20.
Sheet 2 of 3.

Ft.	A	B	
			Continued
	S-3	7	
22			
	S-4	30	
24			
	S-5	24	
26			
	S-6	12	
28			
	S-7	13	
30			
	S-8	22	
32			
	S-9	14	
34			
	S-10	14	
36			
	S-11	10	41.0'
38			Dark Gray ORGANIC SILTY SAND, Wet, Loose, No Evidence of Contamination
	S-12	17	
40			
	S-13	30	46.0'
42			
44			
46			
48			Continued



Test Boring No. 20.
Sheet 3 of 3.

Ft.	A	B	Continued
50	S-14	10	White and Yellow SAND and GRAVEL, Medium to Coarse Grained, Very Loose, Saturated, No Evidence of Contamination
52	S-15	29	
			53.5'
54	S-16	50	Brown-Red CLAYEY SAND, Dense, Moist, No Evidence of Contamination
			56.0'
56	S-17	24	Mottled Red, Green and Yellow CLAY, Hard, Some Varved Clay, Silt and Sand
58			Stopped at 56.5'
60			Notes:
62			1. Inspected and logged by Scott Sandberg
64			2. Drilled by National Foundation Engineering (Driller: Richard Sies)
66			3. From 45' to 55' drillers had clean white sand running up the augers
68			
70			
72			
74			
76			

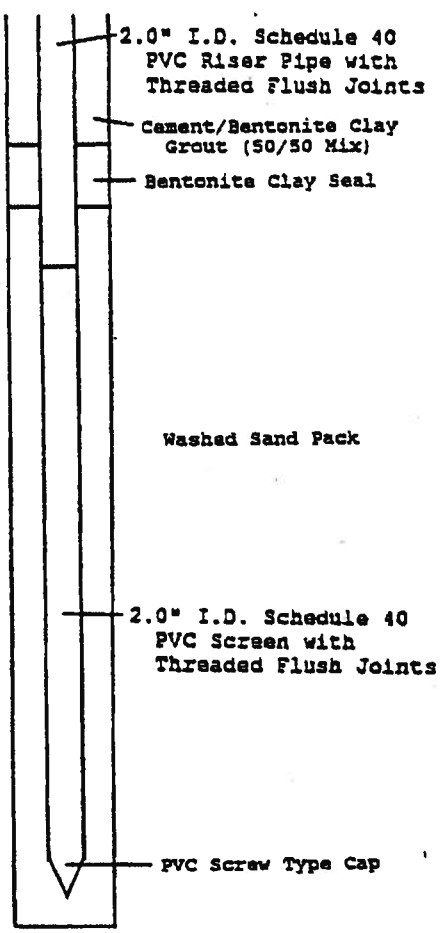


BORING LOG

HYDRO-TERRA

Project: East Station Contaminant Investigation - Phase II.
Test Boring No. 21 (MW9) Elevation 8.1' Date June 7, 1988.
Location: Just west on the abandoned sewer, 20' from the Anacostia River, 70' West and 85' South of D-4.

Ft.	A	B	Description
			Ground Surface
	S-1	5	Black and Brown CINDER FILL, Little Brick and Sand, Trace Glass, Dry
2			
			3.5'
4	S-2	8	Mottled Red and Yellow CLAY FILL, Moist, Plastic
6	S-3	9	Yellow and Brown CLAY FILL, Trace Cinders, Brick Fragments and Gravel, No Evidence of Contamination
8	S-4	4	
10			11.0'
	S-5	6	Gray ORGANIC SILTY SAND, Trace Brick and Shell Fragments, Fine Grained, Wet, Loose, Slight Tar Odor
12			13.5'
14	S-6	4	Gray ORGANIC CLAYEY SILT, Trace Sand Seams and Gravel, Moist, Plastic, No Volatile Odor
16	S-7	4	
			Stopped at 16.5'
18			
20			Continued



"A" - Depth of lower limit of split barrel sample, bottom of core run, or depth of RQD
"B" - Blows for last 12 in. (except as noted) on split barrel sampler, or % of core recovery

Ground Water Measurements		
Date	Elapsed Hrs.	Depth
6/14		8'
1/12/89		10.5'

Ft.	A	B	Continued
22			Notes: 1. Inspected and logged by Scott Sandberg 2. Drilled by National Foundation Engineering (Driller: Richard Sies)
24			
26			
28			
30			
32			
34			
36			
38			
40			
42			
44			
46			
48			

BORING LOG

HYDRO-TERRA

Project: East Station Contaminant Investigation - Phase II.
Test Boring No. 22 (MW10) Elevation 34.4' Date May 18 & 19, 1988.
Location: Highway median between 11th and 12th streets near the Water Street retaining wall, 80' East and 43' South of F-3.

Ft.	A	B	
			Ground Surface
2			
4			
6	S-1	60	Brick Red CLAY FILL, Some Sand and Gravel, Moist, No Evidence of Contamination
8			
10			
	S-2	39	
12			
14			
16	S-3	45	
18			
20			Continued

"A" - Depth of lower limit of split barrel sample, bottom of core run, or depth of RQD

"B" - Blows for last 12 in. (except as noted) on split barrel sampler, or % of core recovery

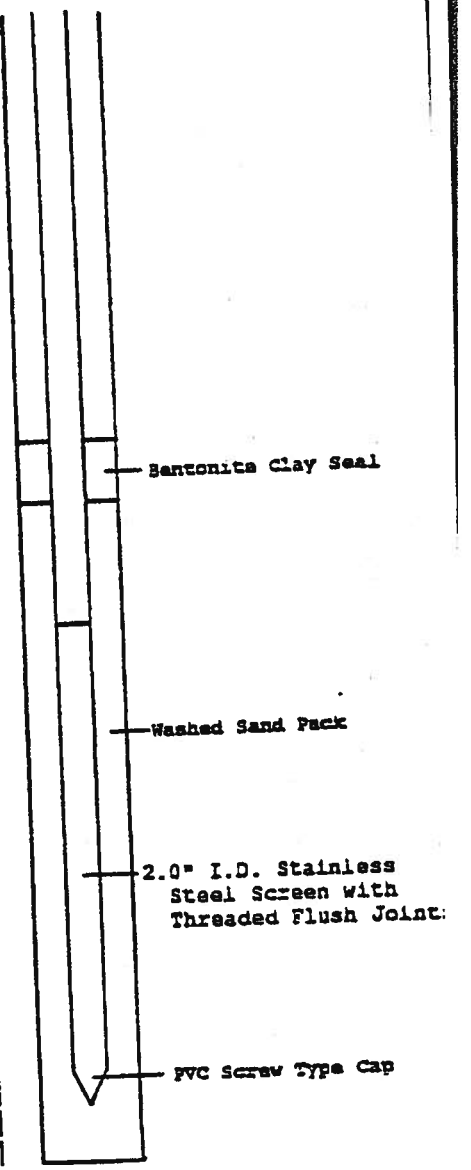
Ground Water Measurements		
Date	Elapsed Hrs.	Depth
5/18	2	32'6"
1/23/89		35.0'

Test Boring No. 22.
Sheet 2 of 2.

Ft.	A	B	Continued
	S-4	28	
22			
24	S-5	55	Brick Red CLAY FILL, Some Sand and Gravel, Trace Cinders, Moist to Wet
26	S-6	24	
28			
30	S-7	WOR	Dark Gray to Black ORGANIC SILT, Trace Clay, Wet, Soft, Slight Coal Tar Odor
	S-8	WOR	
32			
34			
36	S-9	7	Brick Red and Gray Mottled CLAY, Moist, Very Plastic
38	S-10	ST	
			Stopped at 39'
40			
42			
44			
46			
48			

Notes:

1. Inspected and logged by Tom Mills
2. Drilled by National Foundation Engineering (Driller: Richard Sies)
3. Tar or Tar/Oil noted in groundwater.



BORING LOG

HYDRO-TERRA

Project: East Station Contaminant Investigation - Phase II.
Test Boring No. 30 (MW16) Elevation 22.7' Date May 11&12, 1988.
Location: Next to the former location of Tar Separator 5, 68' East and 43' South of J-6.

Ft.	A	B	Description
			Ground Surface
	S-1	14	Black and Brown SAND and GRAVEL FILL, Dry and Moist, Loose, Visible Coal Tar
2			
4	S-2	6	Mottled Red and Grey CLAY, Some Gravel, Moist, No Evidence of Contamination
6	S-3	6	6.5'
8			
10	S-4	ST	Mottled Red, Brown and Grey CLAY, SILTY CLAY and SILTY SAND, Moist, No Evidence of Contamination
12	ST-3	ST	
14	S-5	31	
16	S-6	28	
18	S-7	30	
20			Continued

Cement/Bentonite Clay Grout (50/50 Mix)

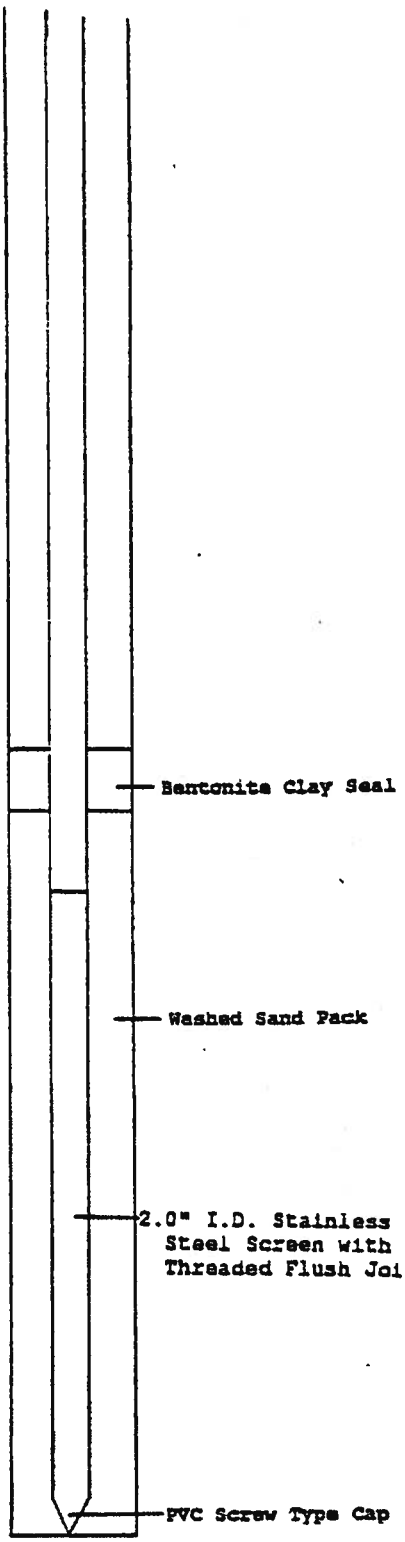
2.0" I.D. Schedule 40 PVC Riser Pipe with Threaded Flush Joints

"A" - Depth of lower limit of split barrel sample, bottom of core run, or depth of RQD
"B" - Blows for last 12 in. (except as noted) on split barrel sampler, or % of core recovery

Ground Water Measurements		
Date	Elapsed Hrs.	Depth
5-12	16	18'
1/11/89		16.4'

Test Boring No. 30
Sheet 2 of 3

Ft.	A.	B	Continued
	S-8	28	
22			
	S-9	37	
24			
26	S-10	29	
28			
	S-11	65	
30			
	S-12	62	
32			
34			
	S-13	47	
36			
38			
40			40.5'
	S-14	88	Mottled Green and Grey SILTY SAND, Wet, Consolidated, Coal Tar Odor, No Visible Tar
42			43.0'
44	S-15	88	Mottled Green, Grey and Red CLAY, Hard, Brittle, No Volatile Odor
			Stopped at 44.0'
46			
48			Continued



Ft.	A	B	Continued
50			
52			Notes:
54			1. Inspected and logged by Frank Anderson and Scott Sandberg 2. Drilled by National Foundation Engineering (Driller: Richard Sies) 3. Hole was dry immediately after drilling. Lifted the augers 1' and left for 16 hours. Water had filled the hole after 16 hours so the well was installed.
56			
58			
60			
62			
64			
66			
68			
70			
72			
74			
76			

BORING LOG	HYDRO-TERRA, INCORPORATED	PAGE: 1

BORING NO.:	AAW-17 [redacted]	PROJECT:	EAST STATION	DATE:	[redacted]
PROJECT NO.:	96010	DRILLER:	PSI	DRILLING BIT:	5/10/86
LOCATION:	EAST STATION	RIG TYPE:	ATV	GROUND ELEVATION:	
INSPECTOR:	B. WHIPPLE	METHOD:	ROTARY, H.S.	SAMPLING METHOD:	SPLIT SPOON
WELL TYPE:	~~[illegible]~~	SCREEN LENGTH:		PROTOP WIDTH/TYPE	
WELL DEPTH:		GROUT LENGTH/TYPE:		PAD ELEVATION:	
SCREEN:		SEAL LENGTH/TYPE:		TOC ELEVATION	
SLOT SIZE:		FILTER LENGTH/TYPE:		STICK UP/DOWN:	

DEPTH	SAMPLE COLLECTION DATA: SAMPLE NUMBER	HNU (PPM)	STP TEST BLOWS/6"	REC (in.)	DESCRIPTION	DEPTH
		5.5	2-4-4-7	12"	COAL WASTE, REDDISH-BROWN CLAY (MOIST) SAND AND GRAVEL (FILL)	
		6.5	3-4-4-7	15"	BLACK & TAN SAND & GRAVEL FILL MATERIAL CINDERS, TR. GRAVEL (FILL)	
4		55	7-33-6	10"	BLACK CINDERS & COAL, REDDISH-BROWN CLAY TRACE SILT AND SAND (FILL)	
		6.0	4-5-8-8	9"	BLACK CINDERS, REDDISH-BROWN CLAY TRACE SM. GRAVEL. (FILL)	
8		5.0	8-12-12-11	9"	RED BRICK PIECES. BLACK CINDER MATERIAL DK BROWN SILTY SAND (FILL)	
		4.2	10-2-2-1	10"	CRUSHED RED BRICK AND BRICK PIECES BLACK CINDER MATERIAL (FILL)	
12		10.5	8-8-5-10	10"	REDDISH-BROWN SILTY SAND & GRAVEL, WET TRACE ~~COAL TAR~~ BLACK "DIESEL-LOOKING" LIQUID (OILY) (FILL)	
		35.0	4-[illegible]-8-10	13"	BLACK-STAINED [illegible] SILT, SATURATED WITH BLACK [illegible] SUBSTANCE (MAY BE DIESEL OR COAL TAR) (FILL)	
16		30.0	8-12-11-13	6"	BLACK-STAINED CLAYEY SILT, SATURATED WITH BLACK OILY SUBSTANCE [illegible]	
		6.0		18"	18-19: SAME AS 16-18', SATURATED [illegible] 19-20: REDDISH-BROWN [illegible] MOTTLED GRA[illegible]	
20		4.5	2-4-5-9	14"	MOTTLED REDDISH BROWN CLAY, TRACE SAND (CLAY)	
		4.0	6-7-9-10	15"	MOTTLED REDDISH-BROWN CLAY, TRACE WOOD FRAGMENTS, TRACE SAND (CLAY)	
24		4.0	5-3-8-12	17"	24-24.5 MOTTLED REDDISH-BROWN CLAY, TRACE SAND 24.5-26 REDDISH BROWN SANDY CLAY, MOIST (CLAY)	
28		3.0	6-8-12-16	20"	REDDISH-BROWN CLAY, TRACE SAND (CLAY)	

PROPORTIONS USED: TRACE = 0-10%, LITTLE = 10-20%, SOME 20-35%, AND = 35-50%

BORING LOG	HYDRO-TERRA, INCORPORATED	PAGE: 2

BORING NO.:	MW-17	PROJECT:	EAST STATION	DATE:	4/10/96
PROJECT NO.:	96010	DRILLER:	PSI	DRILLING BIT:	3.25" I.D.
LOCATION:	EAST STATION	RIG TYPE:	ATV	GROUND ELEVATION:	
INSPECTOR:	B. WHIPPLE	METHOD:	ROTARY, H.S.	SAMPLING METHOD:	SPLIT SPOON
WELL TYPE:		SCREEN LENGTH:		PROTOP WIDTH/TYPE	
WELL DEPTH:		GROUT LENGTH/TYPE:		PAD ELEVATION:	
SCREEN:		SEAL LENGTH/TYPE:		TOC ELEVATION	
SLOT SIZE:		FILTER LENGTH/TYPE:		STICK UP/DOWN:	

DEPTH	SAMPLE COLLECTION DATA: SAMPLE NUMBER	HNU (PPM)	STP TEST BLOWS / 6"	REC (in.)	DESCRIPTION	DEPTH
		38	2-7-8-15	21"	REDDISH BROWN SANDY CLAY, MOIST (CLAY)	
S2		20	2-3-4-8	18"	REDDISH BROWN FINE SANDY CLAY, MOIST, TIGHT (CLAY)	
		2.0	5-12-13	18"	REDDISH-BROWN FINE SANDY CLAY, WET (CLAY)	
S6		2.4	5-8-10-12	21"	REDDISH-BROWN CLAY, TRACE SAND, VERY TIGHT, MOIST (CLAY)	

*THE BORING WAS GROUTED WITH CEMENT TO PREVENT CONTAMINATION OF THE WATER-BEARING UNIT IN THE CLAY.

BOTTOM OF BORING AT 34'.

* A UV SCAN WAS PERFORMED ON ALL SAMPLES. NO FLUORESENCE WAS DETECTED. HOWEVER IT IS BELIEVED THERE IS A PROBLEM WITH THE UV LAMP.

PROPORTIONS USED: TRACE = 0-10%, LITTLE = 10-20%, SOME 20-35%, AND = 35-50%

TEST BORING LOG	HYDRO–TERRA, INCORPORATED	PAGE 1

BORING NO.: MW-17	PROJECT: East Station	DATE: 4-26-96

PROJECT NO:	96010	DRILLER:	PSI	DRILLING BIT:	4.25" I.D.
LOCATION:	East Station	RIG TYPE:	ATV	GROUND ELEVATION:	
INSPECTOR:	T. Mills	METHOD:	4.24" H.S. Auger	SAMPLING METHOD:	Split Spoon
WELL TYPE:	2" Monitoring Well	SCREEN LENGTH:		PROTOP WIDTH/TYPE	
WELL DEPTH:		GROUT LENGTH/TYPE:		PAD ELEVATION:	
SCREEN:		SEAL LENGTH/TYPE:		TOC ELEVATION	
SLOT SIZE:		FILTER LENGTH/TYPE:		STICK UP/DOWN:	

DEPTH	SAMPLE COLLECTION DATA: SAMPLE NUMBER	HNU (PPM)	STP TEST BLOWS / 6"	REC (in.)	DESCRIPTION	DEPTH
					Augered to 32 ft without sampling	
30						
	S-1	0		24"	Mottled grey & red silty clay (Arundel). Moist, Trace Sand	
35	S-2	0		24"	Same as S-1 ~~except no sand~~, Less Sand	
	S-3	0		24"	Same as S-1	
	S-4	0		24"	Same as S-2	
40	S-5	0		24"	Same as S-2, Mud at top of spoon	
					Stainless-steel wire-wrapped screen placed from 31 to 41 ft. PVC riser pipe. Two-inch diameter.	
45						
50						

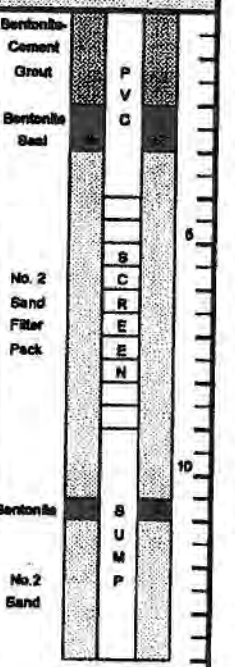
PROPORTIONS USED: TRACE = 0–10%, LITTLE = 10–20%, SOME 20–35%, AND = 35–50%

BORING / WELL LOG	HYDRO-TERRA, INCORPORATED	P.1/1

BORING NO.: MW-13 | **PROJECT: National Park Service Well Installation** | **DATE: Sept. 18, 2000**

PROJECT NO.:	00090	DRILLER:	Earth Matters, Inc.	DRILLING BIT:	6.25 in.
LOCATION:	North bank of Anacostia River	RIG TYPE:	Mobile B-61	WELL DIAMETER:	4 in.
INSPECTOR:	T. Mills / S. Myers	METHOD:	Hollow Stem Augers	SAMPLING METHOD:	Split-spoon
				WATER ELEVATION:	0.01 ft. MSL (approx.)
WELL TYPE:	Monitoring / Recovery	SCREEN LENGTH:	5 ft. (4 - 9 ft.) st. steel	PROTOP WIDTH/TYPE:	8-in. steel
WELL DEPTH:	14 ft.	GROUT LENGTH/TYPE:	2 ft. (0' - 2') Portland cement	PAD ELEVATION:	5.24 ft. MSL
SCREEN:	Stainless Steel	SEAL LENGTH/TYPE:	1 ft. (2' - 3') bentonite	TOC ELEVATION	4.70 ft. MSL
SLOT SIZE:	0.020 in.	FILTER LENGTH/TYPE:	7.5 ft. (3' -10.5') No.2 sand	STICK UP/DOWN:	flush mount
SUMP:	Stainless Steel	SUMP LENGTH:	5 ft. (9 - 14 ft.)	GROUND ELEVATION:	5.24 MSL

DEPTH	SAMPLE COLLECTION DATA: SAMPLE NUMBER	HNU (PPM)	STP TEST BLOWS / 6"	RQD (%)	DESCRIPTION
	S-1	NA	2/2/4/7	14	0'-1' Tan silty Clay, Trace Sand & Gravel 1'-2' Dark Brown Sand & Gravel, Trace Cinders
	S-2	NA			Brown Sand & Gravel, Trace Silt & Clay (2' - 2.5') 2.5 - 3' Silty, sandy Clay, Dark Gray 3 - 3.5' Sand & Gravel with tar odor and Black tarry material. Silty Clay on bottom.
5	S-3	NA	2/4/5/8		4' - 5' Brown and Orange-layered sandy, silty Clay 5' - 6' Black Cinders to Brown Wood Chips, strong tar odor, moist to wet
	S-4	NA	4/3/3/2		No Sample in spoon (retainer in upside down)
10	S-5	NA	1/1/1/1		Dark Brown Silt, some or little Clay, moist
	S-6	NA	1/2/2/2		Same as 8' -10'
	S-7	NA	1/2/2/2		Same w/ thin seams of silty Sand near bottom half of sample. Shell fragments in lower 6" of spoon.
15	S-8	NA	2/3/3/4		Same color Dark Brown, less plastic with voids in sample, wood fragments, one over 1-inch in diameter. Very wet.
					Bottom of boring = 16 ft.
20					
25					
30					



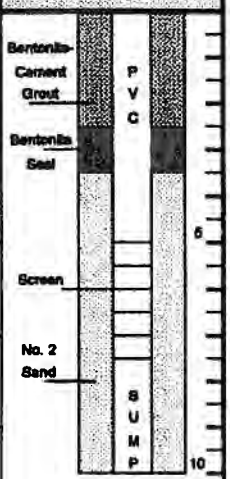
PROPORTIONS USED: TRACE = 0-10%, LITTLE = 10-20%, SOME 20-35%, AND = 35-50%

BORING / WELL LOG	HYDRO-TERRA, INCORPORATED	P.1/1

BORING NO.: MW-19	PROJECT: National Park Service Well Installation	DATE: 9/26-27/00

PROJECT NO.:	00090	DRILLER:	Earth Matters, Inc.	DRILLING BIT:	8.25 in.
LOCATION:	W.edge DPW, N.of asphalt path	RIG TYPE:	Mobile B-61	WELL DIAMETER:	4 in.
INSPECTOR:	S. Myers	METHOD:	Hollow Stem Augers	SAMPLING METHOD:	Split-spoon
				WATER ELEVATION:	0.43 ft. MSL (approx.)
WELL TYPE:	Monitoring / Recovery	SCREEN LENGTH:	2.5 ft (7.5' - 10')	FACTOP WIDTH/TYPE:	8-in. steel
WELL DEPTH:	10 ft.	GROUT LENGTH/TYPE:	2.5 ft.(0'-2.5') Portland cement	PAD ELEVATION:	5.88 ft. MSL
SCREEN:	Stainless Steel	SEAL LENGTH/TYPE:	1 ft. (2.5'-3.5') bentonite	TOC ELEVATION	5.34 ft. MSL
SLOT SIZE:	0.020 in.	FILTER LENGTH/TYPE:	8.5 ft. (3.5'-10') No.2 sand	STICK UP/DOWN:	flush mount
SUMP:	Stainless Steel	SUMP LENGTH:	2.5 ft. (7.5 - 10 ft.)	GROUND ELEVATION:	5.88 MSL

DEPTH	SAMPLE COLLECTION DATA: SAMPLE NUMBER	HNU (PPM)	STP TEST BLOWS / 6"	REC (IN.)	DESCRIPTION
5					
	S-1	NA	2/3/7/6		Black Cinders, wet upper 4" to black to brown sand, silty Clay. Black silty Cinders bottom 3" of spoon, tar odor.
	S-2	NA	2/1/3/2	8"	Black Cinders upper 4+/- inches to brown (dark) Silt, some Clay. Water @ 6 ft. +/- while drilling.
10	S-3	NA	1/1/1/2	20"	Bown Silt, little to some clay (plastic, sticky) Wet, very little tar odor. (Pulled off boring for now).
15					Set bottom of screen at 8 ft. Developed well 9/29/00 (also building flush mount) Water @ 63" BGS high tide 0905, 9/29/00
20					
25					
30					



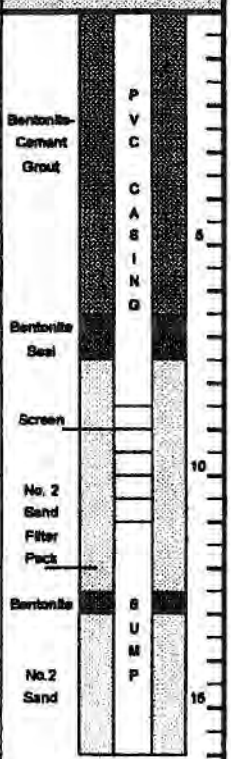
PROPORTIONS USED: TRACE = 0-10%, LITTLE = 10-20%, SOME 20-35%, AND = 35-50%

BORING / WELL LOG	HYDRO-TERRA, INCORPORATED	P.1/1

BORING NO.: MW-23	PROJECT: National Park Service Well Installation	DATE: Sept. 27, 2000

PROJECT NO.:	00090	DRILLER:	Earth Matters, Inc.	DRILLING BIT:	6.25 in.
LOCATION:	Southwest side of pump house	RIG TYPE:	Mobile B-61	WELL DIAMETER:	4 in.
INSPECTOR:	T. Mills / S. Myers	METHOD:	Hollow Stem Augers	SAMPLING METHOD:	Split-spoon
				WATER ELEVATON:	0.96 ft. MSL (approx.)
WELL TYPE:	Monitoring / Recovery	SCREEN LENGTH:	2.5 ft. (9.5'-11')	PROTOP WIDTH/TYPE:	8-in. steel
WELL DEPTH:	16 ft.	GROUT LENGTH/TYPE:	6.5 ft. Portland cement	PAD ELEVATION:	4.03 ft. MSL
SCREEN:	Stainless Steel	SEAL LENGTH/TYPE:	1 ft.(6.5'-7.5'), 0.5 ft.(12.5'-13')	TOC ELEVATION	3.47 ft. MSL
SLOT SIZE:	0.020 in.	FILTER LENGTH/TYPE:	5 ft.(7.5'-12.5'), 3 ft. (13'-16') N	STICK UP/DOWN:	flush mount
SUMP:	Stainless Steel	SUMP LENGTH/TYPE:	3 ft. (13'-16') stainless steel	GROUND ELEVATION:	4.03 ft. MSL

DEPTH	SAMPLE COLLECTION DATA: SAMPLE NUMBER	HNU (PPM)	STP TEST BLOWS / 6"	REC (IN.)	DESCRIPTION
	S-1		1/2/2/10	5"	0"-3.5" Brown organic material, large Gravel and Concrete (moved away from river due to concrete three times)
	S-2	0.0	4/3/2/3	5"	Brown Sand, Little silt, some gravel, charcoal material (black), slight odor, wet
5	S-3	0.0	1/2/3/1 2" spoon	6"	Brown Sand & Gravel, little silt, upper 3" to black, wet. Cinders, some odor
	S-4	0.0	1/1/1 2" spoon	20"	Brown Silt, some clay, sticky, wet cinder on top 2"
10	S-5	6.1	1/2/1/1 3" spoon	14"	Black oily Sand and Gravel, little silt, light odor
	S-6	0.0	1/2/1/1	20"	Brown Silt, some clay, sticky, wet, (SAMPLED for LAB). Wood fragments
	S-7	0.0	1/1/1/2	20"	SAME. No odor. (SAMPLES COLLECTED)
15	S-8	0.0	1/1/1/1	20"	SAME (SAMPLES COLLECTED)
20					Bottom of boring = 16 ft. Note: Moved 3 times to 21 ft. from edge of seawall.
25					
30					



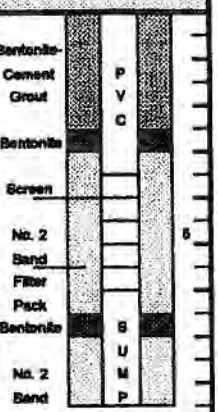
PROPORTIONS USED: TRACE = 0-10%, LITTLE = 10-20%, SOME 20-35%, AND = 35-50%

BORING / WELL LOG	HYDRO-TERRA, INCORPORATED	P.1/1

BORING NO.: MW-24	PROJECT: National Park Service Well Installation	DATE: Sept. 26, 2000

PROJECT NO.:	00090	DRILLER:	Earth Matters, Inc.	DRILLING BIT:	6.25 in.
LOCATION:	SW Side of Pump House	RIG TYPE:	Mobile B-61	WELL DIAMETER:	4 in.
SUPERVISOR:	S. Myers	METHOD:	Hollow Stem Augers	SAMPLING METHOD:	Split-spoon
				WATER ELEVATION:	0.84 ft. MSL (approx.)
WELL TYPE:	Monitoring / Recovery	SCREEN LENGTH:	2.5 ft. (3.5' - 6') st. steel	PROTOP WIDTH/TYPE:	8-in. steel
WELL DEPTH:	8.5 ft.	GROUT LENGTH/TYPE:	2.5 ft. Portland cement	PAD ELEVATION:	4.01 ft. MSL
SCREEN:	Stainless Steel	SEAL LENGTH/TYPE:	0.5 ft. (2.5' - 3') bentonite	TOC ELEVATION	3.61 ft. MSL
SLOT SIZE:	0.020 in.	FILTER LENGTH/TYPE:	3.5 ft. (3' - 6.5') No.2 sand	STICK UP/DOWN:	flush mount
SUMP:	Stainless Steel	SUMP LENGTH:	5 ft. (9 - 14 ft.)	GROUND ELEVATION:	4.01 ft. MSL

DEPTH	SAMPLE COLLECTION DATA: SAMPLE NUMBER	HNU (PPM)	STP TEST BLOWS / 6"	REC (in.)	DESCRIPTION
					Drilled straight down next to MW-23 with 6.25 in. augers. No split-spoon samples taken.
5					
10					
15					
20					
25					
30					



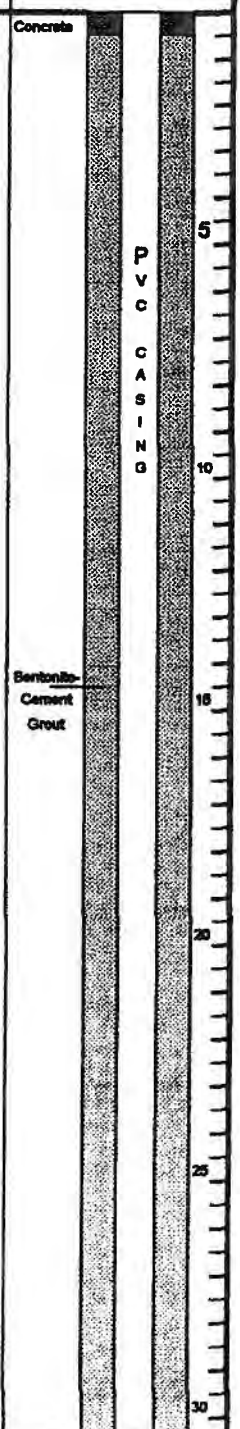
PROPORTIONS USED: TRACE = 0-10%, LITTLE = 10-20%, SOME 20-35%, AND = 35-50%

BORING / WELL LOG	HYDRO-TERRA, INCORPORATED	P.1/3

BORING NO.: MW-25	PROJECT: EAST STATION ADD'L WELLS	DATE: 3/14-16/08

PROJECT NO.:	04110	DRILLER:	GEOSERVICES CORP.	DRILLING BIT:	MUD ROTARY
LOCATION:	WASH. D.C.	RIG TYPE:	TRUCK-MOUNTED	WELL DIAMETER:	2-inch
INSPECTOR:	T. MILLS	METHOD:	HOLLOW STEM AUGER	SAMPLING METHOD:	SPLIT-SPOON
				WATER ELEVATION:	N/A
WELL TYPE:	monitoring	SLOT SIZE:	0.02-inch	PROTOP WIDTH/TYPE	6-inch steel flush mount
WELL DEPTH:	74 ft	GROUT LENGTH/TYPE:	0-37 ft cement/bentonite	PAD ELEVATION:	4.93 MSL
RISER PIPE:	0-44 ft PVC	SEAL LENGTH/TYPE:	37-42 ft bentonite	TOC ELEVATION	4.68 MSL
SCREEN:	44-64 ft PVC	FILTER LENGTH/TYPE:	42-74 ft No. 2 sand	STICK UP/DOWN:	-0.25 ft.
SUMP:	64-74 ft PVC			GROUND ELEVATION:	4.93 MSL

DEPTH	SAMPLE COLLECTION DATA: SAMPLE NUMBER	HNU (PPM)	STP TEST BLOWS / 6"	REC (in.)	DESCRIPTION
	S-1	1.8	2/5/9/10	24	0-8 in. Topsoil with brick fragments, moist Clay, red, moist, (fill)
5	S-2	6.7	4/2/16/13	24	Clay with seams of black sand & gravel, oil odor, moist (fill)
	S-3	166.0	1/1/2/2	24	Silt, brown-grey, moist
10					
15	S-4		WOH/12" 1/12"	18	Silt, brown-grey, moist (chem sample collected) No jar sample.
20					
	S-5	2.8	WOH/12" 1/12"	24	Silt, brown-grey, moist (chem sample collected)
25	Shelby tube				
	S-6	1.4	WOH/6" 1/2/2		Silt, trace wood, brown-grey, moist
30					
	S-7		WOH/12"	24	Silt, brown-grey, moist



PROPORTIONS USED: TRACE = 0-10%, LITTLE = 10-20%, SOME 20-35%, AND = 35-50%

BORING / WELL LOG	HYDRO-TERRA, INCORPORATED	P.2/3

BORING NO.: MW-25 (cont'd)	PROJECT: EAST STATION ADD'L WELLS	DATE: 3/14-16/06

DEPTH	SAMPLE COLLECTION DATA: SAMPLE NUMBER	HNU (PPM)	STP TEST BLOWS / 6"	REC (in.)	DESCRIPTION
	S-7	1.2	WHO/12" 1/1	24	Silt, brown-grey, moist
35	S-8		WHO/12" 1/1	24	Silt, brown-grey, moist. Chemical sample taken
40	S-9	1.4	1/1/1/1	9	Silt, trace fine sand, brown-grey, moist
	S-10	1.3	1/1/1	9	Same as S-9
					43.5
45	S-11	1.2	4/8/10/13	11	Sand & Gravel, tan & white, wet
	S-12	1.2	13/8/8/7	10	Same as S-11
50	S-13	1.5	9/26/35/8	14	Same as S-11
					50
					Fine Sand, trace clay, red, wet (Arundel)
	S-14	1.2	14/25/27	8	Fine Sand, trace silt, red, wet
55	S-15	0.7	8/9/11	18	0-9" Same as S-14 Clay, mottled red & grey, moist
	S-16	0.7	8/20/27	18	Fine Sand, trace silt, thin seam of sandy clay, red, moist
60	S-17	0.4	8/13/12	18	0-12" Same as S-16. Clay, mottled red & grey, moist

Bentonite-Cement Grout

Bentonite Seal

No. 2 Sand Filter Pack

PVC SCREEN

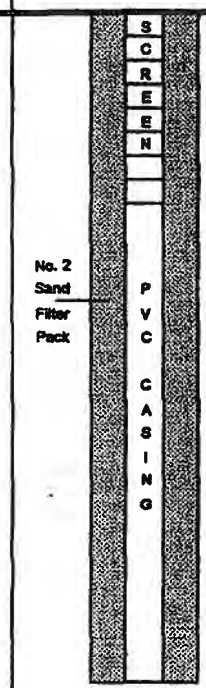
30

PROPORTIONS USED: TRACE = 0-10%, LITTLE = 10-20%, SOME 20-35%, AND = 35-50%

BORING / WELL LOG	HYDRO-TERRA, INCORPORATED	P.3/3

BORING NO.: MW-25 (cont'd)	PROJECT: EAST STATION ADD'L WELLS	DATE: 3/14-16/06

DEPTH	SAMPLE COLLECTION DATA: SAMPLE NUMBER	PID (PPM)	STP TEST BLOWS / 6"	REC (in.)	DESCRIPTION
	S-18	0.7	12/18/20	18	Fine Sand with clayey sand lenses, red
65	S-19	0.7	6/12/13	18	Clay, mottled red & grey, moist
	S-20	0.7	6/11/15	18	Same as S-19
70	S-21	0.6	8/14/15		Fine Sand, trace clayey silt, thin lenses of clay, red, moist
	S-22	0.6	8/12/17	18	0-6" Same as S-21 Clay, mottled red & grey, moist
75	S-23	0.6	10/13/19	18	0-9" Fine Sand, trace clay, red, moist Clay, mottled red & grey, moist
					Stopped at 75.5 feet
80					Well Construction: 1. 2-in. PVC riser pipe 64-74 ft. 2. 2-in. PVC well screen 44-64 ft. 3. 2-in. PVC riser pipe 0-44 ft. 4. Filter sand 42-74 ft. 5. Bentonite 37-42 ft. 6. Cement/bentonite grout 0-37 ft. 7. Flush well cover set in concrete
85					Notes: 1. PID readings taken from jar samples 2. Sealed off fill unit by augering to 7 ft. and then pushing 6-in. diameter steel casing to depth of 14 feet. Steel casing was extracted after grouting of well. 3. Well was installed by GeoServices Corporation under the supervision of Hydro-Terra, Inc.
90					



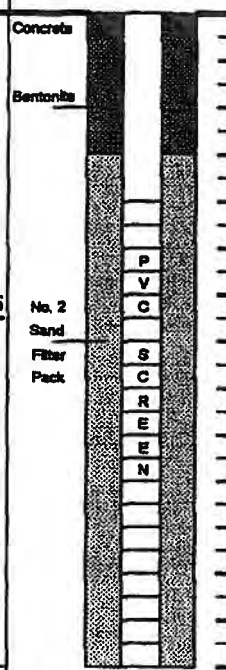
PROPORTIONS USED: TRACE = 0-10%, LITTLE = 10-20%, SOME 20-35%, AND = 35-50%

BORING / WELL LOG	HYDRO-TERRA, INCORPORATED	P.1/1

BORING NO.: MW-26	PROJECT: EAST STATION ADD'L WELLS	DATE: 3/08/06

PROJECT NO.:	04110	DRILLER:	GEOSERVICES CORP.	DRILLING BIT:	MUD ROTARY
LOCATION:	WASH. D.C.	RIG TYPE:	TRUCK-MOUNTED	WELL DIAMETER:	2-inch
INSPECTOR:	T. MILLS	METHOD:	HOLLOW STEM AUGER	SAMPLING METHOD:	SPLIT-SPOON
				WATER ELEVATION:	N/A
WELL TYPE:	monitoring	SLOT SIZE:	0.02-inch	PROTOP WIDTH/TYPE	6-inch steel flush mount
WELL DEPTH:	14 ft	GROUT LENGTH/TYPE:	0.75 ft. cement	PAD ELEVATION:	5.91 MSL
RISER PIPE:	0-4 ft PVC	SEAL LENGTH/TYPE:	0.75-3 ft. bentonite	TOC ELEVATION	5.66 MSL
SCREEN:	4-14 ft PVC	FILTER LENGTH/TYPE:	3-14 ft No. 2 sand	STICK UP/DOWN:	-0.25 FT
SUMP:	N/A			GROUND ELEVATION:	5.91 MSL

DEPTH	SAMPLE COLLECTION DATA: SAMPLE NUMBER	HNU (PPM)	STP TEST BLOWS / 6"	REC (in.)	DESCRIPTION
	S-1	0.0	1/2/6	9	Sand, Gravel & Silt, trace cinders, brown, moist (fill)
	S-2	0.0	2/2/4	4	Same as S-1
5					
	S-3	0.0	1/1/1	18	0.5 ft of red Clay overlying grey Sand & Silt (fill)
					6.5
	S-4	0.0	1/1/2/9		Same as bottom of S-3, except rock in bottom of spoon
10					
	S-5	0.0	W.O.H.	18	Silt, trace fine sand in seams, moist, brown-grey
	S-6			0	Sample to 13.2 ft., sampler obstructed by rock.
					Stopped at 14 ft.
15					
					Well Construction:
					1. 2-in. PVC well screen 4 to 14 ft. 2. 2-in PVC riser pipe 0 to 4 ft. 3. Filter sand 3 to 14 ft. 4. Bentonite 0.75 to 3.0 ft. 5. Flush well cover set in concrete
20					
25					
30					



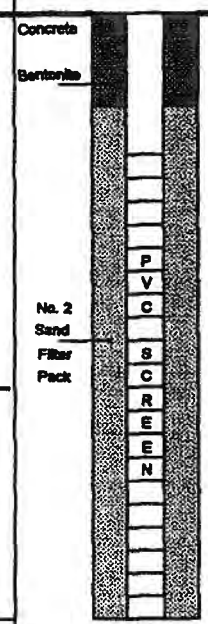
PROPORTIONS USED: TRACE = 0-10%, LITTLE = 10-20%, SOME 20-35%, AND = 35-50%

BORING / WELL LOG	HYDRO-TERRA, INCORPORATED	P.1/1

BORING NO.: MW-27	PROJECT: EAST STATION ADD'L WELLS	DATE: 3/09/06

PROJECT NO.:	04110	DRILLER:	GEOSERVICES CORP.
LOCATION:	WASH. D.C.	RIG TYPE:	TRUCK-MOUNTED
INSPECTOR:	T. MILLS	METHOD:	HOLLOW STEM AUGER
DRILLING BIT:	MUD ROTARY	WELL DIAMETER:	2-inch
SAMPLING METHOD:	SPLIT-SPOON	WATER ELEVATION:	N/A
WELL TYPE:	monitoring	SLOT SIZE:	0.02-inch
WELL DEPTH:	13 ft	GROUT LENGTH/TYPE:	0-0.75 ft concrete
RISER PIPE:	0-3 ft PVC	SEAL LENGTH/TYPE:	0.75-2 ft bentonite
SCREEN:	3-13 ft PVC	FILTER LENGTH/TYPE:	2-13 ft No. 2 sand
SUMP:	N/A	PROTOP WIDTH/TYPE	8-inch steel flush mount
PAD ELEVATION:	4.28 MSL	TOC ELEVATION	4.03 MSL
STICK UP/DOWN:	-0.25 FT.	GROUND ELEVATION:	4.28 MSL

DEPTH	SAMPLE COLLECTION DATA: SAMPLE NUMBER	HNU (PPM)	STP TEST BLOWS / 6"	REC (in.)	DESCRIPTION
	S-1	0.0	1/2/2	15	Clay, Sand & Gravel, brown & red, moist (fill)
	S-2	0.0	4/4/2	12	Same as S-1, except wet sand & gravel (fill)
5	S-3	0.0	3/3/2	8	Sand & gravel, slight oil/tar sheen, little or no odor, brown & black, wet (fill)
					7 ft
	S-4	43.0	WOH/6" 1/18"	4	
10	S-5	4.2	WOH/12" 1/12"	18	Silt, oil/tar sheen, slight odor, brown-grey, moist
					Stopped at 13 ft.
15					
					Well Construction:
					1. 2-in. PVC well screen 3 to 13 ft. 2. 2-in PVC riser pipe 0 to 3 ft. 3. Filter sand 2 to 13 ft. 4. Bentonite 0.75 to 2.0 ft. 5. Flush well cover set in concrete
20					
25					
30					



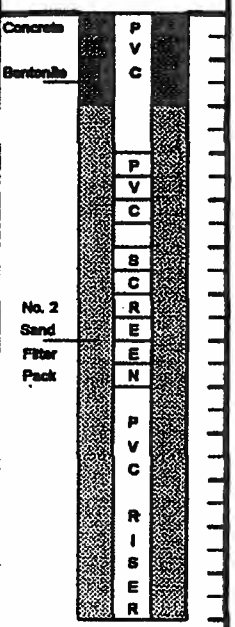
PROPORTIONS USED: TRACE = 0-10%, LITTLE = 10-20%, SOME 20-35%, AND = 35-50%

BORING / WELL LOG	HYDRO-TERRA, INCORPORATED	P.1/1

BORING NO.: MW-28	PROJECT: EAST STATION ADD'L WELLS	DATE: 3/09/06

PROJECT NO.:	04110	DRILLER: GEOSERVICES CORP.	DRILLING BIT: MUD ROTARY
LOCATION:	WASH. D.C.	RIG TYPE: TRUCK-MOUNTED	WELL DIAMETER: 2-inch
INSPECTOR:	T. MILLS	METHOD: HOLLOW STEM AUGER	SAMPLING METHOD: SPLIT-SPOON
			WATER ELEVATION: N/A
WELL TYPE:	monitoring	SLOT SIZE: 0.02-inch	PROTOP WIDTH/TYPE 8-inch steel flush mount
WELL DEPTH:	13 ft	GROUT LENGTH/TYPE: N/A	PAD ELEVATION: 4.40 MSL
RISER PIPE:	0-3 ft PVC	SEAL LENGTH/TYPE: 0.75-2 ft bentonite	TOC ELEVATION 4.15 MSL
SCREEN:	3-8 ft PVC	FILTER LENGTH/TYPE: 2-13 ft No. 2 sand	STICK UP/DOWN: -0.25 FT.
SUMP:	8-13 ft. PVC		GROUND ELEVATION: 4.40 MSL

DEPTH	SAMPLE COLLECTION DATA: SAMPLE NUMBER	PID (PPM)	STP TEST BLOWS / 6"	REC (in.)	DESCRIPTION
	S-1	0.0	1/2/2	14	Clay, trace silt & gravel, brown, moist (fill)
	S-2	0.0	2/5/4	18	Same as S-1, except oil odor
					4.5
5					
	S-3	14.0	5/4/2	18	Sand & Gravel, thin seams of clay, trace wood chips, tar/oil sheen, brown to black, wet (fill)
					7.0
	S-4	8.5	W.O.H.	6	Silt, brown-grey, no visible tar/oil, moist
10					
	S-5	1.5	W.O.H.	18	
15					Stopped at 14.5 ft.
					Well Construction: 1. 2-IN. PVC riser pipe 8-13 ft. 2. 2-in. PVC well screen 3 to 8 ft. 3. 2-in PVC riser pipe 0 to 3 ft. 4. Filter sand 2 to 13 ft. 5. Bentonite 0.75 to 2.0 ft. 6. Flush well cover set in concrete
20					
25					
30					



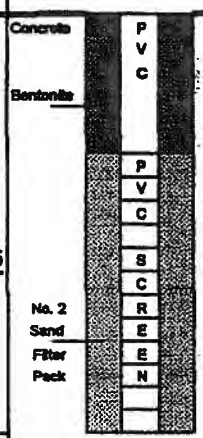
PROPORTIONS USED: TRACE = 0-10%, LITTLE = 10-20%, SOME 20-35%, AND = 35-50%

BORING / WELL LOG	HYDRO-TERRA, INCORPORATED	P.1/1

BORING NO.: MW-29	PROJECT: EAST STATION ADD'L WELLS	DATE: 3/08/06

PROJECT NO.:	04110	DRILLER:	GEOSERVICES CORP.	DRILLING BIT:	MUD ROTARY
LOCATION:	WASH. D.C.	RIG TYPE:	TRUCK-MOUNTED	WELL DIAMETER:	2-inch
INSPECTOR:	T. MILLS	METHOD:	HOLLOW STEM AUGER	SAMPLING METHOD:	SPLIT-SPOON
				WATER ELEVATION:	N/A
WELL TYPE:	monitoring	SLOT SIZE:	0.02-inch	PROTOP WIDTH/TYPE:	6-inch steel flush mount
WELL DEPTH:	9 ft	GROUT LENGTH/TYPE:	N/A	PAD ELEVATION:	4.06 MSL
RISER PIPE:	0-4 ft PVC	SEAL LENGTH/TYPE:	0.75-3 ft bentonite	TOC ELEVATION	3.81 MSL
SCREEN:	4-9 ft PVC	FILTER LENGTH/TYPE:	3-9 ft No. 2 sand	STICK UP/DOWN:	-0.25 FT.
SUMP:	N/A			GROUND ELEVATION:	4.06 MSL

DEPTH	SAMPLE COLLECTION DATA: SAMPLE NUMBER	PID (PPM)	STP TEST BLOWS / 6"	REC (in.)	DESCRIPTION
	S-1	0.5	2/2/3		Sand & Silt, brown to tan, moist (fill)
	S-2	46.5	3/3/2		Sand & Silt, oil sheen, wet, black, (fill)
5	S-3	51.6	2/2 2/2(12")		Same as S-2 5.5 Silt with seam of crushed stone, grey, moist (fill)
	S-4	4.6	1/6/3		Silt with seam of crushed stone, grey, moist (fill)
10					Stopped at 9 ft.
					Note: VOC measurement taken from jar samples
					Well Construction: 1. 2-IN. PVC riser pipe 0-4 ft. 2. 2-in. PVC well screen 4 to 9 ft. 3. Filter sand 3 to 9 ft. 4. Bentonite 0.75 to 3 ft. 5. Flush well cover set in concrete
15					
20					
25					
30					



PROPORTIONS USED: TRACE = 0-10%, LITTLE = 10-20%, SOME 20-35%, AND = 35-50%

BORING / WELL LOG	HYDRO-TERRA, INCORPORATED	P.1/3

BORING NO.: MW-31	PROJECT: EAST STATION ADD'L WELLS	DATE: 3/13-14/06

PROJECT NO.:	04110	DRILLER:	GEOSERVICES CORP.
LOCATION:	WASH. D.C.	RIG TYPE:	TRUCK-MOUNTED
INSPECTOR:	T. MILLS	METHOD:	HOLLOW STEM AUGER
DRILLING BIT:	MUD ROTARY	WELL DIAMETER:	2-inch
SAMPLING METHOD:	SPLIT-SPOON	WATER ELEVATION:	N/A
WELL TYPE:	monitoring	SLOT SIZE:	0.02-inch
WELL DEPTH:	66 feet	GROUT LENGTH/TYPE:	0.75-39 ft cement/bentonite
RISER PIPE:	0-46 ft PVC	SEAL LENGTH/TYPE:	39-44 ft bentonite
SCREEN:	46-56 ft PVC	FILTER LENGTH/TYPE:	44-66 ft No. 2 sand
SUMP:	56-66 ft PVC	PROTOP WIDTH/TYPE	6-inch steel flush mount
PAD ELEVATION:	4.98 msl	TOC ELEVATION	4.73 msl
STICK UP/DOWN:	-0.25 ft.	GROUND ELEVATION:	4.98 msl

DEPTH	SAMPLE COLLECTION DATA: SAMPLE NUMBER	PID (PPM)	STP TEST BLOWS / 6"	REC (in.)	DESCRIPTION
					Concrete
	S-1	0.0	5/9/6		Sand & Gravel, little silt, brown & black (fill)
5	S-2	45.0	6/5/6/4	18	4 to 4.5 ft. Same as S-1 5.5 to 6 ft. Wood chips, black, oil odor (fill)
	S-3	18.0	2/1/1(12")	18	6.5 to 7.5 ft. Coke, tar/oil sheen, wet (fill) 7.5 7.5 to 8.5 ft. Silt, brown-grey
10	S-4	5.0	6/1/1(12")	12	Silt, brown-grey, moist
15					Bentonite-Cement Grout
20	S-5	9	WHO/12" 1/6"		Silt, brown-grey, moist (chem sample collected)
25	S-6	7.3	1/1/1	24	Silt, brown-grey, moist
30	Shelby Tube to 31 ft.				

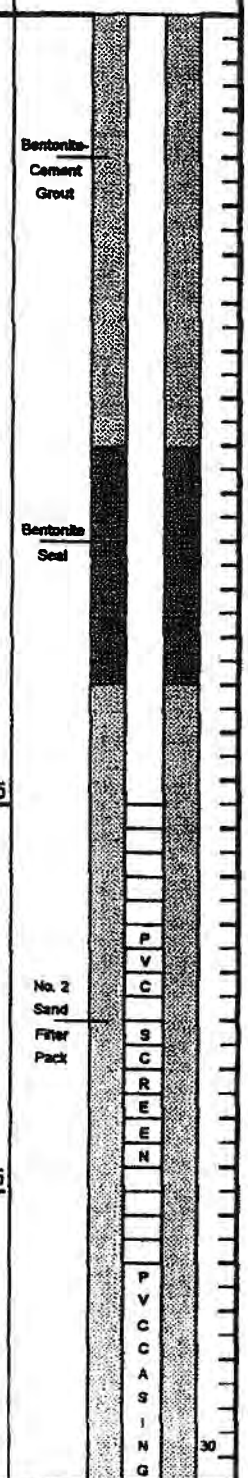
PVC CASING

PROPORTIONS USED: TRACE = 0-10%, LITTLE = 10-20%, SOME 20-35%, AND = 35-50%

BORING / WELL LOG	HYDRO-TERRA, INCORPORATED	P.2/3

BORING NO.: MW-31 (cont'd)	PROJECT: EAST STATION ADD'L WELLS	DATE: 3/13-14/06

DEPTH	SAMPLE COLLECTION DATA: SAMPLE NUMBER	HNU (PPM)	STP TEST BLOWS / 6"	REC (in.)	DESCRIPTION
	Shelby tube (cont'd)				
	S-7	1.3	WHO/12" 1/12"	22	Silt, brown-grey, moist
35	S-8	2.0	WHO/12" 1/6"		Silt, brown-grey, moist
40	S-9	1.3	3/2/1	0	
	S-10	1.2	1/24"	20	Silt, trace fine Sand, brown-grey, (chem sample collected)
45	S-11	1.1	3/3/12/11	15	Fine to medium Sand, trace silt, brown, wet
	S-12	1	3/3/12/11	15	46.5
50	S-13	1.2	9/5/10/11	12	Sand & Gravel, tan, wet
	S-14	1.2	13/15/9/8	8	Same as S-13
55	S-15	0.7	7/9/8/1	18	Gravel 54.5
	S-16	1.6	6/9/10	18	Clay, red, moist (Arundel)
60	S-17	0.4	9/9/12	14	Same as S-16



PROPORTIONS USED: TRACE = 0-10%, LITTLE = 10-20%, SOME 20-35%, AND = 35-50%

BORING / WELL LOG	HYDRO-TERRA, INCORPORATED	P.3/3

BORING NO.: MW-31 (cont'd)	PROJECT: EAST STATION ADD'L WELLS	DATE: 3/13-14/06

DEPTH	SAMPLE COLLECTION DATA: SAMPLE NUMBER	PID (PPM)	STP TEST BLOWS / 6"	REC (in.)	DESCRIPTION
	S-18	0.3	7/12/17	18	Fine Sand, trace clay, with seams of clay, red, moist
65	S-19	0.3	8/17/17		Fine Sand, little silt, clay at bottom, red, moist
	S-20		4/8/10	18	Clay, mottled red & tan, trace fossilized organic mat'l, moist
					Stopped at 67.5 ft.
70					Well Construction: 1. 2-in. PVC riser pipe 56 to 66 ft. 2. 2-in. PVC well screen 46 to 56 ft. 3. 2-in. PVC riser pipe 0 to 46 ft. 4. Filter sand 44 to 66 ft. 5. Bentonite 39 to 44 ft. 6. Cement/bentonite grout 0.75 to 39 ft. (tremie)
75					Notes: 1. VOCs obtained from jar samples. 2. Sealed off fill unit before advancing boring to Arundel Formation. Seal was achieved by augering to 9 ft. and pushing 6-in. dia. steel casing to depth of 18.5 ft. Steel casing was extracted after well was grouted. 3. Well was installed by GeoServices Corporation under the supervision of Hydro-Terra, Inc.
80					
85					
90					

No. 2 Sand Filter Pack

PVC CASING

PROPORTIONS USED: TRACE = 0-10%, LITTLE = 10-20%, SOME 20-35%, AND = 35-50%

BORING / WELL LOG	HYDRO-TERRA, INCORPORATED	P.1/1

BORING NO.: MW-32	PROJECT: EAST STATION ADD'L WELLS	DATE: 3/09/06

PROJECT NO.: 04110	DRILLER: GEOSERVICES CORP.	DRILLING BIT: MUD ROTARY	
LOCATION: WASH. D.C.	RIG TYPE: TRUCK-MOUNTED	WELL DIAMETER: 2-inch	
INSPECTOR: T. MILLS	METHOD: HOLLOW STEM AUGER	SAMPLING METHOD: SPLIT-SPOON	
		WATER ELEVATION: N/A	
WELL TYPE: monitoring	SLOT SIZE: 0.02-inch	PROTOP WIDTH/TYPE: 6-inch steel flush mount	
WELL DEPTH: 9 ft	GROUT LENGTH/TYPE: N/A	PAD ELEVATION: NA	
RISER PIPE: 0-3.5 ft PVC	SEAL LENGTH/TYPE: 0.75-2.5 ft bentonite	TOC ELEVATION: NA	
SCREEN: 3.5-8.5 ft PVC	FILTER LENGTH/TYPE: 2.5-8.5 ft No. 2 sand	STICK UP/DOWN: NA	
SUMP: N/A		GROUND ELEVATION: NA	

DEPTH	SAMPLE COLLECTION DATA: SAMPLE NUMBER	PID (PPM)	STP TEST BLOWS / 6"	REC (in.)	DESCRIPTION
	S-1	0.0	1/2/3	12	Wood waste over sand & gravel, brown & black, moist (fill)
	S-2	0.0	2/2/4	18	Silt with seams of cinders, brown & black, moist to wet (fill)
					4.7
5	S-3	37.0	5/4/2	16	Coke with tar sheen, black, wet (fill)
					6.5
	S-4	0.0	WOH/12" 1/12"	14	Silt, no tar in sample, grey-brown, moist
10					Stopped at 9 ft.
					Well Construction:
15					1. 2-IN. PVC riser pipe 0-4 ft. 2. 2-in. PVC well screen 4 to 9 ft. 3. Filter sand 3 to 9 ft. 4. Bentonite 0.75 to 3 ft. 5. Flush well cover set in concrete
					Note: Well was abandoned on 4/04/2006
20					
25					
30					

PROPORTIONS USED: TRACE = 0-10%, LITTLE = 10-20%, SOME 20-35%, AND = 35-50%

TEST BORING LOG	HYDRO–TERRA, INCORPORATED	PAGE 1

BORING NO.:	P-55 (1st Attempt)	PROJECT:	EAST STATION	DATE:	4-30-96 / 5-1-96
PROJECT NO:	96010	DRILLER:	PSI	DRILLING BIT:	3.25" ID
LOCATION:	EAST STATION	RIG TYPE:	ATV	GROUND ELEVATION:	—
INSPECTOR:	B. WHIPPLE	METHOD:	ROTARY - H.S.	SAMPLING METHOD:	SPLIT SPOON
WELL TYPE:	1" PIEZOMETER	SCREEN LENGTH:	5'	PROTOP WIDTH/TYPE	
WELL DEPTH:		GROUT LENGTH/TYPE:	0	PAD ELEVATION:	
SCREEN:	5' STAINLESS STEEL (1")	SEAL LENGTH/TYPE:		TOC ELEVATION	4.47'
SLOT SIZE:	0.01	FILTER LENGTH/TYPE:		STICK UP/DOWN:	

DEPTH	SAMPLE COLLECTION DATA: SAMPLE NUMBER	HNU (PPM)	STP TEST BLOWS / 6"	REC (in.)	DESCRIPTION	DEPTH
		—	8-4-2-3	0"	BROWN SILTY SAND + GRAVEL (FROM CUTTINGS) (FILL)	
	S-1	3.2	2-3-2-3	11"	2-2.5' BROWN + BLACK SILTY SAND + GRAVEL, SOME MOTTLED BROWN + THIN CLAY, TRACE RED BRICK (FILL) 3.5-4' BLACK CINDER FILL	
5		7.0	2-3-3-3	7"	BLACK CINDER FILL SLIGHT COAL TAR ODOR (FILL)	
		—	2-2-1-1	0"	NO RECOVERY (2 ATTEMPTS) (FILL)	
		—	0-0-0-7	16"	8-9.5' GRAY SILT, TRACE COAL TAR, SATURATED (FILL) 9.5-10' PIECE OF WOOD, TRACE COAL TAR (FILL ?)	
10		14.0	34-24-50-13	14"	BLACK-STAINED PIECE OF WOOD (OUT OF IT AT 11.5') (SILT ?)	
		—	2-2-1-2	0"	NO RECOVERY (WOOD FRAGMENTS ~~BLOCKING~~ PREVENTING SILT FROM ENTERING SPOON; 2 ATTEMPTS)	
15		0.6	0/12", 1, 1	14"	GRAYISH-BROWN CLAYEY SILT (SILT)	
					BOTTOM OF BORING AT 14'	

* NO FLUORESENCE WAS DETECTED DURING THE UV SCAN.

PROPORTIONS USED: TRACE = 0–10%, LITTLE = 10–20%, SOME 20–35%, AND = 35–50%

TEST BORING LOG	HYDRO–TERRA, INCORPORATED	PAGE 1

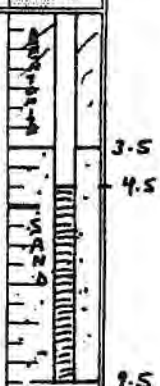
BORING NO.: P-55 (2nd Attempt)	PROJECT: East Station	DATE: 5-1-96

PROJECT NO:	96010	DRILLER:	PSI	DRILLING BIT:	3.25" I.D.
LOCATION:	East Station	RIG TYPE:	ATV	GROUND ELEVATION:	5.12'
INSPECTOR:	B. Whipple	METHOD:	Rotary H.S.	SAMPLING METHOD:	Split Spoon
WELL TYPE:	1" Piezometer	SCREEN LENGTH:	5'	PROTOP WIDTH/TYPE	—
WELL DEPTH:		GROUT LENGTH/TYPE:	0	PAD ELEVATION:	—
SCREEN:	1" Stainless Steel	SEAL LENGTH/TYPE:	3.5 Bentonite	TOC ELEVATION	4.47'
SLOT SIZE:	0.01	FILTER LENGTH/TYPE:	6.0 No.1 Sand	STICK UP/DOWN:	-0.65

DEPTH	SAMPLE COLLECTION DATA: SAMPLE NUMBER	HNU (PPM)	STP TEST BLOWS / 6"	REC (in.)	DESCRIPTION	DEPTH
5						
		11.0	5-2-2-2 F	13"	Grayish-Brown and Black Clayey Silt, Trace Coal Tar and Cinder Material, Moist (Fill) Coal Tar odor present	
		14.0	2-2-2-4 F	14"	Grayish-Brown Silt, Trace Coal Tar, Wet (Fill?) Slight Coal Tar odor	
10	S-2	12.0	Weight of Hammer F	12"	10-11.8' Very Soft Black Silt, Trace Coal Tar and Gravel, C.T. odor present (Silt) 11.8-12' Grayish Brown Clayey Silt, Trace Gravel	
		1.0	Weight of Hammer	14"	Grayish-Brown Clayey Silt (Silt?)	
15						

Screen set at 9'

F → Fluoresence detected during UV scan.



PROPORTIONS USED: TRACE = 0–10%, LITTLE = 10–20%, SOME 20–35%, AND = 35–50%

BORING LOG

HYDRO-TERRA, INCORPORATED

PAGE: 1

BORING NO.: P-6S

PROJECT: EAST STATION

DATE: 4-23-96

PROJECT NO.:	96010	DRILLER:	PSI	DRILLING BIT:	3.25" I.D.
LOCATION:	EAST STATION	RIG TYPE:	ATV	GROUND ELEVATION:	4.37'
INSPECTOR:	B. WHIPPLE	METHOD:	ROTARY, H.S.	SAMPLING METHOD:	SPLIT SPOON
WELL TYPE:	1" PIEZOMETER	SCREEN LENGTH:	5'	PROTOP. WIDTH/TYPE	—
WELL DEPTH:	10'	GROUT LENGTH/TYPE:	0	PAD ELEVATION:	—
SCREEN:	1" STAINLESS STEEL	SEAL LENGTH/TYPE:	3' / BENTONITE	TOC ELEVATION	4.11
SLOT SIZE:	0.01	FILTER LENGTH/TYPE:	6' / No. 1 SAND	STICK UP/DOWN:	-0.26'

DEPTH	SAMPLE NUMBER	HNU (PPM)	STP TEST BLOWS/6"	REC (in.)	DESCRIPTION	
		0.4	[redacted]	—	DK. BROWN SILTY SAND + GRAVEL, SOME SILT	(FILL)
		4.5	2-33-30-14	14"	BROWN CLAYEY SILT, SOME GRAVEL + SAND CONCRETE FILL AT ~3'. SLIGHT PETROLEUM ODOR, MOIST	BENTONITE (FILL)
4	S-1	20.0	9-18-16-15 F*	12"	4-4.5' CONCRETE FILL 4.5-6' BLACK CINDERS + GRAVEL, SOME PURIFIER SPONGE, TRACE	(FILL) (FILL)
	S-2	12.0	4-4-4-1 F	16"	6-7' BLACK CINDER FILL, TRACE COAL TAR 7-8' DK. GRAY CLAYEY SILT, TRACE ROOTS	(FILL) (SILT)
8		1.8	2-1-1-1 F*	13"	GRAYISH BROWN CLAYEY SILT, TRACE SAND	(SILT)
		0.4	1/12, 1, 2	12"	GRAYISH BROWN CLAYEY SILT, TRACE SAND	(SILT)
12						
16						
20						

DEPTH: SAND

F - FLUORESENCE DETECTED

F* - SMALL AMOUNT OF FLUORESENCE DETE.

PROPORTIONS USED: TRACE = 0-10%, LITTLE = 10-20%, SOME 20-35%, AND = 35-50%

BORING LOG	HYDRO-TERRA, INCORPORATED	PAGE: 1

BORING NO.:	P-7S	PROJECT:	EAST STATION	DATE:	4-23-96
PROJECT NO.:	96010	DRILLER:	PSI	DRILLING BIT:	3.25" I.D.
LOCATION:	EAST STATION	RIG TYPE:	ATV	GROUND ELEVATION:	7.24'
INSPECTOR:	B. WHIPPLE	METHOD:	ROTARY, H-S.	SAMPLING METHOD:	SPLIT SPOON
WELL TYPE:	1" PIEZOMETER	SCREEN LENGTH:	5'	PROTOP WIDTH/TYPE	—
WELL DEPTH:	13'	GROUT LENGTH/TYPE:	0	PAD ELEVATION:	—
SCREEN:	1" STAINLESS-STEEL	SEAL LENGTH/TYPE:	5'/BENTONITE	TOC ELEVATION	6.74'
SLOT SIZE:	0.01	FILTER LENGTH/TYPE:	7'/No. 1 SAND	STICK UP/DOWN:	0.50'

DEPTH	SAMPLE NUMBER	HNU (PPM)	STP TEST BLOWS/6"	REC (in.)	DESCRIPTION
		0.2	3-6-4-5	10"	BROWN SILTY SAND + GRAVEL, MOIST (FILL)
4	S-1	0.2	13-18-15-14	20"	BROWNISH-BLACK ~~DARK BROWN~~ SILT AND MULTI-COLORED CRUSHED GLASS, VERY MOIST (FILL)
		0.2	2-8-6-7	17"	4-5' BLACK SILTY SAND, SOME CINDERS, WET (FILL) 5-6' LIGHT BROWN CLAYEY SILT, TRACE SAND, WET
8		8.0	3-6-7-7 F*	20"	6-6.5' SAME AS 5-6' (FILL) 6.5-8' PURIFIER SPONGE/CINDER FILL, STRONG ODOR WET.
	S-2	19.0	2-2-3-5 F	14"	CINDER FILL, TRACE COAL TAR AND PURIFIER SPONGE, WET VERY STRONG ODOR (FILL)
12		25.0	2-2-2-1 F*	16"	10-11' SAME AS 8-10 (FILL) 11-12 GRAYISH-BROWN CLAYEY SILT (SILT)
		0.6	1-2-1-1	13"	SAME AS 11-12' (SILT)
16					
20					

BENTONITE

SAND

F - FLUORESENCE DETECTED

F* - SMALL AMOUNT OF FLUORESENCE DETECTED.

PROPORTIONS USED: TRACE = 0-10%, LITTLE = 10-20%, SOME 20-35%, AND = 35-50%

BORING LOG	HYDRO-TERRA, INCORPORATED	PAGE: 1

BORING NO.: P-105 | PROJECT: EAST STATION | DATE: 4-17-96

PROJECT NO.:	96010	DRILLER:	PSI	DRILLING BIT:	3.25" I.D.
LOCATION:	EAST STATION	RIG TYPE:	ATV	GROUND ELEVATION:	10.24'
INSPECTOR:	B. WHIPPLE	METHOD:	HOLLOW STEM ROTARY	SAMPLING METHOD:	SPLIT SPOON
WELL TYPE:	1" PIEZOMETRE	SCREEN LENGTH:	5'	PROTOP WIDTH/TYPE	—
WELL DEPTH:	17'	GROUT LENGTH/TYPE:	0	PAD ELEVATION:	—
SCREEN:	1" STAINLESS-STEEL	SEAL LENGTH/TYPE:	9' BENTONITE	TOC ELEVATION	9.78'
SLOT SIZE:	0.01	FILTER LENGTH/TYPE:	7' NO.1 SAND	STICK UP/DOWN:	"0.46'

DEPTH	SAMPLE COLLECTION DATA: SAMPLE NUMBER	HNU (PPM)	STP TEST BLOWS/6"	REC. (IN.)	DESCRIPTION
		0.6	6-8-36-10	18"	TAN SAND AND GRAVEL, TRACE CLAY, MOIST (FILL)
4		0.6	6-9-7-5	20"	SAME AS 0-2' (FILL)
		3.5	5-4-4-3	13"	TAN SAND, SOME GRAVEL, TRACE CLAY, VERY MOIST (FILL)
		2.0	3-2-2-3	2"	TAN LOOSE SAND AND WOOD FRAGMENTS (FILL)
8	S-1	1.2	2-½-1	2"	SAME, VERY LOOSE, VERY WET (FILL)
		0.4	0	4"	SAME AS 8-10, SATURATED (FILL)
12		14.0	2½.5	13"	12-13' SAME AS 8-10 13-14' 1" SEAM OF BLACK SILTY SAND AND CINDERS (FILL) MOTTLED GRAY + BROWN CLAY
		1.2	2-2-3-3	6"	MOTTLED GRAY + BROWN CLAY, TRACE SILT AND WOOD FRAGMENTS (FILL)
16	S-2	1.5 (3.0)	10-13-8-10	14"	16-17' SAME AS 14-16 (FILL) 17-17.8' DK. GRAY SAND AND GRAVEL 17.8-18. BLACK CLAYEY SILT (SILT)
		1.8	1-2-2-2	17"	GRAYISH BROWN SILTY CLAY, TRACE WOOD FRAGMENTS AND MED. SAND. (SILT)
20			1-1-5		GRAYISH BROWN SILTY CLAY, TRACE WOOD FRAGMENTS AND ROOTS (SILT)
					BOTTOM OF BORING AT 20'
24					
					* NO UV SCAN WAS PERFORMED AT THIS LOCATION.

DEPTH: BENTONITE; SAND

PROPORTIONS USED: TRACE = 0-10%, LITTLE = 10-20%, SOME 20-35%, AND = 35-50%

GeoTrans, inc.
ENVIRONMENTAL SPECIALISTS

GEOLOGIC LOG

Project WASH. GAS LIGHT WELL INSTALLATION Date Started 5-16-91

Location EAST STATION (D.C. WORKS) WGL-3D Date Completed 5-16-91

Client WASH GAS LIGHT CO Page # 1 of 2

Depth (ft)	Spl No.	Blows on Sampler (N) 0/6	6/12	12/18	18/24	Description and Classification	Well	Water Table & Remarks
0' -						LT. TO Med. Brown Silty Sand and Med. brown Silty Clay. w/ ¼" clear quartz pebbles — 2 ppm		WELL CONSTRUCTION SCREEN: 35'-55' RISER: 0' -35' SAND: 34' -55' BENTONITE: 32.5'-34' GROUT: 0'-32.5'
-5'								
SP SP	5'-7'					12" Spoon Black fill w/ brown clay - odor 5 ppm		
5'						Black gravelly clay w/ cobbles and wood shavings at 8'		
-10'								
SP SP	9'-11'					4" spoon Black fill material and clay w/ odor, color and wood shavings. - 10 ppm		
10'						Black clay w/ oil stain and cobbles		10" casing set from 0'-20'
-15								
SP SP	14'-16'					8" spoon Black clay w/ cobbles & fill 150 ppm		
15'						Black brown oil-stained plastic clay w/ cobbles & minor fill		
-20								
SP SP	19'-20					12" spoon Top 6" Black fill & clay Bottom 6" orange/red plastic clay 200 ppm		
20'						Dark Gray Plastic clay w/ minor silt		
-25								
SP SP	24'-25'					12" spoon Dark gray plastic clay w/ minor cobbles oil sheen & odor 250 ppm		
25'						Dark Gray plastic clay w/ wood fragments		
-30								
SP SP	29'-30'					12" spoon - dark gray plastic clay - 2 ppm		
30						S. A. A. (SAME AS ABOVE)		
-35								
SP SP	34'-35'					12" Spoon — S.A.A. 2 ppm		

N = NUMBER OF BLOWS TO DRIVE _____" SPOON _____"
WITH _____ LB. WEIGHT FALLING _____" PER BLOW

GeoTrans, inc.
ENVIRONMENTAL SPECIALISTS

GEOLOGIC LOG

Project WASH. GAS LIGHT WELL INSTALLATION Date Started 5-16-91

Location EAST STATION (D.C. WORKS) WGL-3D Date Completed 5-16-91

Client WASH GAS LIGHT CO. Page # 2 of 2

Depth (ft)	Spl No.	Blows on Sampler (N) 0/6	6/12	12/18	18/24	Description and Classification	Well	Water Table & Remarks
35' -40'						S.A.A.		
SP SP	39'-40'					12" spoon - SAA / 3 ppm		
40' -45'						Dark Gray Plastic Clay		
SP SP	44'-45'					12" spoon - SAA / 3 ppm		
45' -50'						S.A.A. w/ 2' sand in bottom of hole.		
SP SP	49'-50'					12" spoon used but no recovery in wet sand at bottom 2'		
50' -55'						TAN TO BEIGE SAND W/ CLAY AT BASE		
SP SP						EMPTY SPLIT SPOON EXCEPT FOR ½" CLAY PLUG AT BOTTOM.		
						T.D. @ 55'		

N = NUMBER OF BLOWS TO DRIVE _____" SPOON _____"
WITH _____ LB. WEIGHT FALLING _____" PER BLOW

BORING LOG

HYDRO-TERRA

Project: East Station Contaminant Investigation - Phase II.
Test Boring No. 31 Elevation 28.7' Date June 3, 1988.
Location: 87' east and 17' north of I-7.

Ft.	A	B	Ground Surface
	S-1	13	Black COKE, COAL and CINDER FILL, Coarse to Fine Grained, Moist, Coal Tar Odor
2			
4	S-2	14	
			6.0'
6	S-3	11	Mottled Red and Grey CLAY FILL, Trace Black Cinders, Moist, Mottled Texture, No Evidence of Contamination
8	S-4	18	
10	S-5	22	
12			
			13.5'
14	S-6	41	Mottled Red and Yellow CLAY, Moist, Stiff, Tight, No Evidence of Contamination
16	S-7	50	
18	S-8	31	Mottled Red CLAY with Grey SILTY CLAY Seams, Moist, Stiff, No Evidence of Contamination
20			

"A" - Depth of lower limit of split barrel sample, bottom of core run, or depth of RQD

"B" - Blows for last 12 in. (except as noted) on split barrel sampler, or % of core recovery

Ground Water Measurements		
Date	Elapsed Hrs.	Depth
6/3	1	Dry

Test Boring No. 31.
Sheet 2 of 2.

Ft.	A.	B	
	S-9	24	
22			
			23.5'
24	S-10	46	
26	S-11	42	Brown CLAYEY SAND, Some Red Clay, Trace Brown Shale Chips, Moist, Stiff, No Evidence of Contamination
28	S-12	46	
30	S-13	48	
32			
34	S-14	30	
			35.5'
			Brown CLAYEY SAND, Some Red CLAY Moist, Stiff, Small Light Brown SAND SEAM, Wet, No Evidence of Contamination
36	S-15	50	36.5'
			Stopped at 36.5'
38			
40			
42			
44			
46			
48			

Notes:

1. Inspected and logged by Scott Sandberg
2. Drilled by National Foundation Engineering (Driller: Richard Sies)

BORING LOG

HYDRO-TERRA

Project: East Station Contaminant Investigation - Phase II
Test Boring No. 35 Elevation 7.5' Date June 9, 1988
Location: Northeast of Washington Gas Pump House, 4' East and 7' North of F-7

Ft.	A	B	Ground Surface
2			Black SAND, GRAVEL and CINDER FILL, Wet, Visible Tar/Oil (Auger cuttings)
4			
6			
8			
10			
12			Gray ORGANIC SILT (Auger cuttings)
14			
16			
18			
20			Continued

"A" - Depth of lower limit of split barrel sample, bottom of core run, or depth of RQD

"B" - Blows for last 12 in. (except as noted) on split barrel sampler, or % of core recovery

Ground Water Measurements		
Date	Elapsed Hrs.	Depth

Ft.	A	B	Continued
22			
24			
26			
28			
30			
	S-1	7	
32			Gray to Dark Gray ORGANIC SILT, Trace Peat and Charcoal, Wet, No Volatile Odor
34	S-2	8	
36	S-3	8	
38			
	S-4	10	
40			
	S-5	11	41.0'
42			
44	S-6	4	Alternating layers of Brown and Gray SANDY SILT, SAND, and PLANT MATERIAL, Wet, No Volatile Odor
46	S-7	81	
48			Brown SAND and GRAVEL, Wet, Loose, Continued

Ft.	A	B	Continued
			No Volatile Odor
	S-8	42	49.0'
50			Alternating layers of Red CLAY with Trace Rounded Gravel and Brown Fine SAND, No Evidence of Contamination
	S-9	21	
52			
54	S-10	53	54.0'
			Stopped at 54.0'
56			
58			
60			
62			
64			
66			
68			
70			
72			
74			
76			

Notes:

1. Using 12" O.D. auger drilled down 20'. Pulled the augers out of the hole and found organic silt of the auger.
2. Installed 12" O.D. PVC casing.
3. Using 3.25" I.D. auger drilled down through the casing
4. Inspected and logged by Scott Sandberg
5. Drilled by National Foundation Engineering (Driller: Richard Sies)

BORING LOG

HYDRO-TERRA

Project: East Station Contaminant Investigation - Phase II
Test Boring No. 41 Elevation 7.5' Date June 14, July 14&15, 1988
Location: Next to the 12th Street Bridge (Downriver), Near Anacostia River, 27' West and 43' South of D-4

Ft.	A	B	Ground Surface
2			Tan to Brown SILTY SAND FILL, Some Construction Debris, Dry
4			
6			
8			8.5'
10	S-1	--	Black CINDER FILL, Some Purifier Sponge, Moist, Tar Odor, Wet at S-2, Oil Present (Fuel Oil?) on S-2
12	S-2	19	SAND, Some Silt, Wet, Oil Visible
14	S-3	2	14.5'
16	S-4	15	Gray-Brown to Dark Gray ORGANIC CLAYEY SILT, Moist to Wet, No Evidence of Contamination
18			
20			Continued

"A" - Depth of lower limit of split barrel sample, bottom of core run, or depth of RQD

"B" - Blows for last 12 in. (except as noted) on split barrel sampler, or % of core recovery

Ground Water Measurements		
Date	Elapsed Hrs.	Depth
6/14	2:30 pm	8.0'

Ft.	A.	B	Continued
	S-5	15	
22			
24			
	S-6	12	
26			
28			
30	S-7	18	
32			
34			
	S-8	13	
36			
38			
40	S-9	33	Brick Red FINE SAND, Trace Silt, Moist, No Evidence of Contamination
42			
44			
	S-10	46	
46			
48			Continued

Ft.	A	B	Continued
50	S-11	62	Brick Red SILTY CLAY, Occasional Fine Sand Seams, Moist, No Evidence of Contamination
52			
54	S-12	72	Stopped at 54.0'
56			Notes:
58			1. Drilled to 16.5' on 6/14. Returned to site on 7/14 and completed on 7/15.
60			2. Inspected and logged by Scott Sandberg on 6/14 and 7/14.
62			3. Inspected and logged by Tom Mills on 7/15
64			4. Hole was cased to 18' with 12" PVC to reduce possibility of cross contamination
66			5. Drilled by National Foundation Engineering (Driller: Richard Sies)
68			
70			
72			
74			
76			

TEST BORING LOG	HYDRO–TERRA, INCORPORATED	PAGE 1

BORING NO.:	TB- 54	PROJECT:	East Station	DATE:	5-6-96
PROJECT NO:	95190	DRILLER:	PSI	DRILLING BIT:	3.25"
LOCATION:	East Station	RIG TYPE:	ATV	GROUND ELEVATION:	
INSPECTOR:	B. Whipple	METHOD:	Rotary, H.S.	SAMPLING METHOD:	Split Spoon
WELL TYPE:		SCREEN LENGTH:		PROTOP WIDTH/TYPE	
WELL DEPTH:		GROUT LENGTH/TYPE		PAD ELEVATION:	
SCREEN:		SEAL LENGTH/TYPE		TOC ELEVATION	
SLOT SIZE:		FILTER LENGTH/TYPE		STICK UP/DOWN:	

DEPTH	SAMPLE COLLECTION DATA: SAMPLE NUMBER	HNU (PPM)	STP TEST BLOWS / 6"	REC (in.)	DESCRIPTION		DEPTH
		4.5	1-2-3-3	17"	LT. BROWN CLAYEY SILT, TRACE SM. GRAVEL, SAND, + GLASS	(FILL)	
5		4.5	4-3-3-5 F*	15"	4-4.5 SAME AS 2-4 4.5-5 SILTY SAND, TRACE GRAVEL, MOIST 5-6' MOTTLED BROWN, TAN, GRAY CLAY, MOIST	(FILL)	
		25.0	2-3-4-5	18"	MOTTLED BROWN, TAN, + GRAY CLAY, MOIST	(AC)	
		9.0	2-3-4-8	16"	MOTTLED BROWN, TAN, + GRAY CLAY 1/2" THICK SEAM OF BLACK STAINING AT 8.5'	(AC)	
10		2.0	4-3-5-8	20"	SAME AS 6-8'	(AC)	
		1.4	2-3-5-6	20"	SAME AS 6-8'	(AC)	

AC → Arundel Clay

F* - Trace Fluoresence Detected

PROPORTIONS USED: TRACE = 0–10%, LITTLE = 10–20%, SOME 20–35%, AND = 35–50%

TEST BORING LOG	HYDRO–TERRA, INCORPORATED	PAGE 1

BORING NO.: TB-55	PROJECT: EAST STATION	DATE: 5-7-96

PROJECT NO:	95190	DRILLER:	PSI	DRILLING BIT:	3.25"
LOCATION:	EAST STATION	RIG TYPE:	ATV	GROUND ELEVATION:	
INSPECTOR:	B. WHIPPLE	METHOD:	ROTARY, H.S.	SAMPLING METHOD:	SPLIT-SPOON
WELL TYPE:		SCREEN LENGTH:		PROTOP WIDTH/TYPE	
WELL DEPTH:		GROUT LENGTH/TYPE:		PAD ELEVATION:	
SCREEN:		SEAL LENGTH/TYPE:		TOC ELEVATION	
SLOT SIZE:		FILTER LENGTH/TYPE:		STICK UP/DOWN:	

DEPTH	SAMPLE COLLECTION DATA: SAMPLE NUMBER	HNU (PPM)	STP TEST BLOWS / 6"	REC (in.)	DESCRIPTION	DEPTH
		6.0 F*	4-2-2-3	11"	BROWN + BLACK SILTY SAND, SOME ASPHALT AND CLAY STRONG ODOR (FILL)	
	S1	25.0 F*	3-3-3-2	24"	BLACK CLAYEY SILT, TRACE CINDERS, VERY MOIST * VOA SAMPLE TAKEN AT 3.7-4.0' STRONG ODOR (FILL)	
5		20.0 F*	0-3-3-2	18"	4-5' BLACK CLAYEY SILT, TRACE CINDERS, WET (FILL) 5-6' MOTTLED TAN, BROWN, + GRAY CLAY, SOME BLACK STAINING VERY STRONG ODOR	
		—	2-3-5-7	0"	No Recovery. (CLAY?)	
10		1.0	2-3-5-7	23"	MOTTLED BROWN, TAN, + GRAY CLAY, MOIST NO EVIDENCE OF CONTAMINATION (CLAY)	
15					F* → Trace Fluoresence Detected.	

PROPORTIONS USED: TRACE = 0–10%, LITTLE = 10–20%, SOME 20–35%, AND = 35–50%

BORING LOG	HYDRO-TERRA, INCORPORATED	PAGE: 1

BORING NO.: TB-58	PROJECT: EAST STATION	DATE: [illegible]

PROJECT NO.:	96150	DRILLER:	E&I	DRILLING BIT:	4.25"
LOCATION:	EAST STATION	RIG TYPE:	B-61	GROUND ELEVATION:	≈7.04'
INSPECTOR:	A. WHIPPLE	METHOD:	HOLLOW STEM ROTARY	SAMPLING METHOD:	SPLIT SPOON
WELL TYPE:		SCREEN LENGTH:		PROTOP WIDTH/TYPE:	
WELL DEPTH:		GROUT LENGTH/TYPE:		PAD ELEVATION:	
SCREEN:		SEAL LENGTH/TYPE:		TOC ELEVATION:	
SLOT SIZE:		FILTER LENGTH/TYPE:		STICK UP/DOWN:	

DEPTH	SAMPLE COLLECTION DATA: SAMPLE NUMBER	HNU (PPM)	STP TEST BLOWS / 6"	REC (in.)	DESCRIPTION	DEPTH
4					MIXED CINDER AND SILTY CLAY FILL (AUGER CUTTINGS)	
8	S-1	0.2	3-3-3-4	4"	MOTTLED DK. BROWN - GRAY SILTY CLAY	
	S-1	0.2	1-2-3-8	13"	8-9 DK. BROWN + GRAY SILTY CLAY, VERY MOIST 9-10 BLACK CINDER FILL, VERY WET	
12	S-3	2.2	2-1-2-3	17"	10.5' DK. GRAY ORGANIC SILT, WET (SILT)	
	S-4	1.8	1-2-1-2	24"	GRAY ORGANIC SILT, WET (SILT)	
16					No Fluoresence detected.	
20						
24						
28						

PROPORTIONS USED: TRACE = 0-10%, LITTLE = 10-20%, SOME 20-35%, AND = 35-50%

HNU back ground → 0.2 ppm

BORING LOG	HYDRO-TERRA, INCORPORATED	PAGE: 1

BORING NO.: TB-59		PROJECT: EAST STATION			DATE: 7-20-96
PROJECT NO.: 96150 LOCATION: 40' NE of TB-58 INSPECTOR: B. WHIPPLE		DRILLER: EA 1 RIG TYPE: B-61 METHOD: HOLLOW-STEM ROTARY		DRILLING BIT: 4.25" GROUND ELEVATION: 5.76' SAMPLING METHOD: SPLIT SPOON	
WELL TYPE: WELL DEPTH: SCREEN: SLOT SIZE:		SCREEN LENGTH: GROUT LENGTH/TYPE: SEAL LENGTH/TYPE: FILTER LENGTH/TYPE:		PROTOP WIDTH/TYPE PAD ELEVATION: TOC ELEVATION STICK UP/DOWN:	

DEPTH	SAMPLE COLLECTION DATA: SAMPLE NUMBER	HNU (PPM)	STP TEST BLOWS/6"	REC (in.)	DESCRIPTION	DEPTH
					Brown Silty Clay - Cinder Fill (A.C.)	
					REDDISH BROWN SILTY CLAY (A.C.)	3
4						
8					BLACK SILTY CINDER FILL (A.C.)	8
	S-1	1.0		4"	DK. GRAY ORGANIC SILT, SOME SAND + ROOTS AT ~11' (SILT)	11'
12		1.0		8"	DK. GRAY ORGANIC SILT (SILT)	
16					No Fluorescent detected.	
20						

PROPORTIONS USED: TRACE = 0-10%, LITTLE = 10-20%, SOME 20-35%, AND = 35-50%.

HNU background → 1.0 ppm

BORING LOG	HYDRO-TERRA, INCORPORATED	PAGE: 1

BORING NO.: TB-60 (MW-65) PROJECT: EAST STATION DATE: 12-10-96

PROJECT NO.:	98160	DRILLER:	EDI	DRILLING BIT:	3.25" H.S.
LOCATION:	EAST STATION	RIG TYPE:	B-61	GROUND ELEVATION:	+9.13
INSPECTOR:	B. WHAPLE	METHOD:	H.S. ROTARY	SAMPLING METHOD:	SPLIT SPOON
WELL TYPE:		SCREEN LENGTH:		PROTOP WIDTH/TYPE	
WELL DEPTH:		GROUT LENGTH/TYPE:		PAD ELEVATION:	
SCREEN:		SEAL LENGTH/TYPE:		TOC ELEVATION	
SLOT SIZE:		FILTER LENGTH/TYPE:		STICK UP/DOWN:	

DEPTH	SAMPLE COLLECTION DATA: SAMPLE NUMBER	HNU (PPM)	STP TEST BLOWS/6"	REC (IN.)	DESCRIPTION	DEPTH
					Brown Clayey Silt and Black Cinder Fill (A.C.)	
4						
8		1.2 F*	8-8-8-6	10"	BLACK CINDER FILL, PURIFIER ODOR, MOIST	
		1.6 F*	2-4-7-5	11"	BLACK CINDER FILL, PURIFIER ODOR, WET	
12		1.5	4-3-2-2	4"	BLACK CINDER FILL	
		3.0	2-2-2-2	10"	BLACK CINDER FILL 6" SEAM OF SILT + CINDERS SLIGHT SHEEN	
16		6.0	4-1-5	13"	BROWN SILT, SOME ~~SOME~~ SAND AND CINDERS COAL TAR PRESENT	
		25 F	1-1-3-3	6"	BROWN ORGANIC SILT, 2" SEAM OF BLACK CINDERS, SOME COAL TAR	
20	S-1	250 F	1-3-2-2	20"	BROWN SILT-SAND, PIECE OF RED BRICK COAL TAR PRESENT ~21.5' DK. GRAY ORGANIC SILT	
		12.8	1-1-1-3	22"	DK. GRAY ORGANIC SILT (SILT)	
24						

PROPORTIONS USED: TRACE = 0-10%, LITTLE = 10-20%, SOME 20-35%, AND = 35-50%

HNU background → 0.4 ppm

BORING LOG	HYDRO-TERRA, INCORPORATED	PAGE: 1

BORING NO.:	TB-66	PROJECT:	EAST STATION	DATE:	12/12/96
PROJECT NO.:	95160	DRILLER:	EDI	DRILLING BIT:	3.25"
LOCATION:	EAST STATION	RIG TYPE:	B-61	GROUND ELEVATION:	~8.54'
INSPECTOR:	B. WHIPPLE	METHOD:	H.S. ROTARY	SAMPLING METHOD:	SPLIT SPOON
WELL TYPE:		SCREEN LENGTH:		PROTOP WIDTH/TYPE	
WELL DEPTH:		GROUT LENGTH/TYPE:		PAD ELEVATION:	
SCREEN:		SEAL LENGTH/TYPE:		TOC ELEVATION	
SLOT SIZE:		FILTER LENGTH/TYPE:		STICK UP/DOWN:	

DEPTH	SAMPLE COLLECTION DATA: SAMPLE NUMBER	HNU (PPM)	STP TEST BLOWS/6"	REC (in.)	DESCRIPTION	DEPTH
		0.4			Brown-Gray Silty Sand-Gravel Fill (MC) Some concrete + brick Fill	
4					---	
		0.4			Brown Clayey Silt, Some Gravel - FILL	
8		0.4	5-2-5-10	13"	8-9.5 Brown Clayey Silt, Some Gravel, MOIST 9.5-10 Black Gravel Fill, WET	
		0.4	2-2-4-8	11"	Brown Clayey Silt, Some mottled clay and concrete fragments - Fill, wet	
12		0.4	2-1-1-5	16"	12-13.5 ~~Brown Clayey Silt~~ Brown-Gray Clay Silt 13.5 Black Cinder Fill, WET	
	S-1	1.2	3-2-4-5	3"	Black-Dk. Gray Cinder Fill, Some Silt, WET	
16		0.6	2-1-1-1	20"	16-17 Black Cinder Fill 17-18 Gray-brown organic SILT, SOME CINDERS VERY MOIST	17
		1.0	2-1-1-3	20"	Gray-brown organic SILT, SOME DECAYING PLANT/ROOT MATTER, VERY MOIST (SILT)	
20						
					No Fluorescence detected.	
24						
28						

PROPORTIONS USED: TRACE = 0-10%, LITTLE = 10-20%, SOME 20-35%, AND = 35-50%

Hnu background → 0.4

TEST PIT LOG

HYDRO-TERRA

Project: East Station Contaminant Investigation - Phase II
Test Pit No. 18 Elevation 3.0' Date June 3, 1988
Location: 27' East and 20' South of H-9

Ft.	A	Ground Surface	
		Brown CLAYEY SAND FILL	0.5'
		Gray CLAY FILL, Some Brick Fragments and Boulders	1.0'
2			
		Yellow-Brown SAND FILL, Wet, Loose	
4			
			5.0'
6		Gray ORGANIC SILT FILL, Trace Gravel Brick Fragments and Charcoal, Soft, Wet	
8			
10			10.0'
		Black CINDERS, Coarse, Wet, Very Loose, Possible Tar/Oil Contamination	
		Stopped at 11.0'	
12			
14		Notes:	
		1. Soil units below 5' were difficult to define due to water infiltration and soil slumping	
16		2. Excavated by Washington Gas	
		3. Inspected and logged by Frank Anderson	
18			
20			

"A" - Sample Location

Ground Water Measurements		
Date	Elapsed Hrs.	Depth
6/3	0.25	4'

TEST PIT LOG

HYDRO-TERRA

Project: East Station Contaminant Investigation - Phase II
Test Pit No. 21 Elevation 9.0' Date June 7, 1988
Location: 25' East and 85' South of C-2

Ft.	A	Ground Surface
2		Brown SANDY SILT FILL, Some Gravel and Building Rubble, Dense, Moist, No Evidence of Contamination
		3.5'
4		Brick Red SILTY CLAY FILL
		4.5'
6		Gray to Dark Brown SILTY SAND FILL, Trace Gravel and Cinders, Moist to Wet, Possibly Slight Volatile Odor
8		
		9.5'
10		Brown SAND and GRAVEL FILL, Some Silt and Clay, Wet, No Evidence of Contamination
		Stopped at 10.5'
12		
14		Notes:
		1. Excavated by Washington Gas
		2. Inspected and logged by Tom Mills
16		3. Water lying in seams below 8'
18		
20		

"A" - Sample Location

Ground Water Measurements		
Date	Elapsed Hrs.	Depth

Appendix B-2

Other Boring Logs and Well Construction Diagrams

BORING LOG

hydro-terra, inc.

Project: Subsurface Contamination Survey - East Station, Washington Gas

Test Boring No. 1 Elevation 23.0 ft. Date September 8, 1983

Location South of Gas Oil Storage Tank No. 70

Ft.	A	B	
0			Ground Surface
			Concrete Paving 0.6'
			Brown SAND and GRAVEL, Trace CINDERS - Moist and Loose 3.0'
5	S-1	11	Mottled Brick Red, Tan and Gray SILTY CLAY - Moist and Stiff, No Evidence of Contamination 6.5'
	S-2	17	
10	S-3	18	
	S-4	23	Mottled Brown and Tan CLAYEY SILT and SAND, Grading to SANDY SILT in Places - Moist and Very Stiff, No Evidence of Contamination
15	S-5	26	
	S-6	27	
20	S-7	22	Brown CLAYEY SAND, Fine Textured - Saturated and Very Stiff, Possible Artesian Condition, Faint Contaminant Smell 24.0'
25	S-8	28	25.0'

(Continued)

"A" - Depth of lower limit of split barrel sample, bottom of core run, or depth of RQD

"B" - Blows for last 12 in. (except as noted) on split barrel sampler, or % of core recovery

Ground Water Measurements		
Date	Elapsed Hrs.	Depth
9-8	0	24'
9-9	19	12'9"
9-9	26	12'6"
9-12	71	12'1"
9-14		12'1"

Ft.	A	B	Continued
			21.0'
	S-9	--	Grey ORGANIC SILT, Firm, Tight, No Evidence of Contamination
22			Stopped at 21.5'
24			
26			
28			Notes: 1. Inspected and logged by Scott Sandberg 2. Drilled by National Foundation Engineering (Driller: Richard Sies)
30			
32			
34			
36			
38			
40			
42			
44			
46			
48			

BORING LOG

hydro-terra, inc.

Project: Subsurface Contamination Survey - East Station, Washington Gas

Test Boring No. 2 Elevation 22.7 ft. Date September 8, 1983

Location South of No. 1 Storage Holder and East of Meter House (Building No. 9)

Ft.	A	B	
0			Ground Surface
	S-1	4	Brown and Gray CLAYEY SAND and GRAVEL, Trace CINDERS - Moist to 9 ft - Wet Below, Loose, Tar Smell
5			
	S-2	6	
10	S-3	6	11.0'
	S-4	5	Brown to Gray CLAYEY SAND and GRAVEL - Saturated and Loose to Medium Dense, Considerable Black Tar Noted on Drilling Tools Below 21 ft
15	S-5	6	
	S-6	13	
20	S-7	13	23.5'
	S-8	7	
25			(Continued)

"A" - Depth of lower limit of split barrel sample, bottom of core run, or depth of RQD

"B" - Blows for last 12 in. (except as noted) on split barrel sampler, or % of core recovery

Ground Water Measurements		
Date	Elapsed Hrs.	Depth
9-9	0	9'6"
9-9	5	8'10"
9-12	71	8'11"
9-14	125	8'11"

Ft.	A	B	
25			(Continued)
	S-9	13	Grayish Brown Organic CLAYEY SILT grading to SILTY SAND Near Bottom, Trace WOOD FRAGMENTS - Moist and Medium Stiff to Stiff, No Evidence of Contamination
			30.0'
30	S-10	18	Gray and Brown SAND and GRAVEL, Some CLAY in Places - Saturated and Medium Dense to Dense, Strong Evidence of Possible Tar Contamination
	S-11	40	
35			
			37.0'
	S-12	42	Mottled Brick Red, Gray and Tan SILTY CLAY - Moist and Very Stiff to Hard, No Evidence of Contamination
40	S-13	29	
	S-14	34	
45			
			Stopped Boring at 50' 50.0'
50	S-15	35	
			(Continued)

BORING LOG

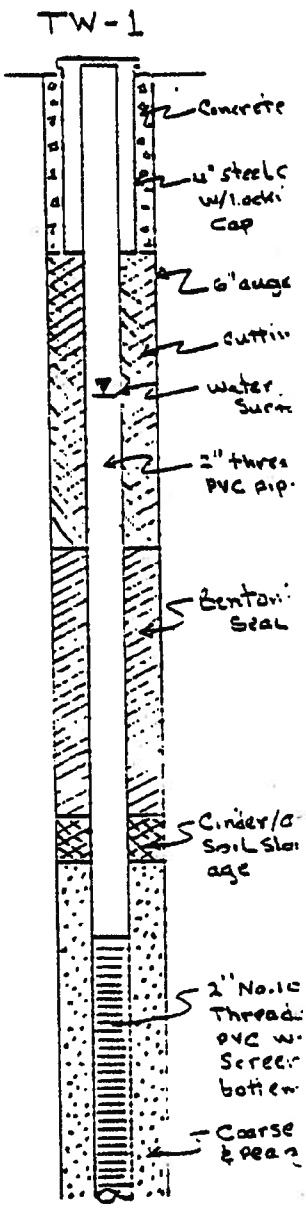
hydro-terra, inc.

Project: Subsurface Contamination Survey - East Station, Washington Gas

Test Boring No. 3 Elevation 21.6 ft. Date September 9, 1983

Location East of Engine & Blower House (Building No. 6) and Between Tar Well No. 4 and Tar Sump No. 5

Ft.	A	B	Description
0			Ground Surface
			Brown and Gray CLAYEY SANDY GRAVEL and CINDERS/ASH - Moist to about 3 ft - Saturated Below, Very Loose to Loose
5	S-1	10	
	S-2	3	8.5'
10	S-3	7	Mottled Brick Red, Gray and Tan SILTY CLAY, Some SAND and GRAVEL - Wet - Considerable Water at 15 ft - Faint Smell of Tar, Medium Stiff
	S-4	10	15.0'
15	S-5	15	Mottled Brick Red and Gray SILTY CLAY - Moist and Stiff, No Evidence of Contamination 18.0'
20	S-6	24	Mottled Brown and Tan CLAYEY SAND with Thin SAND SEAMS - Moist to Saturated in Sand Seams Below 24 ft, Very Stiff to Hard, No Evidence of Contamination
	S-7	29	
25			(Continued)



"A" - Depth of lower limit of split barrel sample, bottom of core run, or depth of RQD

"B" - Blows for last 12 in. (except as noted) on split barrel sampler, or % of core recovery

Ground Water Measurements		
Date	Elapsed Hrs.	Depth
* 9-12	63	16'6"

* Reading prior to setting well casing

Ft.	A	B	(Continued)
			washed gravel.
			b. Set 10 ft of 2-in No. 10 PVC well screen from 19 ft 2 in to 29 ft 2 in and 19 ft 2 in of 2-in PVC standpipe from 0 ft to 19 ft 2 in.
			c. Packed hole with coarse sand and pea gravel from 17.5 ft to 31.0 ft.
			d. Hole sloughed from 16.5 ft to 17.5 ft.
			e. Placed bentonite pellets from 10.5 ft to 16.5 ft.
			f. Backfilled with cuttings and washed gravel from 10.5 ft to 4.0 ft.
			g. Lowered rods into casing and flushed well with 250 gal of Baltimore City water (sample collected for possible analysis).
			h. Installed 4 ft of 4-in diameter steel casing over 2-in PVC standpipe and backfilled annular spaces with soil and concrete. Pipe protrudes 4.5 in above ground and has a locking cap.
			i. Water elevation readings in well are as follows:
			(1) 6 ft 11.5 in at 4:00 p.m. on 9/14/83 (46 hrs)
			(2) 7 ft 4.5 in at 11:20 a.m. on 9/16/83 (89 hrs)
			(3) 7 ft 3.0 in at 2:50 p.m. on 9/16/83 (93 hrs)
			(4) 7 ft 3.5 in at 8:30 a.m. on 9/19/83 (158 hrs)
			(5) 7 ft 3.5 in at 10:50 a.m. on 9/20/83 (185 hrs)

BORING LOG

hydro-terra, inc.

Project: Subsurface Contamination Survey - East Station, Washington Gas

Test Boring No. 4 Elevation 22.1 ft. Date September 13-14, 1983

Location South of large Purifier Boxes and East of 12th Street

Ft.	A	B	
0			Ground Surface
			0.5' Concrete Paving
	S-1	4	Dark Gray CINDERS, SAND and GRAVEL, and BRICK FILL - Wet (soaked by heavy rain previous day) and Very Loose
5			6.0'
	S-2	11	Mottled Brick Red and Brown SILTY CLAY, Trace Plant Roots - Moist and Stiff, No Evidence of Contamination
10	S-3	15	12.0'
	S-4	19	Mottled Brown, Gray and Brick Red Seams of SILTY CLAY, CLAYEY SILT, and Fine Textured SILTY SAND - Moist and Very Stiff to Hard, Possible Ground Water in Sand Seam around 21 ft, No Evidence of Contamination
15	S-5	20	
	S-6	25	
20	S-7	35	
25			(Continued)

"A" - Depth of lower limit of split barrel sample, bottom of core run, or depth of RQD

"B" - Blows for last 12 in. (except as noted) on split barrel sampler, or % of core recovery

Ground Water Measurements

Date	Elapsed Hrs.	Depth
9-14	6	28'10"
9-15	22	15'3"

Ft.	A	B	
25	S-8	30	(Continued)
	S-9	24	30.0'
30	S-10	33	Mottled Yellow Brown, Brick Red and Gray SANDY CLAY with Thin Fine Textured SAND SEAMS - Moist and Hard, No Evidence of Contamination 34.0'
35	S-11	35	Mottled Brick Red, Gray, Yellow Brown, and Olive Green SILTY CLAY - Moist and Hard, No Evidence of Contamination
40	S-12	48	Stopped Boring at 40.5 ft 40.5'
45			

Notes:

1. Encounter hard resistance 1 ft below ground on first two attempts. Excavated pit to check for pipes - no pipes, only bricks.
2. Tar volatiles noted in surface fill. Appears to be no contamination below fill.
3. Very little ground water encountered.
4. Caved to 37.3 ft on removal of augers. No water present.
5. Water readings probably do not reflect piezometric surface elevation.

Ft.	A	B	(Continued)

Notes:

1. Drilled to 22.5 ft on 9/8/83. Pulled augers back to 19.5 ft and ceased operations at about 3:30 p.m. on 9/8/83. M. Notich collected ground water sample at 4:00 p.m. on 9/8/83.

2. Resumed drilling at about 8:40 a.m. on 9/9/83. Water level at 9 ft 2 in - considerable tar on surface of water. Water at 15 ft 2 in in valve pit at south side of tank. Water and tar at 2 ft 1 in below ground in tar pit (brick structure) located about 10 ft west of boring.

3. Hole caved up to 37 ft 6 in upon removal of augers.

BORING LOG

hydro-terra, inc.

Project: Subsurface Contamination Survey - East Station, Washington Gas

Test Boring No. 5 Elevation 36.1 ft. Date September 14, 1983

Location North of Gas Oil Tank No. 8, East of 13th Street and Next to Perimeter Fence

Ft.	A	B	
0			Ground Surface
			Black and Brown CINDERS, SAND, and GRAVEL, Trace of PURIFIER SPONGE in S-1 - Moist to Saturated at Bottom, Volatiles Present
	S-1	33	
5			6.0'
	S-2	10	Mottled Brick Red, Tan and Gray SILTY CLAY - Moist and Stiff, No Evidence of Contamination
10	S-3	15	
			12.0'
	S-4	13	
15			
	S-5	29	Mottled Brown, Brick Red and Gray CLAYEY SILT, Trace FINE SAND - Moist and Stiff to Very Stiff, No Evidence of Contamination
	S-6	22	
20			
	S-7	30	
			24.0'
25			(continued)

"A" - Depth of lower limit of split barrel sample, bottom of core run, or depth of RQD

"B" - Blows for last 12 in. (except as noted) on split barrel sampler, or % of core recovery

"S-1" - Sampler No. 1

Ground Water Measurements		
Date	Elapsed Hrs.	Depth
9-15	17	19'0"
9-16	48	3'5"
9-19	113	4'4"

Ft.	A.		
25			(continued)
	S-8	33	
	S-9A & 9B	42	
30			
	S-10	37	
35	S-11	31	
40	S-12	53	Mottled Brown, Brick Red and Gray Interbedded SANDY CLAY and CLAYEY SAND with Occasional thin SAND and SILTY CLAY SEAMS - Moist and Hard, Possible Ground Water in Sand Seam around 24 ft, No Evidence of Contamination
45	S-13	37	
50	S-14	52	
55	S-15	55	
60			(continued)

Test Boring No. 5

Sheet 3 of 3

Ft.	A	B	
60	S-16	37	(continued)
65	S-17	45	Stopped Boring at 65.5 ft — 65.5'
70			

Notes:

1. Hole caved to 49 ft at 18 hrs.

BORING LOG

hydro-terra, inc.

Project: Subsurface Contamination Survey - East Station, Washington Gas

Test Boring No. 6 Elevation 21.1 ft. Date September 15, 1983

Location About 8 ft East of North Side of 12th Street Gate

Ft.	A	B	
0			Ground Surface — Asphalt Paving 0.5"
	S-1	8	
5			
	S-2	8	
10	S-3	4	Black CINDERS, ASH and SOIL FILL - Moist to Wet and Loose to Very Loose, Heavy Volatile Odor, Tar Present around 6 to 8 ft
	S-4	4	
15			
	S-5	3	17.5'
	S-6	6	Brown CLAYEY SAND and GRAVEL (probably fill), Trace of Natural Organics, Saturated and Loose, Faint Volatile Odor
20			
	S-7	50/3"	24.0'
25			(continued)

"A" - Depth of lower limit of split barrel sample, bottom of core run, or depth of RQD

"B" - Blows for last 12 in. (except as noted) on split barrel sampler, or % of core recovery

"S-1" - Sampler No. 1

Ground Water Measurements		
Date	Elapsed Hrs.	Depth
9-19	83	9'6"
9-20	112	9'3"
9-21	130	9'1"
* 9-23	184	9'5"

*Caved to 12'5"

Ft.	A	B	
25			(continued)
	S-8	7	Brown ORGANIC CLAYEY SILT, Trace SAND, GRAVEL and WOOD FRAGMENTS - Wet to Very Wet and Medium Stiff, No Evidence of Contamination
	S-9	6	30.0'
30			
	S-10	9	Dark Grayish Brown Highly ORGANIC SILT, Trace FINE SAND - Moist to Wet and Medium Stiff- No Evidence of Contamination
	S-11	12	
35			
	S-12	13	
40	S-13	9	42.0'
	S-14	9	Brown to Gray CLAYEY SAND, Trace WOOD FRAGMENTS - Very Wet and Medium Stiff, No Evidence of Contamination
45			48.0'
	S-15	26	Brown SAND & GRAVEL, Trace CLAY - Saturated & Med. Dense, Contaminated with Tar
50			50.0'
	S-16	18	Mottled Brown and Brick Red CLAYEY SAND and SANDY CLAY with Occasional Thin Seams of SAND and CLAY - Very Wet to Moist and Very Stiff to Hard, No Evidence of Contamination
	S-17	33	
55			
	S-18	50	
60			(continued)

Test Boring No. 6

Sheet 3 of 3

Ft.	A	B	
60			(continued)
65	S-19	49	Boring Stopped at 65.5 ft — 65.5'
70			

Notes:

1. Backfilled to 53 ft with clean gravel and placed bentonite seal from 53 to 51 ft. at completion.

2. Considerable tar noted when taking water level measurements.

BORING LOG

hydro-terra, inc.

Project: Subsurface Contamination Survey - East Station, Washington Gas

Test Boring No. 7 Elevation 21.5 ft. Date September 16, 1983

Location About 8 ft Northeast of Northeast Corner of Shop Building

Ft.	A	B	
0			Ground Surface
	S-1	6	Brown to Dark Gray CINDER and CLAYEY Soil Fill - Moist to Wet and Soft to Medium Stiff, Tar Volatiles Present
5	S-2	3	
10	S-3	5	12.0'
	S-4	7	Mottled Brick Red, Tan and Gray SILTY CLAY Fill, Trace GRAVEL - Moist to Wet and Medium Stiff, Tar in Fracture at about 16 ft
15	S-5	5	18.0'
	S-6	3	Brown Organic SANDY CLAY - Wet and Very Soft
20			21.0'
	S-7	27	Mottled Brick Red, Brown, Tan and Gray SILTY CLAY and CLAYEY SILT, Numerous Root Fragments - Moist and Soft to Medium Stiff, No Evidence of Contamination
25			(continued)

"A" - Depth of lower limit of split barrel sample, bottom of core run, or depth of RQD

"B" - Blows for last 12 in. (except as noted) on split barrel sampler, or % of core recovery

Ground Water Measurements		
Date	Elapsed Hrs.	Depth
9-20	31	12'0"
9-21	46	10'10"
9-21	53	10'7"
* 9-23	100	10'0"

*Caved to 10'4"

Ft.	A	B	(continued)
25	S-[illegible]	27	
			27.0'
	S-9	32	
30	S-10	31	
	S-11	40	
35	S-12	32	Mottled Brown, Tan and Brick Red Seams of CLAYEY SAND, SANDY CLAY, and CLAYEY SILT with Thin SAND SEAMS around 33 ft (Sand Seams Carrying Ground Water, Possibly Containing Volatiles) - Moist and Very Stiff to Hard, No Evidence of Contaminants in Clayey Soils
40	S-13	38	
45	S-14	27	
50	S-15	32	Stopped Boring at 50.5 ft
55			

Notes:

1. Completed drilling on 9-16-83 and pulled augers on 9-19-83.
2. Hole caved to 43 ft when augers were removed. Caved to 14 ft 4 in at 8:00 a.m. on 9-20-83, 23 hrs later.
3. No tar noted when taking water level measurements.

BORING LOG

hydro-terra, inc.

Project: Subsurface Contamination Survey - East Station, Washington Gas

Test Boring No. 8 Elevation 24.2 ft. Date September 19, 1983

Location West of 12th Street, about 5 ft North of Gate to Purifier Boxes and about 4' from Fence on WGL Property

Ft.	A	B	
0			Ground Surface
			Brown CLAYEY SAND and GRAVEL FILL, Trace CINDERS - Moist to Wet and Very Loose to Loose, Tar Volatiles Present
5	S-1	7	
	S-2	4	8.5'
10	S-3	11	
	S-4	11	Tan to Brown Medium to Coarse Textured SAND FILL, Some GRAVEL - Moist to Wet and Loose to Medium Dense, Faint Trace of Tar Volatiles, Trace of Cinders in S-7
15	S-5	19	
	S-6	8	
20	S-7	50/4"	Brown and Tan CLAYEY SILT, Trace SAND and ROOT FRAGMENTS, (Possibly Fill) - Moist and Loose, No Evidence of Contamination 24.0'
25			(continued)

"A" - Depth of lower limit of split barrel sample, bottom of core run, or depth of RQD

"B" - Blows for last 12 in. (except as noted) on split barrel sampler, or % of core recovery

Ground Water Measurements		
Date	Elapsed Hrs.	Depth
9-20	25	25'7"
9-21	43	22'10"
* 9-23	72	20'0"

* Caved to 27'0"

Ft.	A	B	
25			(continued)
	S-8	7	26.5' Dark Brown Organic SAND and GRAVEL, Moist and Loose, No Evidence of Contamination 28.0'
	S-9	16	
30			Mottled Brown, Brick Red, Tan and Gray CLAYEY SILT, Trace SAND and Natural ORGANIC MATERIAL - Wet and Stiff to Very Stiff, No Evidence of Contamination
35	S-10	16	
			39.0'
	S-11	30	Mottled Brown, Gray and Brick Red SANDY CLAY - Moist and Very Stiff
40			40.0'
			Stopped Boring at 40.0 ft
45			

Notes:

1. Caved to 35 ft 7 in on removal of augers at 2:50 p.m.

2. No tar noted when taking water level measurements.

BORING LOG

hydro-terra, inc.

Project: Subsurface Contamination Survey - East Station, Washington Gas

Test Boring No. 9 Elevation 27.7 ft. Date September 19-20, 1983

Location West of 12th Street on WGW Property, about ft North of Purifiers and about 6 ft from East Fence

Ft.	A	B	
0			Ground Surface
	S-1	8	
5			
	S-2	10	
10	S-3	7	Brown Medium to Coarse Textured SAND FILL, Some GRAVEL, Trace SILT and CLAY in Places - Moist to Wet and Loose, Ground Water Encountered around 15 ft, Faint Volatile Odor in Clayey Zones
	S-4	12	
15			
	S-5	50/2"	
			18.0'
	S-6	10	Tan GRAVEL, Trace ORGANIC CLAY BINDER, Loose and Saturated, No Evidence of Contamination
20			
			21.0'
	S-7	28	
	S-8	28	
25			(continued)

"A" - Depth of lower limit of split barrel sample, bottom of core run, or depth of RQD

"B" - Blows for last 12 in. (except as noted) on split barrel sampler, or % of core recovery

Ground Water Measurements		
Date	Elapsed Hrs.	Depth
9-22	60	19'0"
* 9-23	90	18'0"

*Caved to 18'4"

Ft.	A	B	
25			(continued)
	S-9		
30		22	
			Mottled Brick Red, Brown, Tan and Gray Seams of CLAYEY SILT, CLAYEY SAND, and SILTY CLAY with Occasional Thin SAND SEAM - Moist to Wet and Very Stiff to Hard, Possible Ground Water Encountered around 40 ft, No Evidence of Contamination
35	S-10	28	
40	S-11	34	
45	S-12	45	Stopped Boring at 45.5' 45.5'
50			

Notes:

1. Difficult drilling - large stones caused auger to angle below 18 ft.

2. Caved to 19.5 ft at 8:30 a.m. on 9/22/83.

BORING LOG

hydro-terra, inc.

Project: Subsurface Contamination Survey - East Station, Washington Gas

Test Boring No. 10 Elevation 18.7 ft. Date September 20, 1983

Location South of West Side of Shop Building about 5 ft from Corner of Fence

Ft.	A	B	
0			Ground Surface
	S-1	11	Reddish Brown SILTY SAND FILL, Trace GRAVEL - Moist and Loose, No Contaminants Noted — 4.5'
5	S-2	5	Brown to Black CINDER/ASH and SILTY CLAY FILL, Trace PURIFIER SPONGE - Moist to Wet, Tar Odor
10	S-3	8	
	S-4	6	
15	S-5	7	— 16.5'
	S-6	7	Brick Red, Brown and Tan SILTY CLAY FILL, Trace GRAVEL - Wet and Medium Stiff, Encountered Pocket of Water at about 19 ft, Fill Appears to be Free of Contaminants below 18 ft — 21.0'
20	S-7	7	Brown ORGANIC CLAYEY SILT, Some SAND, Trace WOOD FRAGMENTS - Moist to Wet, No Evidence of Contamination
	S.T.		
25			(continued)

"A" - Depth of lower limit of split barrel sample, bottom of core run, or depth of RQD

"B" - Blows for last 12 in. (except as noted) on split barrel sampler, or % of core recovery

Ground Water Measurements		
Date	Elapsed Hrs.	Depth
9-21	17	13'3"
9-22	24	12'10"
* 9-23	70	12'10"

S.T. - Shelby Tube Sample

* Caved at 18'0"

Ft.	A	B	
25			(continued)
	S-8	12	29.5'
30			
	S-9	21	
35	S-10	19	Mottled Gray, Brick Red and Brown CLAYEY SILT, Trace FINE SAND - Moist to Wet, Very Stiff
40	S-11	22	42.0'
45	S-12	32	Brown SILTY SAND, Scattered CLAY NODULES - Moist to Very Wet and Dense, Possible Water Bearing Seams below 43 ft, No Evidence of Contamination
50	S-13	41	Stopped Boring at 50.5' 50.5'
55			

Notes:

1. Tar noted on water when taking water elevation.

BORING LOG

hydro-terra, inc.

Project: Subsurface Contamination Survey - East Station, Washington Gas

Test Boring No. 11 Elevation 28.8 ft. Date September 21, 1983

Location North of Bunker Oil Tank No. 7, about 12 ft from Storage Holder No. 4

Ft.	A	B	
0			Ground Surface
	S-1	7	Reddish Brown SILTY SAND FILL, Trace GRAVEL - Moist and Loose, Faint Volatile odor
5			6.5'
	S-2	6	Gray and Brown CLAYEY SAND and GRAVEL FILL, Trace CINDERS - Wet to Saturated near Bottom, Very Loose to Loose, Volatile Odor
10	S-3	3	10.0'
	S-4	8	Mottled Brick Red, Gray, Brown and Tan SILTY CLAY - Moist, Soft to Medium Stiff to about 15 ft, Hard Below
15	S-5	35	
	S-6	45	
20	S-7	33	22.0'
25			(continued)

"A" - Depth of lower limit of split barrel sample, bottom of core run, or depth of RQD

"B" - Blows for last 12 in. (except as noted) on split barrel sampler, or % of core recovery

Ground Water Measurements		
Date	Elapsed Hrs.	Depth
9-22	20	4'0"
* 9-23	51	5'0"

* Caved to 5'5"

Ft.	A	B	
25			(continued)
	S-8	26	Mottled Brick Red and Brown CLAYEY SILT, Trace FINE SAND - Moist to Wet and Hard, No Evidence of Contamination 28.0'
30	S-9	28	Mottled Brick Red and Brown SILTY SAND and CLAYEY SAND - Moist to Wet and Dense, No Evidence of Contamination 33.0'
35	S-10	33	Mottled Brick Red and Brown CLAYEY SILT - Moist and Hard, No Evidence of Contamination
40	S-11	39	
45	S-12	34	Stopped Boring at 45.5 ft 45.5'
50			

Notes:

1. Caved to 5 ft at 8:30 a.m. on 9/22/83. Water reading reflects perched condition.

BORING LOG

hydro-terra, inc.

Project: Subsurface Contamination Survey - East Station, Washington Gas

Test Boring No. 12 Elevation 14.8 ft. Date September 22, 1983

Location South Corner of Tar Separator No. 3 within Fence

Ft.	A	B	
0			Ground Surface
	S-1	7	
5			
	S-2	7	
			Black and Brown CINDER/ASH, SAND, GRAVEL, and SILT CLAY FILL, Trace PURIFIER SPONGE - Wet to Saturated, Loose to Medium Dense, Strong Tar Odor, Contaminated with Tar at Bottom
10	S-3	8	
	S-4	17	
15			
	S-5	6	
			19.0'
	S-6	4	
20			Dark Brown ORGANIC CLAYEY SILT, Trace WOOD FRAGMENTS - Moist to Wet and Soft to Stiff, No Evidence of Contamination
	S-7	4	
25			(continued)

"A" - Depth of lower limit of split barrel sample, bottom of core run, or depth of RQD

"B" - Blows for last 12 in. (except as noted) on split barrel sampler, or % of core recovery

Ground Water Measurements		
Date	Elapsed Hrs.	Depth
9-23	5	6'9"
* 9-26	74	7'11"

* Caved to 45'0"

Ft.	A	B	
25	S-8	6	(continued)
	S-9	50/6"	
30	S-10	6	
	S-11	8	
35	S-12	12	
40	S-13	7	
	S-14	7	
45	S-15	10	48.0'
	S-16	5	Alternating Layers of Brown ORGANIC CLAYEY SILT and SAND with some GRAVEL - Wet to Saturated, Soft and Dense, No Evidence of Contamination
50	S-17	34	54.0'
55	S-18	19	Brown Alternating Seams of COARSE SAND and GRAVEL, Rounded to Subangular Particles - Saturated and Medium Dense, Contaminated with Tar
	S-19	17	59.5'
60			(continued)

Ft.	A	B	(continued)
60	S-20	50/6"	Reddish Brown SILTY SAND and SANDY SILT - Wet to Saturated and Very Dense, No Evidence of Contamination
	S-21	70	Stopped Boring at 64.5 ft 64.5'
65			

Notes:

1. Hit pipe at 5 ft on first attempt. Moved 1 ft and completed boring.

2. Backed auger out to 54 ft on 9/22/83 and sampled water on 9/23/83 before removing remainder of augers. Washed mud from inside of augers using city water on 9/22/83.

3. Collected water sample in augers around 8:15 a.m. on 9/23/83. Heavy tar noted in sediment at bottom of augers. Sample No. 1 taken from top of water column.

4. Thick layer of tar noted on water at 2:15 p.m. on 9/23/83 after augers were removed.

5. Water level in augers at 9:00 a.m. on 9/23/83, 16 hours after pulling augers back to 54 ft, was 14 ft 6 in.

6. Water elevation in adjoining tar separator was 9 ft 1 in below ground surface (at TB-12) on 9/23/83.

BORING LOG

hydro-terra, inc.

Project: Surface Contamination Survey - East Station, Washington Gas

Test Boring No. 13 Elevation 20.0 ft. Date September 23, 1983

Location Southwest of Tar Separator No. 4 near Fence opposite 50-foot Pipeline Right-of-Way

Ft.	A	B	
0			Ground Surface
5	S-1	5	Black and Brown CINDER and SAND/GRAVEL FILL - Wet to Saturated and Loose to Medium Dense, Fuel Oil Smell in Sample No. 2
10	S-2	14	
			13.0'
15	S-3	8	Mottled Brick Red and Tan SILTY CLAY FILL, Trace CINDERS and GRAVEL - Wet to Saturated and Soft, Tar Noted in Seam around 20 ft, Water Encountered at about 24 ft, Slight Tar or Oil Odor, Depth of Fill might be Between S-3 and S-4.
20	S-4	8	
25			(continued)

"A" - Depth of lower limit of split barrel sample, bottom of core run, or depth of RQD

"B" - Blows for last 12 in. (except as noted) on split barrel sampler, or % of core recovery

Ground Water Measurements		
Date	Elapsed Hrs.	Depth
9-26	79	12'10"

*Caved at 13'3"

Ft.	A	B	
25	S-5	8	(continued) 26.0'
	S-6	10	
30	S-7	9	
35	S-8	12	Mottled Brick Red and Tan SILTY CLAY, Trace GRAVEL - Wet and Medium Stiff to Very Stiff, No Evidence of Contamination
40	S-9	15	
45	S-10	25	Stopped Boring at 45.5 ft 45.5'
50			

Notes:

1. Hole caved to 35 ft and water level at 29 ft 3 in upon removal of augers.

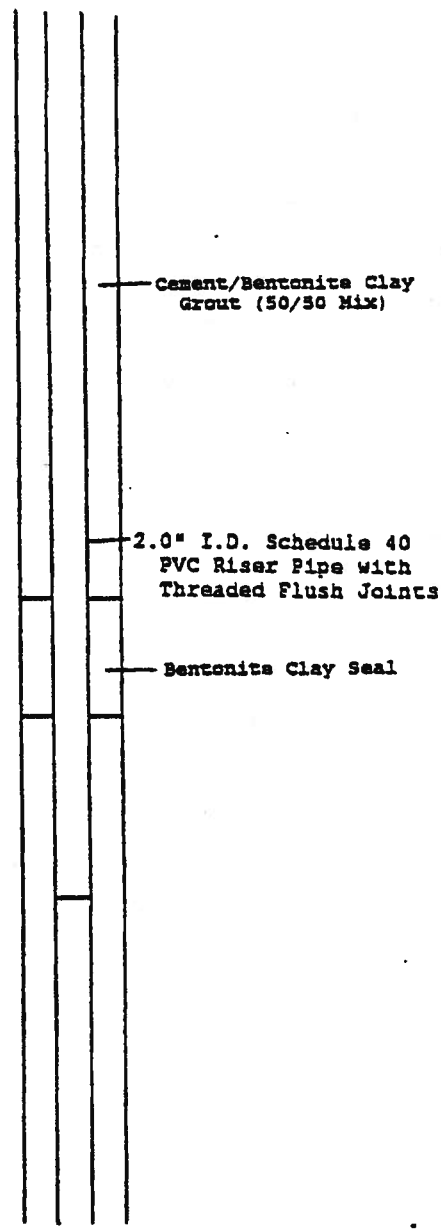
2. Fuel oil noted on tape when reading water level on 9/26/83.

BORING LOG

HYDRO-TERRA

Project: East Station Contaminant Investigation - Phase II.
Test Boring No. 14 (MW2) Elevation 39.9' Date May 4, 1988.
Location: At the intersection of 11th street and Virginia Avenue, 90' North and 15' West of L-4.

Ft.	A	B	Description
			Ground Surface
	S-1	12	Brown SILTY SAND and GRAVEL FILL, Some Brick Fragments and Cinders, Dry to Moist, No Volatile Odor
2			
4	S-2	6	
			5.5'
6	S-3	12	Reddish Brown SAND, Medium Grained, No Evidence of Contamination
			8.0'
8	S-4	6	Red and Brown SANDY CLAY, Moist, No Evidence of Contamination
10	S-5	4	
12			
14	S-6	7	
16	S-7	11	
			18.0'
18	S-8	11	
20			Continued



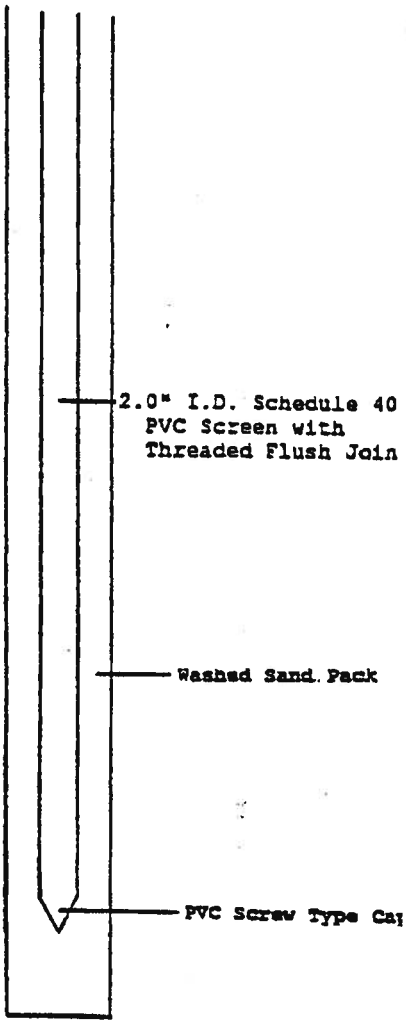
"A" - Depth of lower limit of split barrel sample, bottom of core run, or depth of RQD

"B" - Blows for last 12 in. (except as noted) on split barrel sampler, or % of core recovery

Ground Water Measurements		
Date	Elapsed Hrs.	Depth
5/4	1	17.1'
11/11/89		18.1'

Test Boring No. 14.
Sheet 2 of 2.

Ft.	A	B	Continued
22	S-9	17	Mottled Red, Brown and Gray CLAY, Medium Plasticity, No Volatile Odor
24	S-10	25	
26	S-11	28	
28			28.5'
	S-12	8	
30			Tan and Reddish Brown SILTY SAND and CLAYEY SAND, Wet, Medium Dense, No Evidence of Contamination
32	S-13	18	
34	S-14	7	
36	S-15	15	
			Stopped at 36.5'
38			Notes:
40			1. Inspected and logged by Frank Anderson 2. Drilled by National Foundation Engineering (Driller: Richard Sies)
42			
44			
46			
48			



BORING LOG

HYDRO-TERRA

Project: East Station Contaminant Investigation - Phase II.
Test Boring No. 15 Elevation 30.2' Date May 5, 1988.
Location: East of Gas Holder #3, South of Stueart Petroleum, 35' East and 60' North of J-10.

Ft.	A	B	Ground Surface
	S-1	12	Brown CLAY FILL, Some Gravel, Trace Bricks and Cinders, Dry to Moist, Stiff, No Evidence of Contamination
2			
4	S-2	7	
			6.0'
6	S-3	6	Reddish Brown SILTY SAND FILL, Fine Grained, Moist, Stiff, No Evidence of Contamination
			8.0'
8			
	S-4	18	Brown SAND and GRAVEL FILL, Trace Brick Fragments, Moist, Stiff, No Evidence of Contamination
10			
			11.0'
	S-5	21	
12			
14	S-6	22	
16	S-7	22	Mottled Red, Yellow and Gray CLAY, Some Gravel and Shale Chips, Stiff to Hard, No Volatile Odor
18			
	S-8	32	
20			Continued

"A" - Depth of lower limit of split barrel sample, bottom of core run, or depth of RQD

"B" - Blows for last 12 in. (except as noted) on split barrel sampler, or % of core recovery

Ground Water Measurements		
Date	Elapsed Hrs.	Depth
5/10	0.5	Dry
5/11	16	Dry

Ft.	A.	B	Continued
	S-9	30	
22			
24	S-10	69	
26	S-11	24	
28			
	S-12	27	
30			
	S-13	47	
32			
34	S-14	28	
36	S-15	26	
38			
	S-16	53	
40			
	S-17	24	Mottled Yellow, Brown and Red SILTY CLAY, Hard, No Volatile Odor
42			
44			
46	S-18	39	
48			Continued

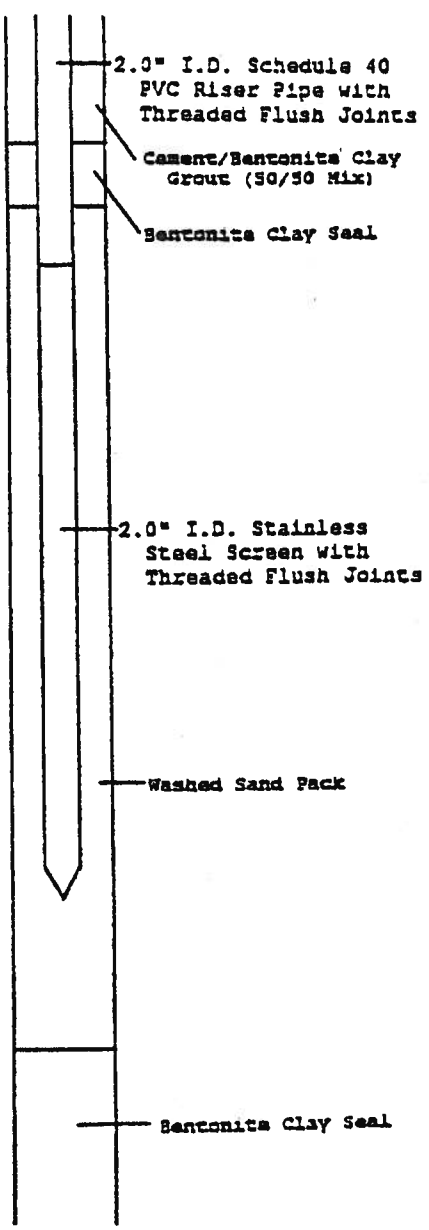
Ft.	A	B	Continued
50			
	S-19	60	
52			
54			Brick Red CLAY, Trace Yellow Silt Mottling, Very Hard
56	S-20	>50	
58			
60			60.5' Mottled Green and Gray CLAY, Hard
	S-21	75	Stopped at 61.5'
62			
64			Notes:
66			1. Inspected and logged by Frank Anderson and Scott Sandberg 2. Drilled by National Foundation Engineering (Driller: Richard Sies)
68			3. Plans for the installation of a monitoring well at this location were cancelled because no water filled the hole after 24 hours.
70			
72			
74			
76			

BORING LOG

HYDRO-TERRA

Project: East Station Contaminant Investigation - Phase II.
Test Boring No. 23 (MW11) Elevation 8.1' Date June 6, 1988.
Location: D.C. Government Property, South of Water Street, 9' East and 20' South of F-5.

Ft.	A	B	Description
			Ground Surface
	S-1	17	Light Brown SILT, SAND and GRAVEL FILL, Trace Cinders, Bricks and Wood, Dry to Moist, Dense, Slight Coal Tar Odor, Large wooden Timber at 5'
2			
4	S-2	>50	
6	S-3	16	Black CINDER and WOOD CHIP FILL, Wet, Loose, Large amount of Visible Oil/Tar
8	S-4	10	
10			11.0'
	S-5	4	Grey and Black ORGANIC SILT FILL, Trace Plant Fragments and Bricks, Mottled color and texture, Large amount of Visible Oil/Tar
12	S-6	3	
14			
16	S-7	--	
18	S-8	--	
20			Continued



"A" - Depth of lower limit of split barrel sample, bottom of core run, or depth of RQD

"B" - Blows for last 12 in. (except as noted) on split barrel sampler, or % of core recovery

Ground Water Measurements		
Date	Elapsed Hrs.	Depth
6/6	2	6
1/24/89		?

Ft.	A	B	Continued
			21.0'
	S-9	--	Grey ORGANIC SILT, Firm, Tight, No Evidence of Contamination
22			Stopped at 21.5'
24			
26			
28			
30			
32			
34			
36			
38			
40			
42			
44			
46			
48			

Notes:

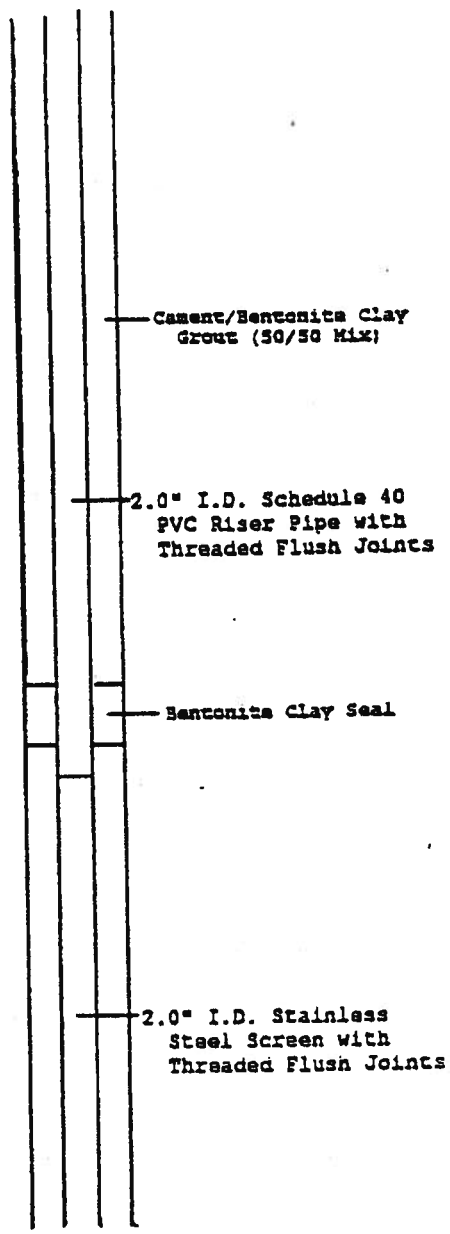
1. Inspected and logged by Scott Sandberg
2. Drilled by National Foundation Engineering (Driller: Richard Sies)

BORING LOG

HYDRO-TERRA

Project: East Station Contaminant Investigation - Phase II.
Test Boring No. 24 (MW12) Elevation 14.7' Date May 16 & 17, 1988.
Location: West of Tar Separator #3, 40' East and 38' South of G-5.

Ft.	A	B	
			Ground Surface
	S-1	27	
2			
4	S-2	6	
			Black and Brown SAND and GRAVEL FILL, Some Cinders and Bricks, Moist, Loose, Coal Tar Odor
6	S-3	9	
8	S-4	18	
10	S-5	22	
12			
14	S-6	41	Black SAND and GRAVEL FILL, Some Cinders and Wood, 3" seam of Red and Grey Clay, Wet, Loose, Visible Tar and Oil
16	S-7	14	
18	S-8	5	
20			Continued



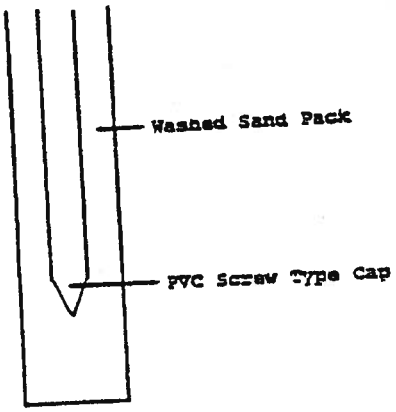
"A" - Depth of lower limit of split barrel sample, bottom of core run, or depth of RQD

"B" - Blows for last 12 in. (except as noted) on split barrel sampler, or % of core recovery

Ground Water Measurements		
Date	Elapsed Hrs.	Depth
5/16	2	16
1/24/89		12.3'

Continued

Ft.	A	B	
22	S-9	3	Grey ORGANIC SILT, Soft, Moist, Small Seam of Sand Saturated with Tar at 21'
24	S-10	ST	
26	S-11	7	Stopped at 26.0'
28			
30			
32			
34			
36			
38			
40			
42			
44			
46			
48			



Notes:

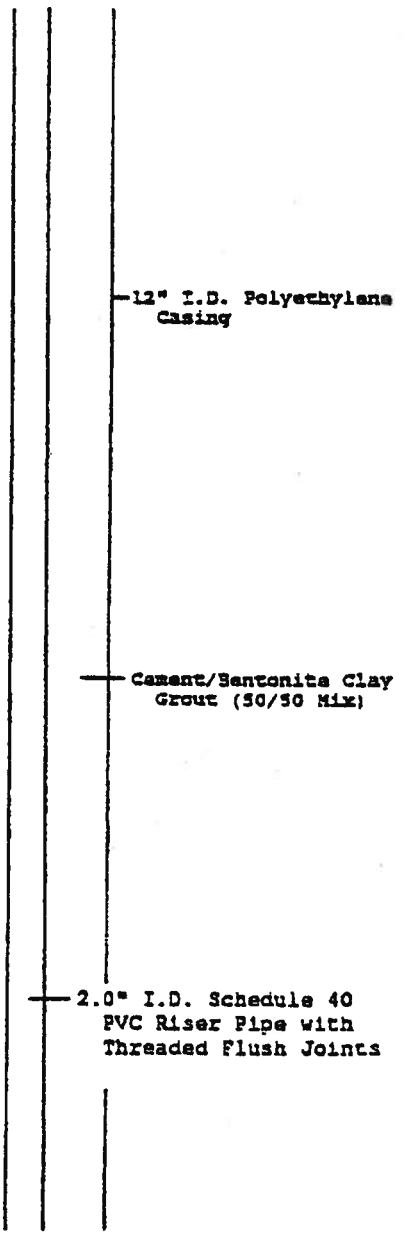
1. Inspected and logged by Frank Anderson and Scott Sandberg
2. Drilled by National Foundation Engineering (Driller: Richard Sies)

BORING LOG

HYDRO-TERRA

Project: East Station Contaminant Investigation - Phase II.
Test Boring No. 25 (MW13) Elevation 20.3' Date May 20,24&25, 1988.
Location: North of the shop, 44' East and 68' North of H-4.

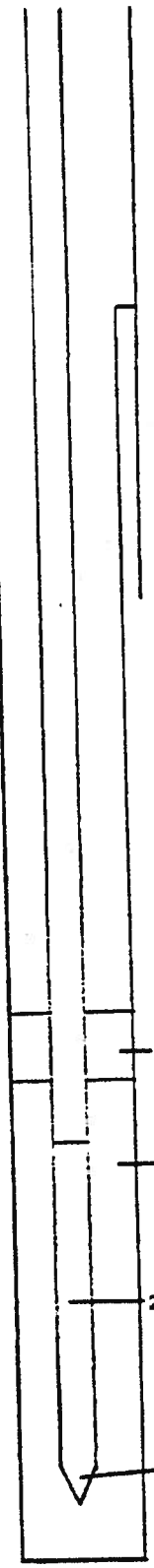
Ft.	A	B	
			Ground Surface
2			
4			
6	S-1	6	
8	S-2	2	Yellow and brown SAND and GRAVEL FILL, Some Silt, Trace Bricks and Cinder, Moist to Wet, Loose, Volatile Odor
10	S-3	2	
12			
14	S-4	4	
16	S-5	4	
18	S-6	4	13.7'
20			Continued



"A" - Depth of lower limit of split barrel sample, bottom of core run, or depth of RQD
"B" - Blows for last 12 in. (except as noted) on split barrel sampler, or % of core recovery

Ground Water Measurements		
Date	Elapsed Hrs.	Depth
5/20	1	10
6/14		15
1/23/89		17.2'

Ft.	A	B	Continued
22	S-7	12	
24	S-8	--	Black SAND and GRAVEL FILL, Some 1-2" Seams of Brown Clay, Trace Cinders and Brick Fragments, Wet, Loose, Visible Tar
26	S-9	17	
28	S-10	17	28.5' Brown SANDY CLAY FILL, Moist, Stiff
30			Grey ORGANIC SILT, Trace Wood Fragments
	S-11	6	31.0' Mottled Grey and Red CLAY
32			
34	S-12	7	Grey ORGANIC SILT, Trace Wood Fragments, Moist, Soft, Slight Tar Odor (possible contaminated from above material)
36	S-13	15	
38	S-14	34	38.5'
40	S-15	33	Red and Grey SILT, Some Grey Clay, Mottled, Moist, Stiff, No Evidence of Contamination
42			
44	S-16	48	43.5' Brown SAND, Medium Dense, Wet, No Evidence of Contamination
46	S-17	--	46.0' Red CLAY, Hard, Moist, No Evidence of Contamination Stopped at 46.5'
48			Continued



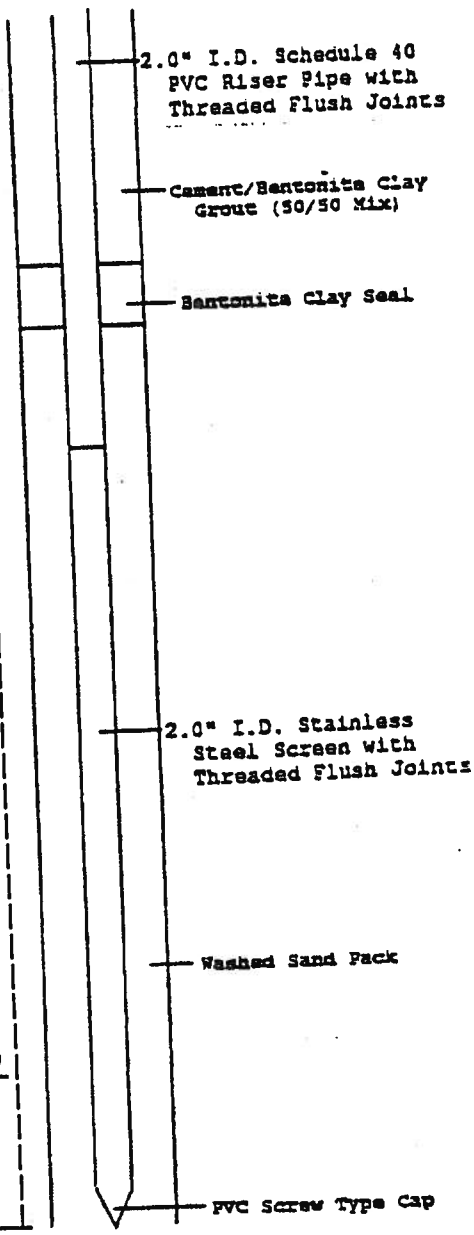
Ft.	A	B	Continued
50			Notes: 1. Inspected and logged by Frank Anderson and Scott Sandberg 2. Drilled by National Foundation Engineering (Driller: Richard Sies)
52			
54			
56			
58			
60			
62			
64			
66			
68			
70			
72			
74			
76			

BORING LOG

HYDRO-TERRA

Project: East Station Contaminant Investigation - Phase II.
Test Boring No. 26 (MW14) Elevation 21.6' Date May 13&16, 1988.
Location: South of Gas Holder #3, 75' West and 15' South of J-5.

Ft.	A	B	
			Ground Surface
	S-1	64	
2			
			Brown SILTY SAND and GRAVEL FILL Trace Concrete, Bricks and Cinders, Dry to Moist, No Volatile Odor
4	S-2	10	
6	S-3	24	
8			9.0'
	S-4	10	
10			
	S-5	11	Brown and Black SILTY SAND and GRAVEL FILL, Trace Bricks, Wet, Loose, Visible Coal Tar
12			
14	S-6	10	
16	S-7	12	
			17.5'
18			Grey ORGANIC SILT, Moist, Soft, No Evidence of Contamination
	S-8	11	
20			Continued



"A" - Depth of lower limit of split barrel sample, bottom of core run, or depth of RQD

"B" - Blows for last 12 in. (except as noted) on split barrel sampler, or % of core recovery

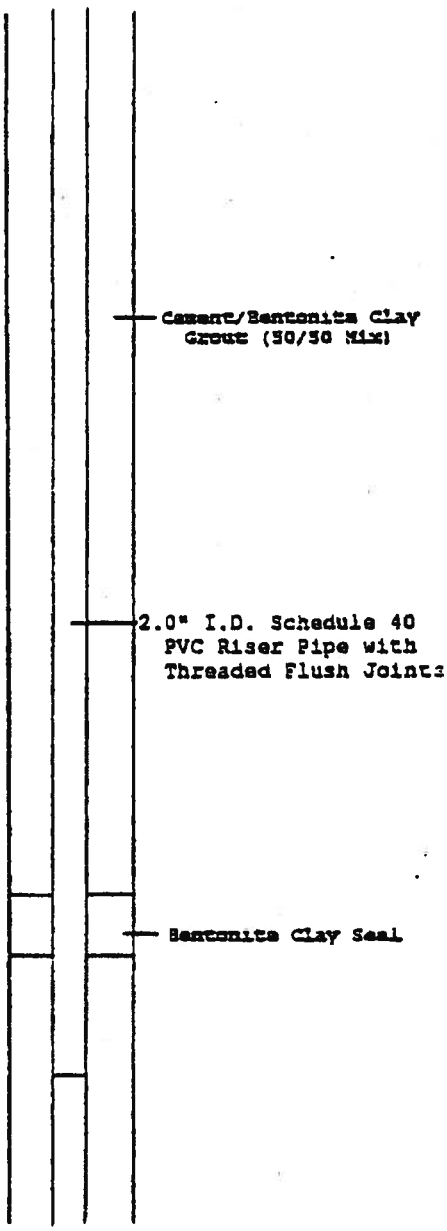
Ground Water Measurements		
Date	Elapsed Hrs.	Depth
5-13	0.5	10'
6-14		5'2"
1/11/89		10.8'

BORING LOG

HYDRO-TERRA

Project: East Station Contaminant Investigation - Phase II.
Test Boring No. 27 (MW15) Elevation 33.3' Date May 12, 1988.
Location: South of former Gas Holder #1, 40' East and 15' South of K-4.

Ft.	A	B	
			Ground Surface
	S-1	12	
2			
4	S-2	8	
6	S-3	10	Mottled Red, Brown and Grey CLAY FILL, Trace Gravel, Cinder, Brick and Root, Moist, Faint Contaminant Smell
8	S-4	5	
10	S-5	6	
12			13.5'
14	S-6	8	
16	S-7	9	Brown SAND and GRAVEL FILL, Little Cinders, Very Loose, Moist to Wet, Volatile Odor
18	S-8	4	19.0'
			Brown CLAYEY SAND and GRAVEL FILL
20			Continued

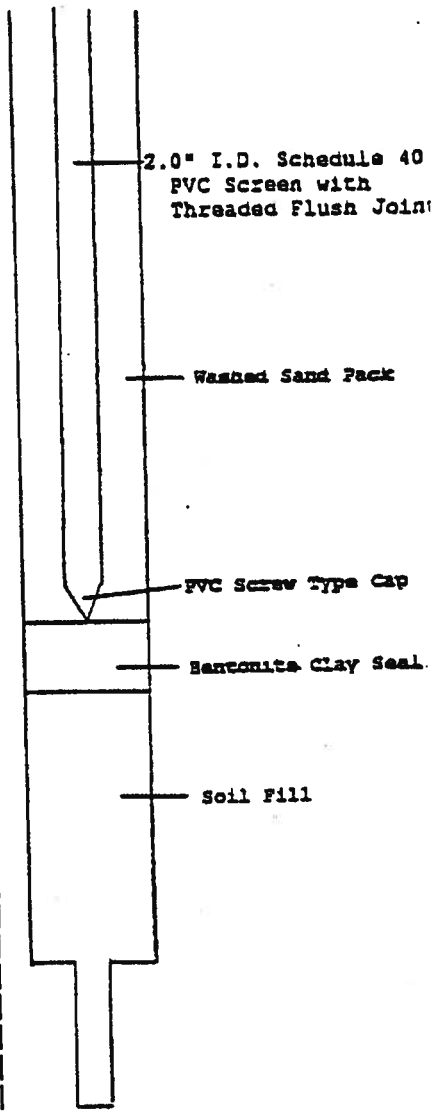


"A" - Depth of lower limit of split barrel sample, bottom of core run, or depth of RQD
"B" - Blows for last 12 in. (except as noted) on split barrel sampler, or % of core recovery

Ground Water Measurements		
Date	Elapsed Hrs.	Depth
6/14	48+	18'
1/23/89		22.2'

Test Boring No. 27.
Sheet 2 of 2.

Ft.	A	B	Continued
			21.0'
	S-9	9	Grey ORGANIC SILTY CLAY FILL, Trace Roots, Faint Volatile Odor 22.0'
22			
24	S-10	2	Brown SAND and GRAVEL FILL, Some Brown Clay, Organic Silt and Cinder, Wet, Loose, Volatile Odor, Visible Tar
26	S-11	6	
28	S-12	15	
			30.0'
30			Grey ORGANIC SILT, Some Clay, Trace Sand, Gravel and Root Material, Moist, Faint Tar Odor
32	S-13	10	
			33.5'
34	S-14	14	Mottle Red and Grey CLAY, Trace Root Material, Moist, Plastic, No Evidence of Contamination
36			
			38.0'
38	S-15	ST	Stopped at 38.0'
40			Notes:
42			1. Inspected and logged by Tom Mills and Scott Sandberg 2. Drilled by National Foundation Engineering (Driller: Richard Sies)
44			
46			
48			



BORING LOG

HYDRO-TERRA

Project: East Station Contaminant Investigation - Phase II
Test Boring No. 28 Elevation 29.5' Date June 6, 1988
Location: Between 11th and 12th streets, 45' East and 8' South of G-3

Ft.	A	B	Ground Surface
	S-1	18	
2			Reddish Brown SAND and GRAVEL FILL, Some Silt, Trace Plant Fragments, Dry, No Volatile Odor
4	S-2	32	
6	S-3	39	6.0'
8	S-4	--	Black and Grey ASH and CINDER FILL, Some Brown Soil Fill, Dry to Moist, No Volatile Odor
10	S-5	35	
12			
14	S-6	6	
16	S-7	10	Brown SAND and GRAVEL FILL, Trace Clay, Bricks and Cinders, Moist, No Volatile Odor
18	S-8	20	
20			Continued

"A" - Depth of lower limit of split barrel sample, bottom of core run, or depth of RQD
"B" - Blows for last 12 in. (except as noted) on split barrel sampler, or % of core recovery

Ground Water Measurements		
Date	Elapsed Hrs.	Depth
6-6	.5	27.0'
6-14	48+	20.0'

Ft.	A	B	Continued
			Black ASH and CINDER FILL, Wet, No Evidence of Contamination 23.0'
	S-9	14	Grey ORGANIC SILT, Some Black Gravel, Wet, No Volatile Odor
22			
24	S-10	27	
26	S-11	12	Mottled Reddish Brown and Grey CLAY and CLAYEY SILT, Some Gravel, Trace of Fine Sand at 31', Moist, No Evidence of Contamination
28	S-12	36	
30			
	S-13	17	
32			Stopped at 31.5'
34			Notes:
36			1. Hit some concrete at 6-7' 2. Inspected and logged by Scott Sandberg 3. Drilled by National Foundation Engineering (Driller: Richard Sies)
38			
40			
42			
44			
46			
48			

BORING LOG

HYDRO-TERRA

Project: East Station Contaminant Investigation - Phase II.
Test Boring No. 29 Elevation 26.2' Date June 2, 1988.
Location: East of 11th street in the enclosed area for the Purifier Boxes, 15' North of I-3.

Ft.	A	B	Ground Surface
	S-1	7	
2			
4	S-2	10	
			Red and Brown CLAYEY SAND and GRAVEL FILL, Some Silt, Trace Cinder, Glass, Wood and Brick, Dry to Wet, Cohesive, Slight Blue Coloration at 11', No Volatile Odor
6	S-3	19	
8			
	S-4	30	
10			
	S-5	22	
12			
			13.0'
14	S-6	6	
			Mottled Red, Yellow and Grey CLAY, Hard, Moist, No Evidence of Contamination
16	S-7	22	
18			
	S-8	34	
			Stopped at 19.0'
20			Continued

"A" - Depth of lower limit of split barrel sample, bottom of core run, or depth of RQD
"B" - Blows for last 12 in. (except as noted) on split barrel sampler, or % of core recovery

Ground Water Measurements		
Date	Elapsed Hrs.	Depth
6-2	27	12.5

Ft.	A	B	Continued
22			Notes: 1. Inspected and logged by Scott Sandberg 2. Drilled by National Foundation Engineering (Driller: Richard Sies)
24			
26			
28			
30			
32			
34			
36			
38			
40			
42			
44			
46			
48			

BORING LOG

HYDRO-TERRA

Project: East Station Contaminant Investigation - Phase II.
Test Boring No. 32 Elevation 10.0' Date June 3, 1988.
Location: 29' East of G-7.

Ft.	A	B	Ground Surface
	S-1	16	Black CINDERS and COAL FINES and Reddish-Brown CLAY FILL, Dry to Moist, No Volatile Odor
2			
4	S-2	15	
6	S-3	17	
8			
	S-4	24	Black CINDER FILL, Wet, Loose, No Coal Tar Odor
10			11.0'
	S-5	5	Grey ORGANIC SILT, Trace Plant Fragments and Charcoal, Moist, Slight Coal Tar Odor
12			
14	S-6	9	
16	S-7	4	
18			
	S-8	5	
20			

"A" - Depth of lower limit of split barrel sample, bottom of core run, or depth of RQD

"B" - Blows for last 12 in. (except as noted) on split barrel sampler, or % of core recovery

Ground Water Measurements		
Date	Elapsed Hrs.	Depth
6/3	0.33	dry

Test Boring No. 32.
Sheet 2 of 2.

Ft.	A	B	
	S-9	4	Stopped at 21.5'
22			
24			
26			Notes: 1. Inspected and logged by Frank Anderson 2. Drilled by National Foundation Engineering (Driller: Richard Sies) 3. Boring completed 6/3/88
28			
30			
32			
34			
36			
38			
40			
42			
44			
46			
48			

BORING LOG

HYDRO-TERRA

Project: East Station Contaminant Investigation - Phase II
Test Boring No. 33 Elevation 7.9' Date June 2, 1988
Location: 50' north of F-6

Ft.	A	B	Ground Surface
	S-1	24	Black to Brown SILT, SAND and GRAVEL FILL, Trace Bricks, Cement and Coke, Moist, Volatile Odor
2			
4	S-2	17	
6			6.0'
	S-3	25	Black COKE, SLAG and SLALE FILL, Coarse, Loose, Wet, Visible Coal Tar
8			8.5'
	S-4	8	Dark Brown WOOD CHIP (Purifier Sponge) FILL, Stiff, Saturated with Coal Tar
10			10.0'
	S-5	17	Black COKE BREEZE FILL, Fine, Loose, Wet, Visible Coal Tar
12			13.0'
14	S-6	6	Grey ORGANIC SILT, Moist, No Evidence of Contamination
16			
	S-7	ST	
18			
	S-8	ST	19.0'
20			Stopped at 19.0'

"A" - Depth of lower limit of split barrel sample, bottom of core run, or depth of RQD
"B" - Blows for last 12 in. (except as noted) on split barrel sampler, or % of core recovery

Ground Water Measurements		
Date	Elapsed Hrs.	Depth
6/3	27	4.5

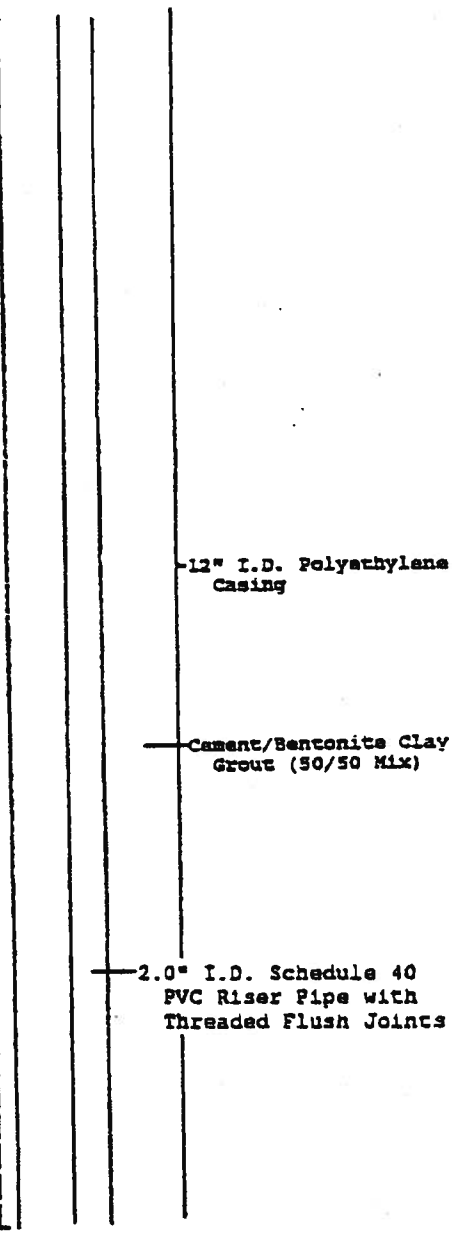
Ft.	A	B	
22			Notes: 1. Inspected and logged by Scott Sandberg 2. Drilled by National Foundation Engineering (Driller: Richard Sies)
24			
26			
28			
30			
32			
34			
36			
38			
40			
42			
44			
46			
48			

BORING LOG

HYDRO-TERRA

Project: East Station Contaminant Investigation - Phase II
Test Boring No. 34 (MW3) Elevation 15.2' Date June 6&8, 1988
Location: West of Tar Separator 3, 48' East and 16' South of G-5

Ft.	A	B	
			Ground Surface
2			
4			
6			
8			FILL (Composition unknown)
10			
12			
14			
16			
18			
20			Gray ORGANIC SILT

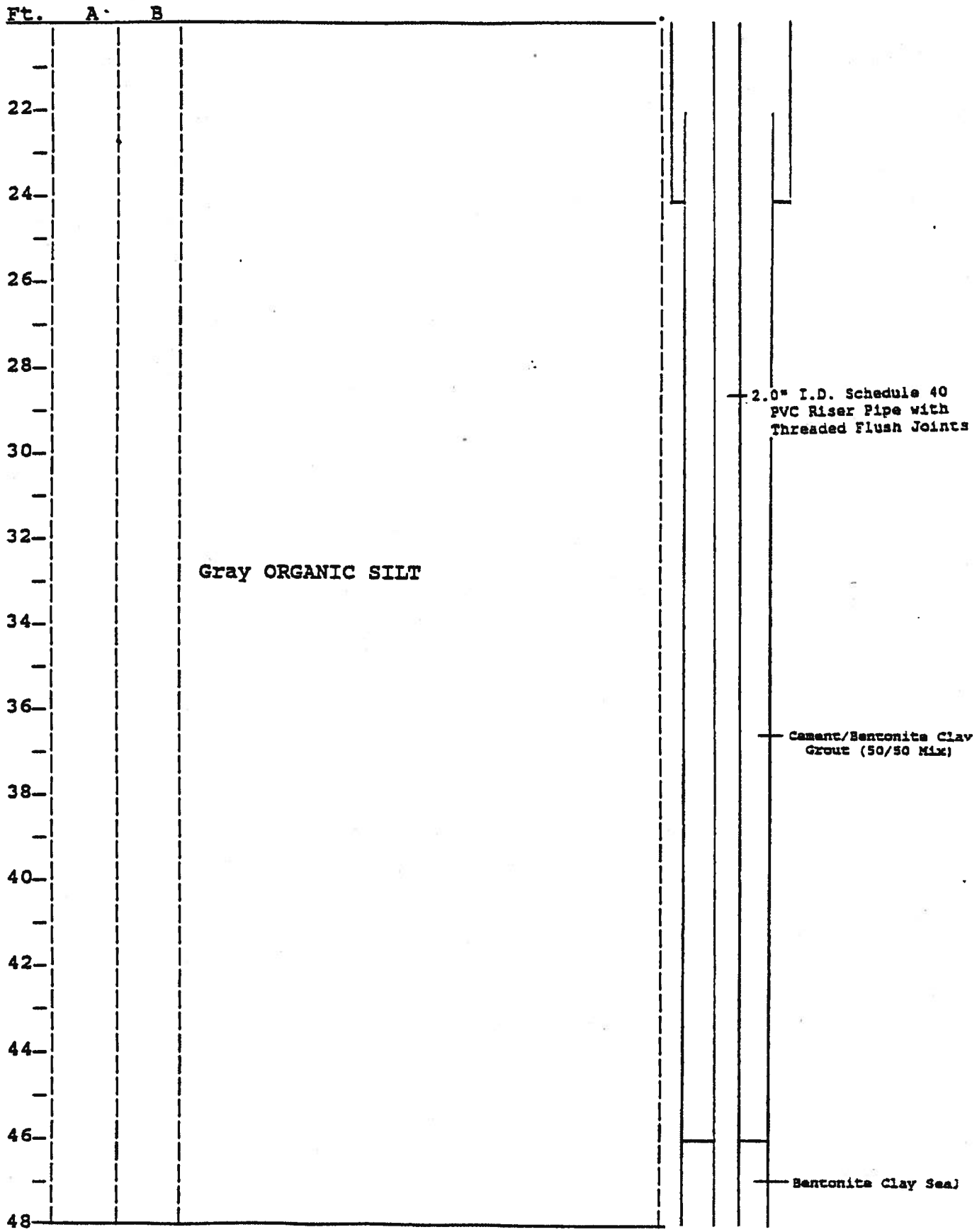


"A" - Depth of lower limit of split barrel sample, bottom of core run, or depth of RQD

"B" - Blows for last 12 in. (except as noted) on split barrel sampler, or % of core recovery

Ground Water Measurements		
Date	Elapsed Hrs.	Depth
1/23/88		19.6'

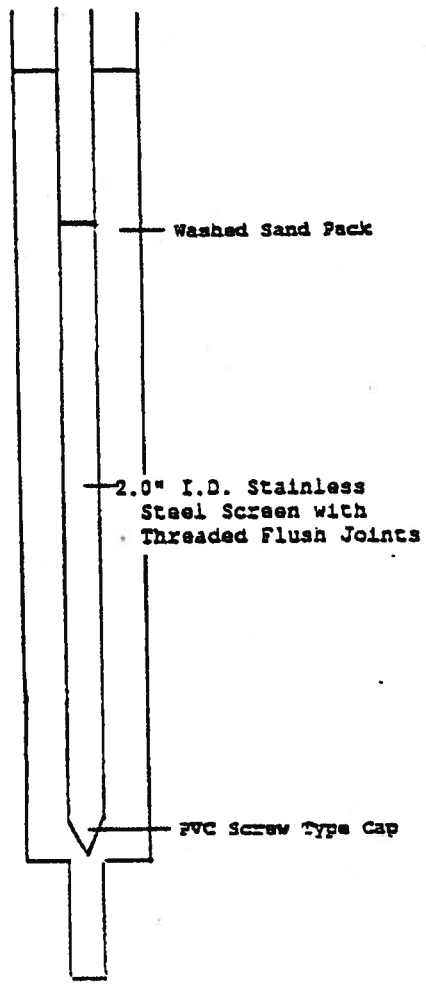
Test Boring No. 34
Sheet 2 of 3



Test Boring No. 34
Sheet 3 of 3

Ft.	A	B	
50			
52			Gray ORGANIC SILT — 53.0'
54	S-1	--	Layered unconsolidated SAND and GRAVEL, Wet, Loose, Heavy Tar Contamination in Gravel Seams
56	S-2	27	
58	S-3	78	59.5'
60	S-4	26	Mottled Red and Grey CLAY, Moist, Stiff, No Contamination
62			Red-Brown CLAYEY SAND, Moist, Stiff, No Evidence of Contamination — 64.0'
64	S-5	ST	Stopped at 64.0'
66			
68			
70			
72			
74			
76			

Notes:
1. Inspected and logged by Scott Sandberg
2. Drilled by National Foundation Engineering (Driller: Richard Sies)
3. Boring completed 6/8/88
4. Auger cuttings after a depth of 10' were a slurry of black sand and gravel, visible tar and strong volatile smell
5. The inside of the auger was flushed with water before drilling into the gravel layer
6. Tar coated the drilling equipment as it was pulled from the ground
7. Installed well on 6/10/88



BORING LOG

HYDRO-TERRA

Project: East Station Contaminant Investigation - Phase II.
Test Boring No. 36 Elevation 18.4' Date June 14, 1988.
Location: Above Tar Separator #2, 92' South and 13' West of H-5.

Ft.	A	B	Ground Surface
2			Brown to Dark Brown SAND, GRAVEL and CINDER FILL, Some Silt, Trace Bricks and Concrete, Dry to Moist, Tar Odor
4	S-1	10	
6	S-2	31	
			Stopped at 6.5'
8			
10			Notes:
12			1. Inspected and logged by Scott Sandberg 2. Drilled by National Foundation Engineering (Driller: Richard Sies)
14			3. Auger cuttings contained building debris (bricks and concrete)
16			
18			
20			

"A" - Depth of lower limit of split barrel sample, bottom of core run, or depth of RQD
"B" - Blows for last 12 in. (except as noted) on split barrel sampler, or % of core recovery

Ground Water Measurements		
Date	Elapsed Hrs.	Depth
6/14	0.5	3.0'

BORING LOG

HYDRO-TERRA

Project: East Station Contaminant Investigation - Phase II
Test Boring No. 37 Elevation 16.3' Date June 13, 1988
Location: Above Tar Vat Structure, 55' West and 35' South of G-5

Ft.	A	B	Ground Surface
	S-1	12	Tan and Brown SILT and SAND FILL, Trace Cinder and Brick, Dry, Hard, No Tar Odor
2			
			3.5'
4	S-2	10	Black SAND, GRAVEL and CINDER FILL, Fine to Coarse, Moist to Wet, Tar Odor
6	S-3	18	
8	S-4	11	
10			Large WOODEN TIMBER, Visible Tar
	S-5	+50	
12			Black CINDER and GRAVEL FILL, Trace Wood, Wet, Loose, Visible Tar
14	S-6	6	
16	S-7	4	Stopped at 16.5'
18			
20			Continued

"A" - Depth of lower limit of split barrel sample, bottom of core run, or depth of RQD
"B" - Blows for last 12 in. (except as noted) on split barrel sampler, or % of core recovery

Ground Water Measurements		
Date	Elapsed Hrs.	Depth

Ft.	A	B	Continued
22			Notes: 1. Inspected and logged by Scott Sandberg 2. Drilled by National Foundation Engineering (Driller: Richard Sies) 3. The hole collapsed before a water measurement could be taken
24			
26			
28			
30			
32			
34			
36			
38			
40			
42			
44			
46			
48			

BORING LOG

HYDRO-TERRA

Project: East Station Contaminant Investigation - Phase II
Test Boring No. 38 Elevation 17.5' Date June 13, 1988
Location: Over an old tar pit structure, 60' East and 5' North of G-4

Ft.	A	B	Ground Surface
	S-1	14	Yellow and Brown SILTY SAND FILL, Dry, No Volatile Odor
2			2.5'
4	S-2	14	Brown and Black CINDER and SOIL FILL, Trace Gravel and Bricks, Dry, Slight Volatile Odor
			5.0'
6	S-3	19	Mottled Red and Yellow CLAY FILL, Trace Cinders and Bricks, Moist, No Tar Odor
			7.0'
8	S-4	23	Grey and Black CINDER and ASH FILL, Moist to Wet, Loose, Coarse, Strong Fuel Oil Odor
10	S-5	8	
12			
			13.5'
14	S-6	15	Mottled Red, Yellow and Grey CLAY FILL, Trace Cinders and Bricks, Moist, Coal Tar Odor
16	S-7	6	
18			
	S-8	7	
			19.0'
20			Stopped at 19.0'

"A" - Depth of lower limit of split barrel sample, bottom of core run, or depth of RQD

"B" - Blows for last 12 in. (except as noted) on split barrel sampler, or % of core recovery

Ground Water Measurements		
Date	Elapsed Hrs.	Depth
6/13	0.5	18'
6/13	5.0	12'
6/14	24.0	10'

Ft.	A	B	
22			Notes: 1. Inspected and logged by Scott Sandberg 2. Drilled by National Foundation Engineering (Driller: Richard Sies) 3. Boring completed 6/13/88
24			
26			
28			
30			
32			
34			
36			
38			
40			
42			
44			
46			
48			

BORING LOG

HYDRO-TERRA

Project: East Station Contaminant Investigation - Phase II.
Test Boring No. 39 Elevation 16.7' Date June 13, 1988.
Location: Above the Filter Bed, 20' East and 10' North of G-5.

Ft.	A	B	Ground Surface
	S-1	49	Yellow and Brown SAND and GRAVEL FILL, Trace Brick Fragments and Concrete, Dry to Moist, No Volatile Odor
2			
4	S-2	25	
			Brown SAND and GRAVEL FILL, Some Silt, Wet, Loose, Visible Tar
6	S-3	+50	
			Black SILT and SAND FILL, Some Coke Breeze, Wet, Loose, Tar Odor
8	S-4	+50	
			Stopped at 9.0'
10			
12			Notes:
14			1. Inspected and logged by Scott Sandberg 2. Drilled by National Foundation Engineering (Driller: Richard Sies) 3. Floating Oil/Tar in the hole after removal of the augers 4. Boring completed 6-13-88
16			
18			
20			Continued

"A" - Depth of lower limit of split barrel sample, bottom of core run, or depth of RQD

"B" - Blows for last 12 in. (except as noted) on split barrel sampler, or % of core recovery

Ground Water Measurements		
Date	Elapsed Hrs.	Depth
6/13	1	2.0'

BORING LOG

HYDRO-TERRA

Project: East Station Contaminant Investigation - Phase II.
Test Boring No. 40 Elevation 17.2' Date June 13, 1988.
Location: Above Tar Separator #1, 127' South and 12' West of H-5.

Ft.	A	B	Ground Surface
2			
4			
6		+50	No Recovery
			GRAVEL, CONCRETE and BRICK FILL, Wet, Visible Tar 8.5'
8	S-1	63	CONCRETE 9.0'
			Stopped at 9.0'
10			
12			
14			
16			
18			
20			

Notes:

1. Inspected and logged by Scott Sandberg
2. Drilled by National Foundation Engineering (Driller: Richard Sies)
3. Auger cuttings indicated building debris (bricks, concrete, coke)

"A" - Depth of lower limit of split barrel sample, bottom of core run, or depth of RQD

"B" - Blows for last 12 in. (except as noted) on split barrel sampler, or % of core recovery

Ground Water Measurements		
Date	Elapsed Hrs.	Depth
6/13	0.5	4.0'

BORING LOG

HYDRO-TERRA

Project: East Station Contaminant Investigation - Phase II
Test Boring No. 42 Elevation 12.7' Date July 15, 1988
Location: Next to 12th Street Bridge near Water Street, 98' West and 65' North of D-4

Ft.	A	B	Ground Surface
2			Mottled Brick Red SILTY CLAY FILL, Dry to Moist, No Evidence of Contamination
4			
6	S-1	14	6.0' Dark Gray CINDER FILL, Moist, No Evidence of Contamination
8			Mottled Brick Red to Tan SILTY CLAY and SILT FILL, Dry, No Evidence of Contamination
10			11.0'
12	S-2	11	Brown ORGANIC CLAYEY SILT FILL, Trace Fine Sand in Layers, Trace Wood Fragments, Wet, No Evidence of Contamination
14			
16	S-3	14	
18	S-4	11	Brown to Gray ORGANIC CLAYEY SILT, Trace Wood Fragments, Wet, No Evidence of Contamination
20			Continued

"A" - Depth of lower limit of split barrel sample, bottom of core run, or depth of RQD
"B" - Blows for last 12 in. (except as noted) on split barrel sampler, or % of core recovery

Ground Water Measurements		
Date	Elapsed Hrs.	Depth
7/15	3	10.5'

Ft.	A	B	Continued
22	S-5	9	Mottled Brick Red, Tan and Brown SILTY CLAY, Trace Gravel (Arundel Clay Unit), Moist, No Evidence of Contamination
24	S-6	14	Stopped at 24.0'
26			
28			Notes: 1. Inspected and logged by Tom Mills 2. Drilled by National Foundation Engineering (Driller: Richard Sies)
30			
32			
34			
36			
38			
40			
42			
44			
46			
48			

BORING LOG

HYDRO-TERRA, INCORPORATED

PAGE: 1

BORING NO.: TB-43 | PROJECT: EAST STATION | DATE: 4-11-96

PROJECT NO.:	96010	DRILLER:	PSI	DRILLING BIT:	3.25" I.D.
LOCATION:	EAST STATION	RIG TYPE:	ATV	GROUND ELEVATION:	18.20'
INSPECTOR:	B. WHIPPLE	METHOD:	ROTARY, H.S.	SAMPLING METHOD:	SPLIT SPOON
WELL TYPE:		SCREEN LENGTH:		PROTOP WIDTH/TYPE	
WELL DEPTH:		GROUT LENGTH/TYPE:		PAD ELEVATION:	
SCREEN:		SEAL LENGTH/TYPE:		TOC ELEVATION	
SLOT SIZE:		FILTER LENGTH/TYPE:		STICK UP/DOWN:	

DEPTH	SAMPLE COLLECTION DATA: SAMPLE NUMBER	HNU (PPM)	STP TEST BLOWS/6"	REC (in.)	DESCRIPTION	DEPTH
		0.6	4-13-8-6	18"	BROWN CLAYEY SILT, TRACE SMALL GRAVEL AND FINE SAND (FILL)	
		0.6	4-6-9-10	23"	BROWN CLAYEY SILT, SOME RED BRICK FRAGMENTS., TRACE SMALL GRAVEL (FILL)	
4			6868	0	NO RECOVERY (FILL)	
		20.0	8-6-4-2	17"	7-8' BLACK CINDER MATERIAL AND STAINED SILT, VERY STRONG TAR ODOR (FILL) 8-9' BLACK STAINED CLAYEY SILT, MOIST	
8	S-1	60.0	1-2-1-1	21"	BLACK STAINED CLAYEY SILT, SOME GRAVEL VERY STRONG TAR ODOR, WET (FILL)	
		20	2-1-4-7	12"	BLACK STAINED CLAYEY SILT WITH CINDERS STRONG COAL TAR ODOR, SATURATED (FILL) 11-12' MOTTLED RED AND BROWN CLAY, VERY TIGHT	
12		150	2-2-2-2	8"	GREENISH-BROWN CLAYEY SILT SATURATED WITH OILY SUBSTANCE. VERY STRONG PETROLEUM ODOR (FILL)	
		200	1-2-2-3	14"	MOTTLED RED AND GRAY CLAY AND SOME BLACK CINDERS, SATURATED VERY STRONG ODOR (FILL)	
16	S-2					
		10	2-2-5-5	10"	MOTTLED RED, YELLOW AND GRAY CLAY SEAM OF CINDERS SATURATED WITH OIL AT 16.5' (CLAY)	
		45	1-2-2-5	10"	MOTTLED RED, YELLOW, AND GRAY CLAY, MOIST (NATIVE SOIL)* ?	
20					BOTTOM OF BORING AT 18'. GROUT FROM 18' TO 5'. BGS.	
					* NO UV SCAN WAS PERFORMED AT THIS LOCATION.	
24						
28						

PROPORTIONS USED: TRACE = 0-10%, LITTLE = 10-20%, SOME 20-35%, AND = 35-50%

BORING LOG	HYDRO-TERRA, INCORPORATED	PAGE: 1

BORING NO.:	TB-44	PROJECT:	EAST STATION	DATE:	4-16-96
PROJECT NO.:	96010	DRILLER:	PSI	DRILLING BIT:	3.25" I.D.
LOCATION:	EAST STATION	RIG TYPE:	ATV	GROUND ELEVATION:	16.32'
INSPECTOR:	B. WHIPPLE	METHOD:	ROTARY, H.S.	SAMPLING METHOD:	SPLIT SPOON
WELL TYPE:		SCREEN LENGTH:		PROTOP WIDTH/TYPE	
WELL DEPTH:		GROUT LENGTH/TYPE:		PAD ELEVATION:	
SCREEN:		SEAL LENGTH/TYPE:		TOC ELEVATION	
SLOT SIZE:		FILTER LENGTH/TYPE:		STICK UP/DOWN:	

DEPTH	SAMPLE COLLECTION DATA: SAMPLE NUMBER	HNU (PPM)	STP TEST BLOWS/6"	REC (in.)	DESCRIPTION	DEPTH
		1.0	4-11-13-14	20"	BROWN AND GRAY SILTY CLAY, SOME GRAVEL AND RED BRICK (FILL) TOP 7" WET.	
		1.5	9-7-5-10	14"	MOTTLED RED AND BROWN AND GRAY CLAY, LITTLE CINDERS AND RED BRICK (FILL) MOIST, TRACE SAND & GRAVEL	
4		1.0	5-8-22-16	13"	SAME AS 2-4' WITH 4" SEAM OF COAL (FILL)	
		3.0	5-3-3-4	9"	LOOSE COAL AND BLACK SILTY SAND, VERY MOIST (FILL) TRACE RED BRICK	
8	S-1	8.4	2-4-22-28	9"	BLACK SILTY SAND AND COAL CINDERS, VERY TIGHT SATURATED (FILL)	
		14	16-20-7-14	18"	BLACK-STAINED SILTY SAND AND COAL ASH/CINDERS TRACE CLAY AND GRAVEL, SATURATED (FILL)	
12		160	2-5-3-2	16"	12-13.8' SAME AS 10-12' (FILL) 13.8'-14' MOTTLED RED, BROWN, AND GRAY CLAY VERY STRONG ODOR	
		35	1-2-1-3	7"	MOTTLED CLAY AND CINDERS, SATURATED C.T. ODOR (FILL)	
16		70	1-2-3-4	13"	MOTTLED RED, BROWN, & GRAY CLAY AND BLACK SILTY SAND AND GRAVEL, SATURATED STRONG ODOR (FILL)	
	S-2	80	1-1-2-2	14"	BLACK CINDERS AND COAL TAR LITTLE CLAY, SATURATED WITH FREE TAR (FILL)	
20		75	1-1-3-2	15"	20-21' BLACK-STAINED CLAYEY SILT, TRACE CINDERS (FILL) 21'-22' BROWNISH GRAY CLAYEY SILT WITH ROOT AND WOOD FRAGMENTS (SILT)	
		14	0-0-2-3	15"	BROWNISH GRAY SILTY CLAY WITH ROOTS AND WOOD FRAGMENTS (SILT)	
24		10	1-2-4-4	24"	BROWNISH GRAY SILTY CLAY WITH TRACE ROOT AND WOOD FRAGMENTS. (SILT)	
					* NO UV SCAN WAS PERFORMED.	

PROPORTIONS USED: TRACE = 0-10%, LITTLE = 10-20%, SOME 20-35%, AND = 35-50%

TEST BORING LOG	HYDRO–TERRA, INCORPORATED	PAGE 1

BORING NO.: TR-45	PROJECT: 96010	DATE: 4-29-96

PROJECT NO:	96010	DRILLER:	PSI	DRILLING BIT:	3.25"
LOCATION:	EAST STATION	RIG TYPE:	ATV	GROUND ELEVATION:	9.58'
INSPECTOR:	B. WHIPPLE	METHOD:	ROTARY, H.S.	SAMPLING METHOD:	SPLIT SPOON
WELL TYPE:		SCREEN LENGTH:		PROTOP WIDTH/TYPE	
WELL DEPTH:		GROUT LENGTH/TYPE:		PAD ELEVATION:	
SCREEN:		SEAL LENGTH/TYPE:		TOC ELEVATION	
SLOT SIZE:		FILTER LENGTH/TYPE:		STICK UP/DOWN:	

DEPTH	SAMPLE COLLECTION DATA: SAMPLE NUMBER	HNU (PPM)	STP TEST BLOWS / 6"	REC (in.)	DESCRIPTION		DEPTH
		5.8	15-20-17-8	22"	DK BROWN + GRAY SILTY GRAVEL, SOME CONCRETE FILL, TRACE SAND,	(FILL)	
		13.5	4-4-5-5	21"	YELLOWISH-ORANGE CLAYEY SILT, SOME SAND 3" OF TIGHT PURIFIER SPONGE MATERIAL. (DK. BROWN) SOME "SPONGE" ODOR		
5		6.5	2-3-3-4	11"	BROWN + BLACK SILT, ~~SOME~~ TRACE CLAY + SAND	(FILL)	
	S-1	1.6	2-2-3-5	10"	BROWN + BLACK SILT, SOME GRAVEL, TRACE CLAY AND RED BRICK, MOIST	(FILL)	
10		14.2 F*	5-3-2-3	8"	RED BRICK FILL, SATURATED 9.8'-10' BLACK CINDERS, SATURATURATED, SLIGHT ODOR	(FILL)	
		5.5 F	3-2-3-4	22"	BLACK CINDER + SHALE FILL, SATURATED OILY SHEEN PRESENT	(FILL)	
		30.0 F*	2-2-2-3	13"	BLACK CINDER FILL, SOME SILTY SAND, SATURATED OILY SHEEN PRESENT	(FILL)	
15		2.8 F*	2-2-3-8	17"	BLACK CINDER FILL, SATURATED 15-16' RED BRICK FILL, SATURATED	(FILL)	
		45.0 F	2-3-5-4	7"	GRAY SILT + GRAVEL, SOME RED BRICK FILL + SAND TRACE COAL TAR STRONG ODOR	(FILL)	
20	S-2	78.0 F	2-1-1-2	7"	SAME AS 16-18' VERY STRONG ODOR	(FILL)	
		4.5 F*	.5-.5-.5-.5	19"	20-20.5' SAME AS 16-18' 20.5-22 GRAYISH BROWN CLAYEY SILT, SATURATED TRACE ROOT FRAGMENTS	(SILT)	

F* - DENOTES TRACE FLUORESENCE UNDER UV
F - DENOTES FLUORESENCE

PROPORTIONS USED: TRACE = 0–10%, LITTLE = 10–20%, SOME 20–35%, AND = 35–50%

TEST BORING LOG	HYDRO–TERRA, INCORPORATED	PAGE 1

BORING NO.:	TB-46	PROJECT:	East Station	DATE:	5-6-96
PROJECT NO:	96010	DRILLER:	PSI	DRILLING BIT:	3.25"
LOCATION:	East Station	RIG TYPE:	ATV	GROUND ELEVATION:	7.54'
INSPECTOR:	B. Whipple	METHOD:	Rotary, H.S.	SAMPLING METHOD:	Split-Spoon
WELL TYPE:		SCREEN LENGTH:		PROTOP WIDTH/TYPE	
WELL DEPTH:		GROUT LENGTH/TYPE:		PAD ELEVATION:	
SCREEN:		SEAL LENGTH/TYPE:		TOC ELEVATION	
SLOT SIZE:		FILTER LENGTH/TYPE:		STICK UP/DOWN:	

DEPTH	SAMPLE COLLECTION DATA: SAMPLE NUMBER	HNU (PPM)	STP TEST BLOWS / 6"	REC (in.)	DESCRIPTION	DEPTH
		3.2	10-8-12-13	17"	Brown silty sand + gravel fill (Fill)	
		3.5	7-11-8-13	15"	Brown to dk. brown silty sand + gravel, some cinders + sand (Fill)	
5	S1	45.0 F#	7-4-6-5	20"	4-5.5' black cinder fill, wet at 5'; 5.5-6' purifier sponge, very strong odor (Fill)	
		80.0 F#	2-2-3-2	24"	Black silty cinder fill, trace purifier sponge and coal tar, very wet; 7.5-8' brown clayey silt *V. strong odor (Fill)	
		30.0 F	1-2-2-4	19"	Black silty sand + ash fill, some red brick fill, trace coal tar, saturated v. strong odor (Fill)	
10		70.0 F	2-2-2-2	18"	Same as 8-10' (Fill)	
	S2	70.0 4.8 F	2-2-1-1	17"	12-13' black cinder fill, little wood fragments + purifier sponge + coal tar, strong odor, saturated; 13-14' grayish brown clayey silt, trace decomposing wood particles (4.8 ppm) (Silt)	
15						
20						

F# - Trace Fluoresence detected under UV Lamp.
F- Fluoresence Detected.

PROPORTIONS USED: TRACE = 0–10%, LITTLE = 10–20%, SOME 20–35%, AND = 35–50%

TEST BORING LOG	HYDRO–TERRA, INCORPORATED	PAGE 1

BORING NO.:	TB-47	PROJECT:	EAST STATION		DATE: 4-19
PROJECT NO.:	96010	DRILLER:	PSI	DRILLING BIT:	3.25"
LOCATION:	EAST STATION	RIG TYPE:	ATV	GROUND ELEVATION:	11.34'
INSPECTOR:	B. WHIPPLE	METHOD:	ROTARY, H.S.	SAMPLING METHOD:	SPLIT SPOON
WELL TYPE:		SCREEN LENGTH:		PROTOP WIDTH/TYPE:	
WELL DEPTH:		GROUT LENGTH/TYPE:		PAD ELEVATION:	
SCREEN:		SEAL LENGTH/TYPE:		TOC ELEVATION:	
SLOT SIZE:		FILTER LENGTH/TYPE:		STICK UP/DOWN:	

DEPTH	SAMPLE COLLECTION DATA: SAMPLE NUMBER	HNU (PPM)	STP TEST BLOWS / 6"	REC (IN.)	DESCRIPTION	DEPTH
		2.8	7-6-5-5	19"	0-1.8' SILTY FINE SAND, TRACE CLAY, MOIST 1.8-2 BLACK CINDERS AND SILT, SOME WOOD FRAGMENTS (FILL)	
		4.5	1-2-3-7	17"	2-2.5 SAME AS 1.8-2 2.5-4 MOTTLED REDDISH-BROWN, GRAY, & TAN CLAY (FILL)	
5		11.0	3-8-7-5	19"	BROWN AND BLACK SAND AND GRAVEL, TRACE CLAY AND COAL TAR, MOIST SLIGHT C.T. ODOR (FILL)	
	S-1	10.0 F"	1-3-3-11	12"	SAME AS 4-6', WET AT 7.5' C.T. ODOR (FILL)	
		60.0 F	6-14-8-7	17"	BLACK COAL CINDERS, TRACE CLAY COAL TAR PRESENT STRONG ODOR (FILL)	
10		45.0 F	2-3-3-1	12"	SAME AS 8-10' (FILL)	
		50.0 F	2-2-1-2	10"	SAME AS 8-10' (FILL)	
15	S-2	40.0 F	2-2-2-1	10"	SAME AS 8-10' (FILL)	
		2.0	3-1-2-3	17"	DARK BROWN ORGANIC SILT, LITTLE WOOD AND ROOT FRAGMENTS ORGANIC SMELL (SILT)	
		1.0	1-1-3-3	16"	SAME AS 16-18 (SILT)	
20						
25						

F → DENOTES FLUORESCENCE UNDER UV LIGHT
F" → TRACE FLUORESCENCE

PROPORTIONS USED: TRACE = 0–10%, LITTLE = 10–20%, SOME 20–35%, AND = 35–50%

TEST BORING LOG	HYDRO–TERRA, INCORPORATED	PAGE 1

BORING NO.:	TB-48	PROJECT:	EAST STATION	DATE:	4-29-96
PROJECT NO:	96010	DRILLER:	PSI	DRILLING BIT:	3.25"
LOCATION:	EAST STATION	RIG TYPE:	ATV	GROUND ELEVATION:	8.38'
INSPECTOR:	B. WHIPPLE	METHOD:	ROTARY, H.S.	SAMPLING METHOD:	SPLIT SPOON
WELL TYPE:		SCREEN LENGTH:		PROTOP WIDTH/TYPE:	
WELL DEPTH:		GROUT LENGTH/TYPE:		PAD ELEVATION:	
SCREEN:		SEAL LENGTH/TYPE:		TOC ELEVATION:	
SLOT SIZE:		FILTER LENGTH/TYPE:		STICK UP/DOWN:	

DEPTH	SAMPLE COLLECTION DATA: SAMPLE NUMBER	HNU (PPM)	STP TEST BLOWS / 6"	REC (in.)	DESCRIPTION	DEPTH
		8.5	4-7-16-5	10"	0-18" TIGHT GRAY SILT AND GRAVEL, SOME SAND (FILL) 18"-24" CONCRETE SLAB/FILL	
		12.5	11-3-7-9	16"	2-3' CONCRETE FILL WITH 1" SEAM OF BLACK SAND & CINDERS (FILL) 3'-4' TIGHT BROWN SILTY SAND	
5		4.0 F*	2-1-1-2	20"	BROWN SILTY SAND, MOIST (FILL) [VERY MOIST AT 5.9-6']	5
	S-1	48.0 F	0-2-7-5	18"	6-7' BROWN TO BLACK SILTY SAND, VERY MOIST TO WET (FILL) 7-8 CINDER + POLIFIER SPONGE FILL, TRACE COAL TAR, SATURATED VERY STRONG ODOR	
		42.0 F	3-3-3-3	11"	~~CINDER AND~~ BLACK CINDER FILL, TRACE COAL TAR, SATURATED (FILL) VERY STRONG ODOR	10
10	S-2	22.0 F	2-3-3-5	12"	BLACK CINDER FILL, TRACE COAL TAR, SATURATED (FILL) VERY STRONG ODOR	
		4.5	1-5-5-1	15"	12-12.5' SAME AS 10-12' 12.5-14' BROWNISH-GRAY SILTY CLAY, TRACE FRAGMENTS (SILT)	
15						15
					BOTTOM OF BORING AT 14'	

F → DENOTES FLUORESENCE UNDER UV LIGHT

F* → DENOTES TRACE " " " "

PROPORTIONS USED: TRACE = 0–10%, LITTLE = 10–20%, SOME 20–35%, AND = 35–50%

BORING LOG

HYDRO-TERRA, INCORPORATED

PAGE: 1

BORING NO.: TB-47 | PROJECT: EAST STATION | DATE: 4-23-96

PROJECT NO.:	96010	DRILLER:	PSI	DRILLING BIT:	3.25"
LOCATION:	East Station	RIG TYPE:	ATV	GROUND ELEVATION:	6.51'
INSPECTOR:	B. Whipple	METHOD:	Rotary, H.S.	SAMPLING METHOD:	Split Spoon
WELL TYPE:		SCREEN LENGTH:		PROTOP WIDTH/TYPE	
WELL DEPTH:		GROUT LENGTH/TYPE:		PAD ELEVATION:	
SCREEN:		SEAL LENGTH/TYPE:		TOC ELEVATION	
SLOT SIZE:		FILTER LENGTH/TYPE:		STICK UP/DOWN:	

DEPTH	SAMPLE NUMBER	HNU (PPM)	STP TEST BLOWS/6"	REC (in.)	DESCRIPTION	DEPTH
		1.0	20-30-20-25	14"	DARK GRAY SILT, SOME SAND, TRACE CINDERS AND GRAVEL. (FILL)	
		1.0	8-9-30-31	4"	TAN CLAYEY SILT, TRACE SAND/GRAVEL AND RED BRICK FRAGMENTS (FILL)	
5		0.8	10-14-9-10	20"	BROWN SILTY FINE SAND, SOME RED BRICK FRAGMENTS, LITTLE GRAVEL, MOIST (FILL)	
	S-1	45.0 F	8-9-9-10	14"	6-6.5' SAME AS 4-6' 6.5-8' Purifier sponge and Black Cinder Fill VERY STRONG ODOR, WET AT 7.5'. (FILL)	
		14.0 F	3-8-6-4	15"	BLACK CINDER FILL, TRACE COAL TAR, SATURATED, STRONG COAL TAR ODOR (FILL)	
10		120 F	2-7-3-2	11"	SAME AS 8-10' (FILL)	
		2.0	1-1-1-1	13"	2" OF CINDER FILL GRAYISH-BROWN CLAYEY SILT, NO CONTAMINATION PRESENT, MOIST TO WET (SILT)	
15		1.0	0 W.O.H.	15"	GRAYISH BROWN CLAYEY SILT, TRACE ROOTS NO CONTAMINATION OBSERVED. MOIST (SILT)	
					BOTTOM OF BORING = 16.0'	
					F → Denotes Fluorescence detected during UV Scan.	

PROPORTIONS USED: TRACE = 0-10%, LITTLE = 10-20%, SOME 20-35%, AND = 35-50%

BORING LOG	HYDRO-TERRA, INCORPORATED	PAGE: 1

BORING NO.: TB-50 | PROJECT: EAST STATION | DATE: 4-17-96

PROJECT NO.:	96010	DRILLER:	PSI	DRILLING BIT:	3.25" I.D.
LOCATION:	EAST STATION	RIG TYPE:	ATV	GROUND ELEVATION:	6.13
INSPECTOR:	B. WHIPPLE	METHOD:	ROTARY, H.S.	SAMPLING METHOD:	SPLIT SPOON
WELL TYPE:		SCREEN LENGTH:		PROTOP WIDTH/TYPE	
WELL DEPTH:		GROUT LENGTH/TYPE:		PAD ELEVATION:	
SCREEN:		SEAL LENGTH/TYPE:		TOC ELEVATION	
SLOT SIZE:		FILTER LENGTH/TYPE:		STICK UP/DOWN:	

DEPTH	SAMPLE COLLECTION DATA: SAMPLE NUMBER	HNU (PPM)	STP TEST BLOWS/6"	REC (IN.)	DESCRIPTION	DEPTH
		0.4	4435	10"	BROWN SILTY SAND AND GRAVEL, SOME CLAY (FILL) MOIST	
	S-1	0.4	2-2-1-2	10"	BROWN SILTY SAND & GRAVEL, SOME CLAY, WET (FILL) ~~4-4' BLACK SILTY SAND AND COAL CINDERS, SATURATED~~ BW	
4		14	2-8-6-5	13"	4-5.5' SAME, SATURATED 5-6' BLACK SILTY SAND AND COAL CINDERS, SATURATED (FILL)	
		14	6-6-4-3	11"	BLACK SILTY SAND AND COAL CINDERS, SATURATED (FILL) TAR VOL. & ODOR PRESENT	
8		20	2-1-2-8	11"	BLACK SILTY SAND AND GRAVEL AND COAL CINDERS, TRACE COAL TAR, SATURATED, C.T. ODOR PRESENT (FILL)	
	S-2	6.0	2-2-3-3	12"	10-10.5' SAME AS 8-10 (FILL) 10.5-12' DARK GRAY SILTY CLAY, TRACE WOOD FRAGMENTS COAL TAR PRESENT (MAY BE SLOUGH) (SILT)	
12		6.0	1-1-1-1	19"	GRAYISH BROWN SILTY CLAY, TRACE WOOD FRAGMENTS COAL TAR PRESENT ALONG INSIDE OF SPOON NOT IN SAMPLE. WET (SILT)	
		4.5	1-2-1-2	19"	SAME AS 12-14' (SILT)	
16					* NO UV SCAN WAS PERFORMED AT THIS LOCATION.	
20						

PROPORTIONS USED: TRACE = 0-10%, LITTLE = 10-20%, SOME 20-35%, AND = 35-50%

BORING LOG	HYDRO-TERRA, INCORPORATED	PAGE: 1

BORING NO.: TB-5L	PROJECT: EAST STATION	DATE: 4-18-96

PROJECT NO.:	96010	DRILLER:	PSI	DRILLING BIT:	3.25"
LOCATION:	EAST STATION	RIG TYPE:	ATV	GROUND ELEVATION:	8.68'
INSPECTOR:	B. WHIPPLE	METHOD:	ROTARY, H.S.	SAMPLING METHOD:	SPLIT SPOON
WELL TYPE:		SCREEN LENGTH:		PROTOP WIDTH/TYPE	
WELL DEPTH:		GROUT LENGTH/TYPE:		PAD ELEVATION:	
SCREEN:		SEAL LENGTH/TYPE:		TOC ELEVATION	
SLOT SIZE:		FILTER LENGTH/TYPE:		STICK UP/DOWN:	

DEPTH	SAMPLE COLLECTION DATA: SAMPLE NUMBER	HNU (PPM)	STP TEST BLOWS/6"	REC (in.)	DESCRIPTION	DEPTH
		0.6	7-9-7-5	11"	GRAVEL, ~~AND COAL~~ SOME CLAY, RED BRICK, COAL CINDERS, LITTLE CLAY AND SAND (FILL)	
4		5.2 FA	3-2-2-3	19"	DARK GRAY ~~SOFT~~ SILTY MED SAND AND SMALL GRAVEL ~~SOME SILTY~~ TRACE CLAY (FILL)	
	S-1	8.2 F	1-1-1-2	17"	SAME AS 2-4' WET AT 5.5' SLIGHT ODOR (FILL)	
8		14.0 F	5-6-6-8	8"	BLACK GRAVEL, SOME SAND AND CINDERS, TRACE COAL TAR SATURATED STRONG C.T. ODOR (FILL)	
		50.0 F	2-2-4-4	12"	BLACK COAL CINDERS, TRACE WOOD AND COAL TAR VERY STRONG C.T. ODOR (FILL)	
12		50.0 F	2-3-3-2	12"	SAME AS 8-10' (FILL)	
		55 F	2-4-3-4	20"	SAME AS 8-10' (FILL)	
16	S-2	15.0 F	1-4-1/12	22"	14-15.5 SAME AS 8-10 15.5-15.5 DARK GRAY CLAYEY SILT, TRACE COAL TAR AND ROOTS/WOOD FRAGMENTS 15.5-16 SAME AS 8-10 (FILL)	
		3.0 FA	WEIGHT OF HAMMER	18"	DARK GRAY CLAYEY SILT, NO CONTAMINATION (SILT)	
20		2.5	0/18, 2	14"	SAME AS 16-18' (SILT)	
					BOTTOM OF BORING AT 20'	

PROPORTIONS USED: TRACE = 0-10%, LITTLE = 10-20%, SOME 20-35%, AND = 35-50%

BORING LOG	HYDRO-TERRA, INCORPORATED	PAGE: 1

BORING NO.: T8-52 PROJECT: EAST STATION DATE: 4-17-96

PROJECT NO.:	96010	DRILLER:	PSI	DRILLING BIT:	3.25"
LOCATION:	EAST STATION	RIG TYPE:	ATV	GROUND ELEVATION:	11.32'
INSPECTOR:	B. WHIPPLE	METHOD:	ROTARY, H.S.	SAMPLING METHOD:	SPLIT SPOON
WELL TYPE:		SCREEN LENGTH:		PROTOP WIDTH/TYPE	
WELL DEPTH:		GROUT LENGTH/TYPE:		PAD ELEVATION:	
SCREEN:		SEAL LENGTH/TYPE:		TOC ELEVATION	
SLOT SIZE:		FILTER LENGTH/TYPE:		STICK UP/DOWN:	

DEPTH	SAMPLE COLLECTION DATA: SAMPLE NUMBER	HNU (PPM)	STP TEST BLOWS/6"	REC (IN.)	DESCRIPTION	DEPTH
		0.6	2-5-9-9	16"	DARK BROWN SILTY SAND AND SHALE, SOME COAL ASH (FILL)	
4		0.6	3-4-8-6	17"	~~DARK~~ COAL ASH CINDERS AND 11" SEAM OF MOTTLED REDDISH BROWN AND TAN CLAY, MOIST (FILL)	
		0.6	2-5-7-5	8"	COAL ASH CINDERS AND MOTTLED BROWN AND TAN CLAY, MOIST (FILL)	
8	S-1	0.6	4-8-6-6	18"	DARK BROWN SILTY MED SAND, SOME COAL ASH AND BROWN CLAY, MOIST (FILL)	
		40.0 F	2-2-2-5	9"	COAL ASH, AND SOME CONCRETE RUBBLE, TRACE SAND AND COAL TAR, WET FROM 9-10' STRONG COAL TAR ODOR (FILL)	
12	S-2	38.0 F	1-2-1-2	8"	COAL ASH/CINDERS AND PIECE OF PARTIALLY DECAYING WOOD, SATURATED, TRACE SAND & COAL TAR STRONG C.T. ODOR (FILL)	
		36.0 F	1/12, 1, 1	14"	12-12.5' COAL/ASH CINDERS, LITTLE COAL TAR (FILL) 12.5-14' GRAYISH-BROWN CLAYEY SILT (SILT)	
16		11.0 F*	0/18, 1	18"	GRAYISH-BROWN CLAYEY SILT, NO CONTAMINATION OBSERVED (SILT)	
		1.5 F*	3-4-5-4	20"	GRAYISH-BROWN CLAYEY-SILT, AND LARGE PIECE OF DECAYING WOOD (SILT)	
20					BOTTOM OF BORING AT 16'	

F* → DENOTES VERY SMALL AMOUNT OF FLUORESCENCE

F → DENOTES FLUORESENCE UNDER UV LIGHT

PROPORTIONS USED: TRACE = 0-10%, LITTLE = 10-20%, SOME 20-35%, AND = 35-50%

BORING LOG	HYDRO-TERRA, INCORPORATED	PAGE: 1

BORING NO.:	~~DS~~ TB - 53	PROJECT:	EAST STATION		DATE: 4-15-96
PROJECT NO.:	96010	DRILLER:	PSI	DRILLING BIT:	3.25"
LOCATION:	EAST STATION	RIG TYPE:	ATV	GROUND ELEVATION:	
INSPECTOR:	B. Whipple	METHOD:	ROTARY, H.S.	SAMPLING METHOD:	SPLIT SPOON
WELL TYPE:		SCREEN LENGTH:		PROTOP WIDTH/TYPE	
WELL DEPTH:		GROUT LENGTH/TYPE:		PAD ELEVATION:	
SCREEN:		SEAL LENGTH/TYPE:		TOC ELEVATION	
SLOT SIZE:		FILTER LENGTH/TYPE:		STICK UP/DOWN:	

DEPTH	SAMPLE COLLECTION DATA: SAMPLE NUMBER	HNU (PPM)	STP TEST BLOWS / 6"	REC (IN.)	DESCRIPTION	DEPTH
		0.8 11.0	7-22-28 15	18"	0-1' LT. BROWN SILTY-SAND AND GRAVEL (FILL) 1-2' LT BROWN SILTY SAND & GRAVEL AND BLACK CINDERS	
		6.2	6-7-5-5	18"	BLACK-STAINED SILTY-SAND AND GRAVEL, SLIGHT "ASPHALT" ODOR, TRACE CLAY (FILL)	
4		4.0	10-9-5-7	13"	4-5.5' SAME AS 2-4' 5.5'-6' MOTTLED GRAY + BROWN SILTY CLAY, MOIST SLIGHT ODOR (TAR VOLATILES ?) (FILL)	
		3.5	3-2-2-3	1"	BROWN + BLACK CLAYEY SILT AND SMALL GRAVEL, MOIST (FILL)	
8		~~4.0~~ 15.0	3-2-2-7	8" (2 ATTEMPTS)	SAME AS 6-8', WET TAR VOLATILES ODOR (FILL)	
		70	5-5-5-3	11"	10-11' BLACKLAND BROWN CLAYEY SILT AND SMALL GRAVEL, SATURATED 11-12' MOTTLED RED AND BROWN CLAY (FILL)	
12		25	1-2-1-4	1"	MOTTLED RED AND BROWN CLAYEY SILT AND SMALL GRAVEL, SATURATED * ALMOST NO RECOVERY (CLAY ?)	
		60	3-2-2-4	19"	MOTTLED RED AND BROWN CLAYEY SILT SATURATED (CLAY ?)	
16		4.0	2-2-3-5	14"	SAME AS 14-16' (CLAY ?)	
20					-GROUTED BORING TO SURFACE * NO UV SCAN PERFORMED AT THIS LOCATION.	

PROPORTIONS USED: TRACE = 0-10%, LITTLE = 10-20%, SOME 20-35%, AND = 35-50%

TEST BORING LOG	HYDRO–TERRA, INCORPORATED	PAGE 1

BORING NO.: TB-56	PROJECT: EAST STATION	DATE: 5-7-96

PROJECT NO:	96010	DRILLER:	PSI	DRILLING BIT:	3.25"
LOCATION:	EAST STATION	RIG TYPE:	ATV	GROUND ELEVATION:	34.29'
INSPECTOR:	B. WHIPPLE	METHOD:	Hollow Stem, Barrel	SAMPLING METHOD:	Split Spoon
WELL TYPE:		SCREEN LENGTH:		PROTOP WIDTH/TYPE	
WELL DEPTH:		GROUT LENGTH/TYPE:		PAD ELEVATION:	
SCREEN:		SEAL LENGTH/TYPE:		TOC ELEVATION	
SLOT SIZE:		FILTER LENGTH/TYPE:		STICK UP/DOWN:	

DEPTH	SAMPLE COLLECTION DATA: SAMPLE NUMBER	HNU (PPM)	STP TEST BLOWS / 6"	REC (in.)	DESCRIPTION	DEPTH
					* NO SAMPLES TAKEN 0-24' REDDISH-BROWN SILTY-CLAY	
25		11.0	0-1-2-1	12"	BROWN SAND AND GRAVEL, WET, LOOSE SLIGHT COAL TAR ODOR (FILL)	
		7.0 F*	3-3-3-4	7"	BROWN SAND + GRAVEL, TRACE CLAY, WET, LOOSE LIGHT SHEEN OBSERVED SLIGHT ODOR (FILL)	
		15.0 F	3-3-2-7	17"	BROWN SAND + GRAVEL, TRACE COAL TAR, WET, VERY LOOSE C.T. ODOR (FILL)	
30	S-1	45.0 F	3-4-7-7	20"	BROWN SAND + GRAVEL, SOME CLAY, TRACE COAL TAR, WET C.T. ODOR (FILL)	
		25.0 F	3-2-3-2	18"	GRAY ORGANIC SILT, SOME CLAY, TRACE SAND AND DECOMPOSING ROOT MATERIAL, MOIST BLACK STAINING (COAL TAR) STOPS AT 32.5' (SILT)	
35		20.0 F*	2-3-4-4	23"	GRAY ORG. SILT, SOME CLAY AND DECOMPOSING ROOT MATERIAL MOIST, NO EVIDENCE OF CONTAMINATION IN SILT SLIGHT C.T. ODOR (SILT)	
		150 F	0-0-2-4	17"	36-37' SAME AS 34-36' (SILT) 37-38' BROWN SAND + GRAVEL, TRACE CLAY + COAL TAR, WET C.T. ODOR PRESENT	
		60.0 F	9-5-4-5	18"	BROWN + GRAY SILTY FINE SAND, TRACE CLAY + GRAVEL, WET C.T. ODOR PRESENT	
40	S-2	160.0 F	5-3-7-4	10"	BROWN + GRAY SILTY FINE SAND, TRACE CLAY + COAL TAR, WET VERY STRONG C.T. ODOR	
		65.0	5-7-7-7	24"	BROWN SILTY FINE SAND, TRACE CLAY, WET NO VISIBLE COAL TAR VERY STRONG C.T. ODOR	
45		70.0	3-6-11-7	16"	SAME AS 42-44'	
		35.0	3	20"	46-47 SAME AS 42-44 WITH SOME CLAY 47-48' MOTTLED TAN - REDDISH BROWN CLAY (CLAY)	

PROPORTIONS USED: TRACE = 0–10%, LITTLE = 10–20%, SOME 20–35%, AND = 35–50%

F* → Trace Fluoresence Detected under UV.
F → Fluoresence Detected

Hydro-Terra

BORING LOG	HYDRO-TERRA, INCORPORATED	PAGE: 1

BORING NO.: TB-57 (MW-2) PROJECT: EAST STATION DATE: 11/22/96

PROJECT NO.:	96150	DRILLER:	EDI	DRILLING BIT:	4.25"
LOCATION:	EAST STATION	RIG TYPE:	B-61	GROUND ELEVATION:	17.52
INSPECTOR:	B. WHIPPLE	METHOD:	H.S. ROTARY	SAMPLING METHOD:	SPLIT SPOON
WELL TYPE:		SCREEN LENGTH:		PROTOP WIDTH/TYPE	
WELL DEPTH:		GROUT LENGTH/TYPE:		PAD ELEVATION:	
SCREEN:		SEAL LENGTH/TYPE:		TOC ELEVATION	
SLOT SIZE:		FILTER LENGTH/TYPE:		STICK UP/DOWN:	

DEPTH	SAMPLE COLLECTION DATA: SAMPLE NUMBER	HNU (PPM)	STP TEST BLOWS/6"	REC (in.)	DESCRIPTION	DEPTH
					Brown Silt + Gravel	
4						
					Black Silt + Gravel	5.5'
	S-1	0.2	4-3-10-20	7"	Black Silt + Gravel	
8						
	S-2	0.2	1-5-5-3	15"	Tan Silty Sand + Gravel, Some Red Brick, Moist Strong odor	
	S-3	9.0 F	1-4-[illegible]	14"	Gray - Black Cinder Fill, Wet Very Strong odor	
12						
	S-4	—	[illegible]-3-6-[illegible]	2"	Mottled Brown + Tan Silty Clay, Wet	
	S-5	60.0 F	1-3-5-10	13"	Mottled Brown + Tan Silty Clay, Some Coal Tar in Clay. Coal Tar odor.	
16						
	S-6	12.0 F	[illegible], 2, 3, 3	15"	Mottled Red-Brown, Tan, Gray Silty Clay	
20						
	S-7		2, 3, 4, 4	0"	Mottled Red-Brown, Gray Clay (Side of Spoon)	
	S-8		[illegible]-10-17-[illegible]	6"	Spoon 1 Piece of Wood, Gravel - Sand, Saturated Spoon 2 22-22.5' Clay 22.5-24' Lt. Brown Sandy Org. Silt	
24						
					Brown Organic Silt (SILT)	
28						

PROPORTIONS USED: TRACE = 0-10%, LITTLE = 10-20%, SOME 20-35%, AND = 35-50%

HNO background → 0.2

BORING LOG	HYDRO-TERRA, INCORPORATED	PAGE: 1

BORING NO.: TB-61 (Alt 63) PROJECT: EAST STATION DATE: 12/10/96

PROJECT NO.:	96150	DRILLER:	EDI	DRILLING BIT:	4.25"
LOCATION:	EAST STATION	RIG TYPE:	B-61	GROUND ELEVATION:	8.47'
INSPECTOR:	B. WHIPPLE	METHOD:	H.S. ROTARY	SAMPLING METHOD:	SPLIT SPOON
WELL TYPE:		SCREEN LENGTH:		PROTOP WIDTH/TYPE	
WELL DEPTH:		GROUT LENGTH/TYPE:		PAD ELEVATION:	
SCREEN:		SEAL LENGTH/TYPE:		TOC ELEVATION	
SLOT SIZE:		FILTER LENGTH/TYPE:		STICK UP/DOWN:	

DEPTH	SAMPLE COLLECTION DATA: SAMPLE NUMBER	HNU (PPM)	STP TEST BLOWS/6"	REC (in.)	DESCRIPTION	DEPTH
4					0-5' DK. BROWN CLAYEY SILT, SOME GRAVEL (CAL.)	
8		10.0		6"	5-9' BLACK SILTY GRAVEL PURIFIER SPONGE ODOR	
		45.0 F	7-4-2-3	7"	BROWN SILT + CINDER FILL, VERY MOIST 10-11' BLACK CINDER FILL, WET, SLIGHT SHEEN STRONG ODOR	9
12		52.0 F	2-5-4-5	11"	11-12' BROWN SILTY CLAY + CINDER FILL 12-13' GRAYISH BROWN ORGANIC SILT	
		45.0 F	75/6"	2"	LARGE GRAVEL, SOME SILT + CINDER FILL 14' REFUSAL NO SAMPLE 14.5-16'	
16	S-1	40.0	9-6-8-4	8"	14-16' DK BROWN + BLACK SILTY SAND + GRAVEL	
		00 F	6-1-4-3	13"	16-17.8 VERY DK. GRAY ORGANIC SILT 17.8-18 SANDY SILT SATURATED WITH COAL TAR (SILT)	
20		42 F	3-1-2-2	14"	GRAY ORGANIC SILT WITH SMALL SEAMS OF COAL TAR (SILT)	
		12	3-1-2-3	17"	GRAY ORGANIC SILT, TRACE WOOD/ROOT FRAGMENTS (SILT)	
24						
28						

PROPORTIONS USED: TRACE = 0-10%, LITTLE = 10-20%, SOME 20-35%, AND = 35-50%

HNU background → 0.6 ppm

BORING LOG	HYDRO-TERRA, INCORPORATED	PAGE: 1

BORING NO.: TB-62 | PROJECT: EAST STATION | DATE: [illegible]

PROJECT NO.:	96150	DRILLER:	ED 1	DRILLING BIT:	4.25"
LOCATION:	EAST STATION	RIG TYPE:	B-61	GROUND ELEVATION:	8.85'
INSPECTOR:	B. WHIPPLE	METHOD:	H.S. ROTARY	SAMPLING METHOD:	SPLIT SPOON
WELL TYPE:		SCREEN LENGTH:		PROTOP WIDTH/TYPE	
WELL DEPTH:		GROUT LENGTH/TYPE:		PAD ELEVATION:	
SCREEN:		SEAL LENGTH/TYPE:		TOC ELEVATION	
SLOT SIZE:		FILTER LENGTH/TYPE:		STICK UP/DOWN:	

DEPTH	SAMPLE COLLECTION DATA: SAMPLE NUMBER	HNU (PPM)	STP TEST BLOWS/6"	REC (IN.)	DESCRIPTION	DEPTH
4, 8					0-3' BROWN CLAYEY SILT, SOME GRAVEL 3-10 BLACK SILT + CINDERS, SOME CLAY	
12		12.0	24-6-6	4"	BROWN + BLACK GRAVEL + SAND, TRACE OIL SLIGHT SHEEN SLIGHT PETROLEUM ODOR	
		7.0 F#	6-4-3-2	1"	BLACK COARSE SAND + GRAVEL SLIGHT SHEEN	
16		60.0 F#	6-6-4-2	19"	BLACK CINDER FILL, SOME COAL TAR, LOOSE	
	S-1	100.0 F#	5-2-4-4	12"	16-17 BLACK CINDER FILL, SOME COAL TAR + FIRST SPOON EMPTY. 17-18 DK. GRAY ORGANIC SILT (SILT)	
3" 20		60.0 F#		24"	18-19 DK. GRAY ORGANIC SILT (SILT) + FIRST SPOON EMPTY 19-20 BROWN ORGANIC SILT + USED 2" ON 3rd ATTEMPT	
24, 28						

PROPORTIONS USED: TRACE = 0-10%, LITTLE = 10-20%, SOME 20-35%, AND = 35-50%

Hnu background 0.6 ppm

BORING LOG	HYDRO-TERRA, INCORPORATED	PAGE: 1

BORING NO.: TB-63 (RW-45) PROJECT: EAST STATION DATE: 12/11/96

PROJECT NO.:	95160	DRILLER:	EDI	DRILLING BIT:	4.25"
LOCATION:	EAST STATION	RIG TYPE:	B-61	GROUND ELEVATION:	*6.26'
INSPECTOR:	B. WHIPPLE	METHOD:	H.S. ROTARY	SAMPLING METHOD:	SPLIT SPOON
WELL TYPE:	Recovery Well 8"	SCREEN LENGTH:	5'	PROTOP WIDTH/TYPE	NONE
WELL DEPTH:	21' BGS	GROUT LENGTH/TYPE:	4.5' Cement/Bent Mix	PAD ELEVATION:	—
SCREEN:	5' STAINLESS STEEL	SEAL LENGTH/TYPE:	1.5' BENTONITE	TOC ELEVATION	9.50'
SLOT SIZE:	.020	FILTER LENGTH/TYPE:	9' (#1)	STICK UP/DOWN:	~~[illegible]~~ + 3.24'

DEPTH	SAMPLE NUMBER	HNU (PPM)	STP TEST BLOWS/6"	REC (in.)	DESCRIPTION
					Black + Brown Silty Sand-Gravel Fill some cinders
4					
		1.0	2-4-3-1	1"	Brown Sand-Gravel
		6.0 F*	5-7-10-15	10"	6.5-8 Mottled black-orange clayey silt some cinders + red brick fill
8					
		18.0 F	4-6-6-4	7"	Grayish-brown silt + cinders, some decaying organic matter, sheen present slight odor
	S-1	60.0 F	1-1-6-5	6"	10-11.5 - SAME AS 8-10 11.5-12.5 1" Seam of loose cinder fill on top of Grayish brown silt, plastic
12		40.0 F	8-10-13-5	17"	12.5-14 Grayish-Brown silt, plastic trace cinders in 12-12.5 (SILT)
		6.0 F	1-1-1-1	13"	Grayish-brown organic silt, trace roots no contamination (SILT)
16					
20					REDRILL BORING WITH 10.25" AUGER FOR RECOVERY WELL

DEPTH: GROUT, BENT., COARSE SAND, SUMP, BENT.

PROPORTIONS USED: TRACE = 0-10%, LITTLE = 10-20%, SOME 20-35%, AND = 35-50%

HNU background → 0.8 PPM

BORING LOG	HYDRO-TERRA, INCORPORATED	PAGE: 1

BORING NO.:	TB-64	PROJECT:	EAST STATION	DATE:	1/11/96
PROJECT NO.:	96150	DRILLER:	EDI	DRILLING BIT:	4.25"
LOCATION:	EAST STATION	RIG TYPE:	B-61	GROUND ELEVATION:	+8.15'
INSPECTOR:	B. WHIPPLE	METHOD:	H.S. ROTARY	SAMPLING METHOD:	SPLIT SPOON
WELL TYPE:		SCREEN LENGTH:		PROTOP WIDTH/TYPE	
WELL DEPTH:		GROUT LENGTH/TYPE:		PAD ELEVATION:	
SCREEN:		SEAL LENGTH/TYPE:		TOC ELEVATION	
SLOT SIZE:		FILTER LENGTH/TYPE:		STICK UP/DOWN:	

DEPTH	SAMPLE COLLECTION DATA: SAMPLE NUMBER	HNU (PPM)	STP TEST BLOWS/6"	REC. (in.)	DESCRIPTION	DEPTH
					Brown Silty Sand + Gravel Fill	
4						
		12.0	-	-	Black Silty Cinder Fill Strong Purifier Sponge odor	
8						
		56.0 F	8-5-6-6	8"	Black Cinder Fill, Saturated Very Strong Purifier Sponge odor.	
3" spoon		40.0 F	35-15-12 "	12"	SAME AS 8-10'	
12	S-1					
3" spoon		45.0 F	17-10-42	14"	12-13.5 LOOSE CINDER FILL, SOME COAL TAR AT 13.5" 13.5 DK GRAY ORGANIC SILT (SILT)	
16						
20						
24						

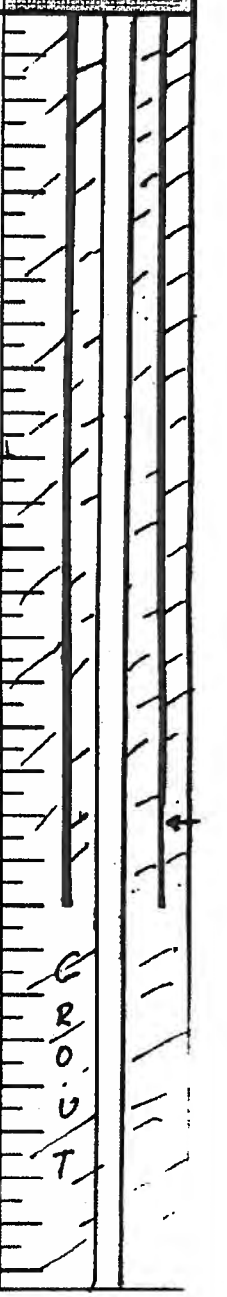
PROPORTIONS USED: TRACE = 0-10%, LITTLE = 10-20%, SOME 20-35%, AND = 35-50%

HNU BACKGROUND → 1.0 PPM

BORING LOG	HYDRO-TERRA, INCORPORATED	PAGE: 1/1

BORING NO.:	TB-65 (MW-20)	PROJECT:	EAST STATION	DATE:	6/17/92
PROJECT NO.:	95160	DRILLER:	EDI	DRILLING BIT:	4.25"
LOCATION:	EAST STATION	RIG TYPE:	B-61	GROUND ELEVATION:	7.18'
INSPECTOR:	B. WHIPPLE	METHOD:	HOLLOW STEM ROTARY	SAMPLING METHOD:	SPLIT SPOON
WELL TYPE:	6" RECOVERY WELL	SCREEN LENGTH:	10'	PROTOP WIDTH/TYPE	—
WELL DEPTH:	62.5' B.G.S.	GROUT LENGTH/TYPE:	39' CEM./BENT. MIX	PAD ELEVATION:	—
SCREEN:	10' STAINLESS STEEL	SEAL LENGTH/TYPE:	1' BENTONITE	TOC ELEVATION	6.73'
SLOT SIZE:	.020	FILTER LENGTH/TYPE:	14' (#1)	STICK UP/DOWN:	-0.45'

DEPTH	SAMPLE COLLECTION DATA: SAMPLE NUMBER	HNU (PPM)	STP TEST BLOWS/6"	REC (in.)	DESCRIPTION
					GRAY + BROWN SILTY SAND + GRAVEL FILL (A.C.)
4					
		48.0			Black cinder fill, moist Strong odor.
8					
		42.0 F	6-6-7-4	7"	Black cinder fill, Trace coal tar Strong purifier sponge odor, WET
		45.0 F	5-3-3-3	11"	Same as 8-10
12					
		20.0 F	8-7-6-4	12"	Loose cinder fill, saturated, trace coal tar
	S-1				
3"		45.0 F	7-6-5-4	19"	~~GRAY SILT TRACE CINDERS~~ 14-15' LOOSE CINDER FILL, SATURATED WITH TAR 15-16' GRAY SILT, TRACE CINDERS
16					
					* CONTINUED ON NEXT PAGE
20					
					• BORING USED TO CONFIRM SILT DEPTH AND INSTALL OUTER CASING TO SEAL UPPER AQUIFER.
24					• REAMED BORING FOR OUTER CASING WITH 12.25" AUGERS TO 18'
28					



PROPORTIONS USED: TRACE = 0-10%, LITTLE = 10-20%, SOME 20-35%, AND = 35-50%

HNU BACKGROUND → 1.0 PPM

BORING LOG	HYDRO-TERRA, INCORPORATED	PAGE: 2

BORING NO.:	TB-65 (MW-20)	PROJECT:	EAST STATION		DATE: 10/26/96
PROJECT NO.:	96150	DRILLER:	EDI	DRILLING BIT:	10"
LOCATION:	East Station	RIG TYPE:	B-61	GROUND ELEVATION:	+7.18'
INSPECTOR:	B. Whipple	METHOD:	MUD ROTARY	SAMPLING METHOD:	SPLIT SPOON
WELL TYPE:	6" RECOVERY WELL	SCREEN LENGTH:	10'	PROTOP WIDTH/TYPE	—
WELL DEPTH:	62.5' BGS.	GROUT LENGTH/TYPE:	39'	PAD ELEVATION:	—
SCREEN:	STAINLESS STEEL	SEAL LENGTH/TYPE:	1' BENTONITE	TOC ELEVATION	+6.73'
SLOT SIZE:	.020	FILTER LENGTH/TYPE:	14' (#1)	STICK UP/DOWN:	-0.45'

DEPTH	SAMPLE NUMBER	HNU (PPM)	STP TEST BLOWS/6"	REC. (in.)	DESCRIPTION
					• SAMPLED 8-16' DURING INSTALLATION OF OUTER CASING.
					- NO SAMPLES ~~16-50'~~ 16-50'.
					- HIT SAND + GRAVEL AT APPROXIMATELY 46'
50		0.0	64-28-24 22	12"	Brown coarse sand + gravel.
54		—		—	• NO SAMPLE
		0.0	89-60-18 15	11"	Brown coarse sand + gravel, Trace mottled reddish-brown + grey clay at 56'
58		0.0	67-56-78-[illegible]	23"	56-56.5 · RED CLAY, SOME LG. GRAVEL 56.5-58 REDDISH-BROWN STIFF CLAY, TRACE SAND (ARUNDEL CLAY)

DEPTH: 0 feet, BENT., SAND, SUMP, BENT.

No Fluorescence detected.

PROPORTIONS USED: TRACE = 0-10%, LITTLE = 10-20%, SOME 20-35%, AND = 35-50%

Hnu background → 0.0 ppm

BORING LOG	HYDRO-TERRA, INCORPORATED	PAGE: 1

BORING NO.: TB-67	PROJECT: EAST STATION	DATE: 12-18-96

PROJECT NO.:	96150	DRILLER:	EDI	DRILLING BIT:	4.25"
LOCATION:	New 78-46	RIG TYPE:	B-61	GROUND ELEVATION:	7.77
INSPECTOR:	B. WHIPPLE	METHOD:	H.S. ROTARY	SAMPLING METHOD:	SPLIT SPOON
WELL TYPE:		SCREEN LENGTH:		PROTOP WIDTH/TYPE	
WELL DEPTH:		GROUT LENGTH/TYPE:		PAD ELEVATION:	
SCREEN:		SEAL LENGTH/TYPE:		TOC ELEVATION	
SLOT SIZE:		FILTER LENGTH/TYPE:		STICK UP/DOWN:	

DEPTH	SAMPLE COLLECTION DATA: SAMPLE NUMBER	HNU (PPM)	STP TEST BLOWS / 6"	REC (in.)	DESCRIPTION	DEPTH
					Brown Sand-Gravel Fill	
					6" Black Cinder Fill - Coal Tar odor, Wet	
8			7-9-7-20	12"	Clay & Some cinders and sand, Fill, moist	
13		50.0	7-6-7-8 F	10"	GRAY SAND + Gravel Fill, SOME RED BRICK + CLAY SATURATED WITH COAL TAR AT 11.8"	
3"	S-1	45.0	10-4-8-2 F	24"	CLAY + CINDER FILL, CINDER FILL SATURATED WITH COAL TAR TRACE SILT AT 14"	
3" (2 attempts) 16		8.5	8-4-3-2 F	20" (0)	BROWN ORGANIC SILT, SOME TAR (SILT)	
20					*All HNU READINGS WERE TAKEN FROM HEAD SPACE. (BACKGROUND 2.0 PPM)	
24					Note: S:1 headspace checked in Lab with HNU on 12/27/96. Reading was 45 ppm.	

PROPORTIONS USED: TRACE = 0-10%, LITTLE = 10-20%, SOME 20-35%, AND = 35-50%

BORING LOG	HYDRO-TERRA, INCORPORATED	PAGE: 1

BORING NO.: TB-68	PROJECT: EAST STATION	DATE: [illegible]

PROJECT NO.:	96150	DRILLER:	E&I	DRILLING BIT:	4.25"
LOCATION:	East Station	RIG TYPE:	B-61	GROUND ELEVATION:	≈14.73'
INSPECTOR:	B. Whipple	METHOD:	H.S. Rotary	SAMPLING METHOD:	Split Spoon
WELL TYPE:		SCREEN LENGTH:		PROTOP WIDTH/TYPE	
WELL DEPTH:		GROUT LENGTH/TYPE:		PAD ELEVATION:	
SCREEN:		SEAL LENGTH/TYPE:		TOC ELEVATION	
SLOT SIZE:		FILTER LENGTH/TYPE:		STICK UP/DOWN:	

DEPTH	SAMPLE COLLECTION DATA: SAMPLE NUMBER	HNU (PPM)	STP TEST BLOWS / 6"	REC (in.)	DESCRIPTION	DEPTH
12'						
		30.0	18-20 15-18 F	22"	Black Cinder Fill, Some wood chips + gravel	
		25.0	12-10 8-20 F	20"	Black Cinder Fill, WET Possible oil contamination	
16'						
3'		32.0	10-5-1 5 F	14"	CLAY + GRAVEL FILL, TRACE COAL TAR	
3"		42.0	3-10-6 7 F	22"	CLAY + CINDER FILL, SOME COAL TAR	
20'						
		66.0	7-9-8-10 F	23"	SILT + CINDER FILL, COAL TAR PRESENT	
24	S-1	—	5-3-3-1	6"	BLACK CINDER FILL, SATURATED, SOME COAL TAR	
		5.2	2-1-1-1 F#	24"	~24.5 BROWN ORGANIC SILT, TRACE WOOD/ROOT FRAGMENTS (SILT)	
					-HNU readings taken from headspace.	

PROPORTIONS USED: TRACE = 0-10%, LITTLE = 10-20%, SOME 20-35%, AND = 35-50%

HNU background → 1.5 PPM

BORING LOG	HYDRO-TERRA, INCORPORATED	PAGE: 1

BORING NO.:	TB-69	PROJECT:	EAST STATION	DATE:	12/9/96
PROJECT NO.:	96150	DRILLER:	EDI	DRILLING BIT:	4.25"
LOCATION:	Bldg. MW 17 on Road	RIG TYPE:	B-61	GROUND ELEVATION:	
INSPECTOR:	R Whipple	METHOD:	H.S. ROTARY	SAMPLING METHOD:	SPLIT SPOON
WELL TYPE:		SCREEN LENGTH:		PROTOP WIDTH/TYPE	
WELL DEPTH:		GROUT LENGTH/TYPE:		PAD ELEVATION:	
SCREEN:		SEAL LENGTH/TYPE:		TOC ELEVATION	
SLOT SIZE:		FILTER LENGTH/TYPE:		STICK UP/DOWN:	

DEPTH	SAMPLE COLLECTION DATA: SAMPLE NUMBER	HNU (PPM)	STP TEST BLOWS / 6"	REC. (in.)	DESCRIPTION	DEPTH
4						
		9.0	8-10-12-12 F*	7"	Brown Clay, WET, SHEEN PRESENT ~5' GRAVEL + CRUSHED GRAVEL FILL, WET	
		12.0	4-6-7-10 F*	13"	6-6.5 CRUSHED GRAVEL + SILT FILL, SHEEN PRESENT 6.5. BROWN CLAYEY SILT, SOME CRUSHED RED BRICK AND CRUSHED GLASS, MOIST	
8		5.0	2-4-5-5	11"	CLAY FILL, SOME CINDER FILL	
		4.0	2-3-5-5	15	CLAY FILL	
12						
	5	5.0	4-5-5-4	7"	CINDER ASH FILL	
	S-1	70.0	4-5-5-3	24"	CINDER ASH FILL, SATURATED STRONG FUEL ODOR	
16						
		30.0	4-5-5-6 F	10"	SAME AS 14.6'	
		35.0	5-5-5-8 F	11"	SOME MOTTLED RED + TAN CLAY WITH GRAVEL 1" SEEN OF SAND, OIL PRODUCT PRESENT VERY STRONG ODOR	
20						
3"		30.0	~~[illegible]~~ F*	20"	20-21.5 - CLAY + GRAVEL FILL 21.5 BLACK CINDER MATERIAL + SAND STRONG FUEL ODOR	
		10.0	10-24-26 28 F*	17"	22-22.5 ~~CLAY + GRAVEL~~ 22.5 + SILTY SAND + GRAVEL FUEL ODOR	
24						
			5-5-5-2	0	No recovery	
		2.0	15-15-16 7 F*	24"	Brown Silty Sand, WET Odor due to slough... * BOTTOM OF BORING *	
28						

PROPORTIONS USED: TRACE = 0-10%, LITTLE = 10-20%, SOME 20-35%, AND = 35-50%

HNU background → 1.0

TEST BORING LOG	HYDRO–TERRA, INCORPORATED	PAGE 1

BORING NO.:	SB-1	PROJECT:	EAST STATION	DATE:	5-8-11
PROJECT NO:	95120	DRILLER:	PSI	DRILLING BIT:	3.25" H.S.
LOCATION:	EAST STATION	RIG TYPE:	ATV	GROUND ELEVATION:	
INSPECTOR:	T. MILLS	METHOD:	ROTARY, H.S.	SAMPLING METHOD:	SPLIT SPOON
WELL TYPE:		SCREEN LENGTH:		PROTOP WIDTH/TYPE	
WELL DEPTH:		GROUT LENGTH/TYPE:		PAD ELEVATION:	
SCREEN:		SEAL LENGTH/TYPE:		TOC ELEVATION	
SLOT SIZE:		FILTER LENGTH/TYPE:		STICK UP/DOWN:	

DEPTH	SAMPLE COLLECTION DATA: SAMPLE NUMBER	HNU (PPM)	STP TEST BLOWS / 6"	REC (in.)	DESCRIPTION	DEPTH
		1.0	4-8-14-10	18"	Brown to Black Mixed Cinder, Sand/Gravel, and Clay Fill No Fluorescence detected	
2		34.0	3-6-7-4	18"	Black Cinder Fill, 5 inches of silty clay at top, lower 6 inches wet, oil odor Fluorescence detected	
1		20.0	3-6-4-4	11"	Black cinder fill, oil odor, saturated Fluorescence detected	
6						
					HNU BACKGROUND → 0.8 ppm	

PROPORTIONS USED: TRACE = 0–10%, LITTLE = 10–20%, SOME 20–35%, AND = 35–50%

TEST BORING LOG	HYDRO-TERRA, INCORPORATED	PAGE 1

BORING NO.: SB-2	PROJECT: East Station	DATE: 5-9-96

PROJECT NO:	95190	DRILLER:	PSI	DRILLING BIT:	3.25" H.S.
LOCATION:	East Station	RIG TYPE:	ATV	GROUND ELEVATION:	
INSPECTOR:	B. Whipple / T. Mills	METHOD:	Rotary, H.S.	SAMPLING METHOD:	Split Spoon
WELL TYPE:		SCREEN LENGTH:		PROTOP WIDTH/TYPE	
WELL DEPTH:		GROUT LENGTH/TYPE:		PAD ELEVATION:	
SCREEN:		SEAL LENGTH/TYPE:		TOC ELEVATION	
SLOT SIZE:		FILTER LENGTH/TYPE:		STICK UP/DOWN:	

DEPTH	SAMPLE COLLECTION DATA: SAMPLE NUMBER	HNU (PPM)	STP TEST BLOWS / 6"	REC (in.)	DESCRIPTION	DEPTH
		1.2	3-4-4-5	15"	0-6" ~~Sam~~ Brown Sandy Silt, Trace Gravel & Clay, wet (Topsoil Fill) 6"-24" Red Brown Sand & Gravel, Trace Silt & Clay, Moist (Fill)	
		55.0	4-3-3-3	18"	~~Red Brown Sand & G~~ Brown to Black Sandy Silt, Clay, Sandy Gravel, and cinder Fill, Moist to wet Trace Fluorescence detected	
		7.0	3-2-4-4	15"	Same as S-2	
					Hnu background → 0.8 ppm	

PROPORTIONS USED: TRACE = 0–10%, LITTLE = 10–20%, SOME 20–35%, AND = 35–50%

TEST BORING LOG	HYDRO–TERRA, INCORPORATED	PAGE 1

BORING NO.:	SB-3	PROJECT:	East Station	DATE:	5-9-96
PROJECT NO:	95190	DRILLER:	PSI	DRILLING BIT:	3.25" ID
LOCATION:	East Station	RIG TYPE:	ATV	GROUND ELEVATION:	
INSPECTOR:	B. Whipple	METHOD:	Rotary, H.S.	SAMPLING METHOD:	Split Spoon
WELL TYPE:		SCREEN LENGTH:		PROTOP WIDTH/TYPE	
WELL DEPTH:		GROUT LENGTH/TYPE:		PAD ELEVATION:	
SCREEN:		SEAL LENGTH/TYPE:		TOC ELEVATION	
SLOT SIZE:		FILTER LENGTH/TYPE:		STICK UP/DOWN:	

DEPTH	SAMPLE COLLECTION DATA: SAMPLE NUMBER	HNU (PPM)	STP TEST BLOWS / 6"	REC (in.)	DESCRIPTION	DEPTH
		1.8	6-10-10-3	12"	Brown Silty Sand + Gravel, Moist 1-2' Concrete Fill Slight odor at bottom	
2		1.4	6-5-3-9	14"	Brown Silty Sand, Some Ash + Red Brick Moist (Fill) Slight odor	
1		1.2	4-2-4-4	23"	4-4.5' Same as 2-4 4.5-6' Mottled Brown + Tan Clay, Moist ~~Arundel~~ Arundel Clay	
6					*No Fluorescence detected	

HNU background → 0.6 ppm

PROPORTIONS USED: TRACE = 0–10%, LITTLE = 10–20%, SOME 20–35%, AND = 35–50%

TEST BORING LOG	HYDRO–TERRA, INCORPORATED	PAGE 1

BORING NO.: SB-4	PROJECT: EAST STATION	DATE: 5-8-96

PROJECT NO:	95190	DRILLER:	PSI	DRILLING BIT:	3.25" ID
LOCATION:	EAST STATION	RIG TYPE:	ATV	GROUND ELEVATION:	
INSPECTOR:	B. WHIPPLE	METHOD:	ROTARY, H.S.	SAMPLING METHOD:	SPLIT SPOON
WELL TYPE:		SCREEN LENGTH:		PROTOP WIDTH/TYPE	
WELL DEPTH:		GROUT LENGTH/TYPE:		PAD ELEVATION:	
SCREEN:		SEAL LENGTH/TYPE:		TOC ELEVATION	
SLOT SIZE:		FILTER LENGTH/TYPE:		STICK UP/DOWN:	

DEPTH	SAMPLE COLLECTION DATA: SAMPLE NUMBER	HNU (PPM)	STP TEST BLOWS / 6"	REC (in.)	DESCRIPTION	DEPTH
		0.4	3-7-6-5	18"	Black + Brown silty sand + gravel, trace clay No odor. Mild Fluorescence detected	
2		1.8	2-2-2-3	18"	Same as 0-2', moist Slight odor. Mild Fluorescence detected	
4		50.0	0-3-5-5	18" 5-6	4.5' Black + brown silty sand 5-6' mottled brown silty clay Volatile odor present Fluorescence detected	
6						

HNU background → 0.8 ppm

PROPORTIONS USED: TRACE = 0–10%, LITTLE = 10–20%, SOME 20–35%, AND = 35–50%

TEST BORING LOG	HYDRO–TERRA, INCORPORATED	PAGE 1

BORING NO.: TB-5	PROJECT: East Station	DATE: 5-9-96

PROJECT NO:	95190	DRILLER:	PSI	DRILLING BIT:	3.25" ID
LOCATION:	East Station	RIG TYPE:	ATV	GROUND ELEVATION:	
INSPECTOR:	T. Mills / B. Whipple	METHOD:	Rotary, H.S.	SAMPLING METHOD:	Split Spoon
WELL TYPE:		SCREEN LENGTH:		PROTOP WIDTH/TYPE	
WELL DEPTH:		GROUT LENGTH/TYPE:		PAD ELEVATION:	
SCREEN:		SEAL LENGTH/TYPE:		TOC ELEVATION	
SLOT SIZE:		FILTER LENGTH/TYPE:		STICK UP/DOWN:	

DEPTH	SAMPLE COLLECTION DATA: SAMPLE NUMBER	HNU (PPM)	STP TEST BLOWS / 6"	REC (in.)	DESCRIPTION	DEPTH
		0.4	6-5-16-22	11"	Brown Sandy Silt with Brick Fragments near bottom	
		0.4	3-5-11-12	18"	~~Mottled~~ Mottled Brick red & gray Arundel Clay, Moist at 3.5ft	
		0.4	5-3-3-5		Arundel Clay, Moist	
					* No Fluorescence observed in all three sampled intervals.	
					HNU background → 0.4 ppm	

PROPORTIONS USED: TRACE = 0–10%, LITTLE = 10–20%, SOME 20–35%, AND = 35–50%

TEST BORING LOG	HYDRO–TERRA, INCORPORATED	PAGE 1

BORING NO.: SB-6	PROJECT: East Station	DATE: 5-9-96
PROJECT NO:	DRILLER:	DRILLING BIT:
LOCATION:	RIG TYPE:	GROUND ELEVATION:
INSPECTOR:	METHOD:	SAMPLING METHOD:
WELL TYPE:	SCREEN LENGTH:	PROTOP WIDTH/TYPE
WELL DEPTH:	GROUT LENGTH/TYPE:	PAD ELEVATION:
SCREEN:	SEAL LENGTH/TYPE:	TOC ELEVATION
SLOT SIZE:	FILTER LENGTH/TYPE:	STICK UP/DOWN:

DEPTH	SAMPLE COLLECTION DATA: SAMPLE NUMBER	HNU (PPM)	STP TEST BLOWS / 6"	REC (in.)	DESCRIPTION	DEPTH
		80.0	7-21-15-10	12"	0-8" Brown silty Sand, Trace Clay and Gravel, Moist (FILL) 8"-24" Brick Red to Black Cinders, Brick Fragments, and wood chips (FILL) Moist	
		4.8	2-4-6-9	18"	Red & Tan Silty Clay, Trace Sand, Gravel, & Cinders, Moist (Fill) * Trace Fluorescence detected	
		1.6	4-9-31-21	18"	0-12" Same as S-2 12"-24" ~~Red~~ Mottled Red, Gray & Tan Arundel Clay, Moist	

PROPORTIONS USED: TRACE = 0–10%, LITTLE = 10–20%, SOME 20–35%, AND = 35–50%

TEST BORING LOG	HYDRO–TERRA, INCORPORATED	PAGE 1

BORING NO.: SB-7	PROJECT: East Station	DATE: 5-9-96

PROJECT NO:		DRILLER:		DRILLING BIT:	
LOCATION:		RIG TYPE:		GROUND ELEVATION:	
INSPECTOR:		METHOD:		SAMPLING METHOD:	
WELL TYPE:		SCREEN LENGTH:		PROTOP WIDTH/TYPE	
WELL DEPTH:		GROUT LENGTH/TYPE:		PAD ELEVATION:	
SCREEN:		SEAL LENGTH/TYPE:		TOC ELEVATION	
SLOT SIZE:		FILTER LENGTH/TYPE:		STICK UP/DOWN:	

DEPTH	SAMPLE COLLECTION DATA: SAMPLE NUMBER	HNU (PPM)	STP TEST BLOWS / 6"	REC (in.)	DESCRIPTION	DEPTH
		0.8	28,20,50/2	10"	BROWN SILTY SAND + GRAVEL AND BLACK CLAYEY SILT, LITTLE GRAVEL + RED BRICK (FILL). NO ODOR. Trace Fluoresence detected	
		0.6	8-15-8-9	17"	Brown Silty Clay, Trace Gravel + Cinders, Moist (FILL). MILD FLUORESENCE DETECTED	
		4.2			Brown + Black Cinders + Silty Clay Fill, wet lower 6" inches, Moist (FILL). Slight odor. MILD FLUORESENCE DETECTED	
					HNU background 0.6 ppm	

PROPORTIONS USED: TRACE = 0–10%, LITTLE = 10–20%, SOME 20–35%, AND = 35–50%

TEST BORING LOG	HYDRO–TERRA, INCORPORATED	PAGE 1

BORING NO.: SB-8	PROJECT: East Station	DATE: 5/8/96

PROJECT NO:	95190	DRILLER:		DRILLING BIT:	
LOCATION:	East Station	RIG TYPE:	Auger 3.25" HS	GROUND ELEVATION:	
INSPECTOR:	T. Hills	METHOD:		SAMPLING METHOD:	
WELL TYPE:		SCREEN LENGTH:		PROTOP WIDTH/TYPE	
WELL DEPTH:		GROUT LENGTH/TYPE:		PAD ELEVATION:	
SCREEN:		SEAL LENGTH/TYPE:		TOC ELEVATION	
SLOT SIZE:		FILTER LENGTH/TYPE:		STICK UP/DOWN:	

DEPTH	SAMPLE COLLECTION DATA: SAMPLE NUMBER	HNU (PPM)	STP TEST BLOWS / 6"	REC (in.)	DESCRIPTION	DEPTH
		0.4	~~450~~ ~~[illegible]~~ 6" ~~[illegible]~~		Tan Sand & Gravel, Trace Clay, Moist No Fluorescence detected	
2		6.2	4-3-7-12 ~~[illegible]~~		Black Cinders, Moist Trace Fluorescence detected	
4		5.0	3-3-2-3		Brown Sand & Gravel, 0-6", Moist, Trace Clay Black Cinders 6"-18", Moist Trace Fluorescence detected	
6						

PROPORTIONS USED: TRACE = 0–10%, LITTLE = 10–20%, SOME 20–35%, AND = 35–50%

TEST BORING LOG	HYDRO–TERRA, INCORPORATED	PAGE 1

BORING NO.: SB-~~3~~9	PROJECT: East Station	DATE: 5/8/96

PROJECT NO:		DRILLER:		DRILLING BIT:	
LOCATION:		RIG TYPE:		GROUND ELEVATION:	
INSPECTOR:		METHOD:		SAMPLING METHOD:	
WELL TYPE:		SCREEN LENGTH:		PROTOP WIDTH/TYPE	
WELL DEPTH:		GROUT LENGTH/TYPE:		PAD ELEVATION:	
SCREEN:		SEAL LENGTH/TYPE:		TOC ELEVATION	
SLOT SIZE:		FILTER LENGTH/TYPE:		STICK UP/DOWN:	

DEPTH	SAMPLE COLLECTION DATA: SAMPLE NUMBER	HNU (PPM)	STP TEST BLOWS / 6"	REC (in.)	DESCRIPTION	DEPTH
		1.0	13-17-18	9"	Brown to Gray Silty Sand, Concrete/Brick Fill, Moist	
		2.0	4-4-3-2	12"	Brown to Black Sand, Silt, Clay, Gravel & Cinder Fill, Moist	
		1.0	~~13-7-7-18~~ 3-3-2-4	~~4"~~ 12"	~~Brown to Gray Silty Sand & Concrete/Brick Rubble Fill Moist~~ Brown & Black Silty Sand and Cinder Fill, Moist	
					*No Flooresence detected	

*HNU Background = 1.0

PROPORTIONS USED: TRACE = 0–10%, LITTLE = 10–20%, SOME 20–35%, AND = 35–50%

TEST BORING LOG	HYDRO–TERRA, INCORPORATED	PAGE 1

BORING NO.:	SB-10	PROJECT:		DATE:	5-9-96
PROJECT NO:		DRILLER:		DRILLING BIT:	
LOCATION:		RIG TYPE:		GROUND ELEVATION:	
INSPECTOR:		METHOD:		SAMPLING METHOD:	
WELL TYPE:		SCREEN LENGTH:		PROTOP WIDTH/TYPE	
WELL DEPTH:		GROUT LENGTH/TYPE:		PAD ELEVATION:	
SCREEN:		SEAL LENGTH/TYPE:		TOC ELEVATION	
SLOT SIZE:		FILTER LENGTH/TYPE:		STICK UP/DOWN:	

DEPTH	SAMPLE COLLECTION DATA				DESCRIPTION	DEPTH
	SAMPLE NUMBER	HNU (PPM)	STP TEST BLOWS / 6"	REC. (in.)		
		20.0	4-3-16-11	18"	Black Cinder Fill, Trace Purifer Sponge	
		62.0	6-4-4-5	18"	Same as S-1	
		32.0	3-5-3-4	12	Black Cinder ~~& Silty Clay~~ Fill 0-12" 12"-24" Mottled silty Clay Fill, Moist	
					* No Fluoresence detected	

Hnu background = 0.8

PROPORTIONS USED: TRACE = 0–10%, LITTLE = 10–20%, SOME 20–35%, AND = 35–50%

TEST BORING LOG	HYDRO–TERRA, INCORPORATED	PAGE 1

BORING NO.: SB-11	PROJECT:	DATE: 5-9-96
PROJECT NO.:	DRILLER:	DRILLING BIT:
LOCATION:	RIG TYPE:	GROUND ELEVATION:
INSPECTOR:	METHOD:	SAMPLING METHOD:
WELL TYPE:	SCREEN LENGTH:	PROTOP WIDTH/TYPE:
WELL DEPTH:	GROUT LENGTH/TYPE:	PAD ELEVATION:
SCREEN:	SEAL LENGTH/TYPE:	TOC ELEVATION
SLOT SIZE:	FILTER LENGTH/TYPE:	STICK UP/DOWN:

DEPTH	SAMPLE COLLECTION DATA: SAMPLE NUMBER	HNU (PPM)	STP TEST BLOWS / 6"	REC (in.)	DESCRIPTION	DEPTH
		2.0	3-3-2-5	18"	0-6" Topsoil, trace Cinders (Fill), Moist 6"-24" Black Cinders, Trace Silty Clay (Fill), Moist	
		0.8	3-2-2-3	12"	Red & Brown Silty Clay Fill, Trace Sand & Gravel, Moist	
		1.4	2-3-4-3	12"	Same a S-2, wet lower 6"	
					No Fluoresence detected	

HNu Background = 0.8

PROPORTIONS USED: TRACE = 0–10%, LITTLE = 10–20%, SOME 20–35%, AND = 35–50%

TEST BORING LOG	HYDRO–TERRA, INCORPORATED	PAGE 1

BORING NO.:	SB-12	PROJECT:	25190	DATE:	5-9-96
PROJECT NO:		DRILLER:	PSI	DRILLING BIT:	
LOCATION:		RIG TYPE:		GROUND ELEVATION:	
INSPECTOR:		METHOD:		SAMPLING METHOD:	
WELL TYPE:		SCREEN LENGTH:		PROTOP WIDTH/TYPE	
WELL DEPTH:		GROUT LENGTH/TYPE:		PAD ELEVATION:	
SCREEN:		SEAL LENGTH/TYPE:		TOC ELEVATION	
SLOT SIZE:		FILTER LENGTH/TYPE:		STICK UP/DOWN:	

DEPTH	SAMPLE COLLECTION DATA: SAMPLE NUMBER	HNU (PPM)	STP TEST BLOWS / 6"	REC (in.)	DESCRIPTION	DEPTH
		1.4	11-16-15-13	9"	Black & Gray Cinders, Moist (Fill)	
2		12.2	9-8-6-9	24"	Black & Brown Silty Clay, Trace Cinder, Some Purifer Sponge, Moist (Fill)	
4		4.5	3-3-4-5	*6"	Brown to Black Silty Clay, Some Purifer Sponge, Trace Cinders, Moist, wet at Bottom (Fill) *Trace Fluoresence detected	
6						

HNU background → 0.6 ppm

PROPORTIONS USED: TRACE = 0–10%, LITTLE = 10–20%, SOME 20–35%, AND = 35–50%

TEST BORING LOG	HYDRO–TERRA, INCORPORATED	PAGE 1

BORING NO.: SB-13	PROJECT: 95190 East Stretch	DATE: 5-9-96

PROJECT NO:		DRILLER:		DRILLING BIT:	
LOCATION:		RIG TYPE:		GROUND ELEVATION:	
INSPECTOR:		METHOD:		SAMPLING METHOD:	
WELL TYPE:		SCREEN LENGTH:		PROTOP WIDTH/TYPE	
WELL DEPTH:		GROUT LENGTH/TYPE:		PAD ELEVATION:	
SCREEN:		SEAL LENGTH/TYPE:		TOC ELEVATION	
SLOT SIZE:		FILTER LENGTH/TYPE:		STICK UP/DOWN:	

DEPTH	SAMPLE COLLECTION DATA: SAMPLE NUMBER	HNU (PPM)	STP TEST BLOWS / 6"	REC (in.)	DESCRIPTION	DEPTH
		1.5	5-4-5-3	18"	Dark Brown to Tan Sand & Gravel, Trace Cinder & Silt, Moist	
		1.0	2-3-4-4	17"	Same as ~~S-2~~ S-1	
		1.8		10"	Same as S-1, Very Moist Trace Fluoresence detected.	

HNu background 0.6 ppm

PROPORTIONS USED: TRACE = 0–10%, LITTLE = 10–20%, SOME 20–35%, AND = 35–50%

GeoTrans, inc.
ENVIRONMENTAL SPECIALISTS

GEOLOGIC LOG

Project: WASH. GAS LIGHT
Date Started: 3-25-91
Location: EAST STATION (D.C. WORKS) WGL-1D
Date Completed: 3-29-91
Client: WASH GAS LIGHT Co.
Page # 1 of 2

Depth (ft)	Spl No.	Blows on Sampler (N) 0/6	6/12	12/18	18/24	Description and Classification	Well	Water Table & Remarks
0'-5-6.5						Dark black gravel & sand black oily substance coating grains		
10-11.5						Gravel, sand mix, oily stained strong odor, similar to 5-6.5		
15-16.5						Fly ash, 2 inches of recovery		
18.5-20						Dark gray-green clay with oily sheen at top of interval.		
20-21.5						Dark gray green clay with trace silt.		
						10" casing set to 21'		

N = NUMBER OF BLOWS TO DRIVE _____" SPOON _____"
WITH _____ LB. WEIGHT FALLING _____" PER BLOW

GeoTrans, inc.
ENVIRONMENTAL SPECIALISTS

GEOLOGIC LOG

Project: WASH. GAS LIGHT — Date Started: 3-25-91

Location: EAST STATION (D.C. WORKS) WGL-1D — Date Completed: 3-29-91

Client: WASH GAS LIGHT — Page # 2 of 2

Depth (ft)	Spl No.	Blows on Sampler (N) 0/6	6/12	12/18	18/24	Description and Classification	Well	Water Table & Remarks
25-26						Dark brown-green clay slightly moist		Well Construction
30-31						Dark brown green clay slightly moist with 1/4 inch sand layer at 30.8'		Screen: 35'-56' Riser: 0'-35' Sand: 33'-55' BENTONITE: 30.5'-33' Grout: 0-30.5
35-36						Sand layer (1 inch) at 35.1' clay to 36'		
40-41						40-40.9 Dark brown-green clay with thin sand lenses 40.9-41' clayey sand-sand is dark gray.		
45-46						No recovery except for 1" of clay and some pebbles		
50-51						No recovery		
55-56						55-55.3 clay with gravel 55.3-56 orange and maroon clay, very dense		TD @ 56'

N = NUMBER OF BLOWS TO DRIVE _____" SPOON _____"
WITH _____ LB. WEIGHT FALLING _____" PER BLOW

GeoTrans, inc.
ENVIRONMENTAL SPECIALISTS

GEOLOGIC LOG

Project: WASH. GAS LIGHT Co.
Date Started: 3-25-91
Location: EAST STATION (D.C. WORKS) WGL-02D
Date Completed: 4-1-91
Client: WASH. GAS LIGHT
Page # 1 of 3

Depth (ft)	Spl No.	Blows on Sampler (N) 0/6	6/12	12/18	18/24	Description and Classification	Well	Water Table & Remarks
0' - 5-6.5						Fill: Gravel, coal, brick fragments		Hnu = bckgrd
10-11.5						Little Recovery, fly ash, oily		Hnu = 1ppm abg
15-16.5						Gravel mixed w/stone & clay very oily		Hnu = 1.5ppm abg
18-19.5						Clay, very plastic		Hnu = 1ppm abg
						16" Casing set to 21'		

N = NUMBER OF BLOWS TO DRIVE _____" SPOON _____"
WITH _____ LB. WEIGHT FALLING _____" PER BLOW

GeoTrans, inc.
ENVIRONMENTAL SPECIALISTS

GEOLOGIC LOG

Project: WASH. GAS LIGHT Co.
Date Started: 3-25-91
Location: EAST STATION (D.C. WORKS) WGL-02D
Date Completed: 4-1-91
Client: WASH. GAS LIGHT
Page # 2 of 3

Depth (ft)	Spl No.	Blows on Sampler (N) 0/6	6/12	12/18	18/24	Description and Classification	Well	Water Table & Remarks
25-26						Dark gray-green clay oil soaked from 25'-25.4' dry from 25.5'-26.0'		Hnu = 9 ppm a.b.g.
30-31						Dark gray-green clay dry with wood fragments		Hnu = .5 ppm a.b.g.
35-36						Dark gray-green clay with trace silt (35-35.3) organic fragments (peat?)		Hnu = .5 ppm a.b.g.
40-41						Dark gray-green clay with trace silt, wood fragments slightly moist.		Negative response on Hnu.
45-46						Dark gray green silty clay with trace silt	45-45.4 45.4-46	No Hnu response
50-51						No recovery, Thin coating of sand (med.-coarse) on inside of spoon.		Well Construction
55-56						No recovery, split spoon came out wet, oily.		Screen: 60'-40' Riser: 0-40' Sand: 60'-38' Bentonite: 35'-38' Grout: 0-35'

N = NUMBER OF BLOWS TO DRIVE _____" SPOON _____"
WITH _____ LB. WEIGHT FALLING _____" PER BLOW

GeoTrans, inc.
ENVIRONMENTAL SPECIALISTS

GEOLOGIC LOG

Project: WASH. GAS. LIGHT Co.
Date Started: 3-25-91
Location: EAST STATION (D.C. WORKS) WGL-02D
Date Completed: 4-1-91
Client: WASH GAS LIGHT Co.
Page # 3 of 3

Depth (ft)	Spl No.	Blows on Sampler (N) 0/6	6/12	12/18	18/24	Description and Classification	Well	Water Table & Remarks
60-						No spoon - red orange clay on the end of center plug.		TD @ 60'

N = NUMBER OF BLOWS TO DRIVE _____" SPOON _____"
WITH _____ LB. WEIGHT FALLING _____" PER BLOW

GeoTrans, inc.
ENVIRONMENTAL SPECIALISTS

GEOLOGIC LOG

Project: WASH GAS LIGHT
Date Started: 4-2-91
Location: EAST STATION (D.C. WORKS) WGL-01S
Date Completed: 4-2-91
Client: WASH GAS LIGHT
Page # 1 of 1

Depth (ft)	Spl No.	Blows on Sampler (N) 0/6	6/12	12/18	18/24	Description and Classification	Well	Water Table & Remarks
0'-5-7						Clay & gravel mix (fill) Dark oily, tarry fluid		
10-12						10" Recovery Top 5" - Dark oily clay Mid-Bottom 5" - Dark green-gray Brown clay - Fairly dry.		
15-19						Dark Green-gray clay very plastic		
						TD @ 19'		
						Well Construction: Screen: 4'-19' Riser: 0-4' Sand: 3-19' Bentonite: 1.5'-3'		

N = NUMBER OF BLOWS TO DRIVE _____" SPOON _____"
WITH _____ LB. WEIGHT FALLING _____" PER BLOW

GeoTrans, inc.
ENVIRONMENTAL SPECIALISTS

GEOLOGIC LOG

Project: WASH. GAS LIGHT
Date Started: 4-2-91
Location: EAST STATION WGL-025
Date Completed: 4-2-91
Client: WASH. GAS LIGHT
Page # 1 of 1

Depth (ft)	Spl No.	Blows on Sampler (N) 0/6	6/12	12/18	18/24	Description and Classification	Well	Water Table & Remarks
0' – 5-6.5						Overburden soil then spoon: Dark black gravel sand black oily substance coating grains		
10-11.5						Gravel sand mix, oily stained Strong odor.		
15-17						15-16 Gravel, ash mix: very oily, definitely wet. 16' 17'- dark gray green clay and silt, slightly moist.		
20-22						Dark gray green clay with trace silt.		
						TD. @ 24'		
						SCREEN: 24'-9'		
						RISER: 0'-9'		
						SAND: 24'-7'		
						BENT: 7'-5.5'		

N = NUMBER OF BLOWS TO DRIVE _____" SPOON _____"
WITH _____ LB. WEIGHT FALLING _____" PER BLOW

GeoTrans, inc.
ENVIRONMENTAL SPECIALISTS

GEOLOGIC LOG

Project WASH GAS LIGHT WELL INSTALLATION Date Started 5-17-91

Location EAST STATION (D C PUBLIC WORKS) WGL-3S Date Completed 5-17-91

Client WASH. GAS LIGHT Co. Page # 1 of 1

Depth (ft)	Spl No.	Blows on Sampler (N) 0/6	6/12	12/18	18/24	Description and Classification	Well	Water Table & Remarks
0'- -5'						Black Orange Gravel & Clay with Rocks		WELL CONSTRUCTION
	SP SP 4'-5'					8" Spoon of Black gravel	1 - 1"PVC	SCREEN 13' - 28' RISER 0' - 13' SAND 12' - 28 BENTONITE: 10.5'-12' GROUT: 0 - 10.5'
5' -10'						S.A.A.		
	SP SP 9'-10'					12" SPOON BLACK GRAVEL W/OIL WATER MIXTURE (NAPL) 60 - PPM		
						FINE GRAIN SILTY BROWN CLAY		
	SP SP 14-15					12" SPOON TOP 4" GRAVEL/BLACK ROCK BOTTOM 8" BLACK/GRAY SILTY CLAY - 110 PPM		
						FINE GRAIN SILTY CLAY - GRAY/BROWN		
	SP SP 19'-20					12" SPOON 1" GRAVEL ON TOP OF 11" SILTY CLAY VERY PLASTIC W/WOOD FRAGMENTS - 65 PPM		
20 -25'						FINE GRAIN SILTY CLAY - GRAY/BLACK 2 PPM		
25' -28'								
						T.D. 28'		

N = NUMBER OF BLOWS TO DRIVE _____" SPOON _____"
WITH _____ LB. WEIGHT FALLING _____" PER BLOW

GeoTrans, inc.
ENVIRONMENTAL SPECIALISTS

GEOLOGIC LOG

Project: WASH. GAS LIGHT WELL INSTALLATION — Date Started: 5-16-91

Location: EAST STATION WGL-4D — Date Completed: 5-20-91

Client: WASH. GAS LIGHT — Page # 1 of 2

Depth (ft)	Spl No.	Blows on Sampler (N) 0/6	6/12	12/18	18/24	Description and Classification	Well	Water Table & Remarks
0' -5'						Red to orange sandy clay with small quartz grains		Well Construction
SP SP	5'-7'					15" spoon of orange sandy clay with 2' wood chips at base 0 ppm		Screen: 39'-59' Riser: 0-39 Sand: 37-59' Bentonite: 35.5-37 Grout: 0-35.5'
6' -10'						RED sandy clay - moist with cinder ash layer in lower 2'		
SP SP	9'-11'					12" spoon wet cinder ash fill - 0 ppm		
10' -15'						Brown silty clay - wet		10" casing set from 0'-20'
SP SP	15'-17'					16" spoon upper 4' cinder ash lower 12" brown silty clay very plastic-wet - 0 PPM		
15' -20'						Dark Brown Silty Clay Very Plastic		
SP SP	19-21'					24" spoon of brown silty clay with oil sheen and minor wood shavings - 150 ppm		
20' -25'						Dark Brown/Black Silty Clay very Plastic - moist		
SP SP	24-26'					12" spoon Dk Brown/Black Silty Clay - 20 ppm		
25' -30'						Dry Dark Brown/Black Silty Clay with Wood Fragments - very Plastic		
SP SP	29-30'					12" spoon Dk brown/gray silty clay - dry - 0 ppm "6" whole sand wood fragment lense		
30 -35'						Same As Above (SAA) w/ minor sand lenses		
SP SP	34-35'					12" spoon Dk brown/med clay w/ wood, sand lenses / 0 ppm		

N = NUMBER OF BLOWS TO DRIVE _____" SPOON _____"
WITH _____ LB. WEIGHT FALLING _____" PER BLOW

GeoTrans, inc.
ENVIRONMENTAL SPECIALISTS

GEOLOGIC LOG

Project: WASH. GAS LIGHT WELL INSTALLATION — Date Started: 5-16-91

Location: EAST STATION — Date Completed: 5-20-91

Client: WASH GAS LIGHT — Page # 2 of 2

Depth (ft)	Spl No.	Blows on Sampler (N) 0/6	6/12	12/18	18/24	Description and Classification	Well	Water Table & Remarks
35' -40'						S.A.A.		
SP SP	39-40					12" spoon Dk brown/gray sandy clay silt w/wood fragments and cobbles-dry 0-ppm		
40' -45						Dk brown/gray sandy silt		
SP SP	44-45'					12" spoon Dk med-gray clay and sandy silt Top 4" soft plastic clay, Bottom 8" sandy silt - 8 ppm		
45' -50'						Medium brown silt with Mica - minor clay		
SP SP	49-50'					12" spoon - Upper 4" gravel & cobbles with oil stain & odor, Bottom 8" med brown/red clayey silt w/mica - 10 ppm		
50' -55						Medium Brown clay and Silt w/Mica interbedded very tight and hard clays		
SP SP	54-55'					12" spoon Top 4" plastic red clay w/ Bottom 5" Hard sandy clay med brown w/mica - 5 ppm		
55' -60'						S.A.A.		
SP SP	59-60					12" spoon Interbedded Med. Brown Clay & Clayey silt layered mica silt. 0-ppm		
						T.D. @ 59'		

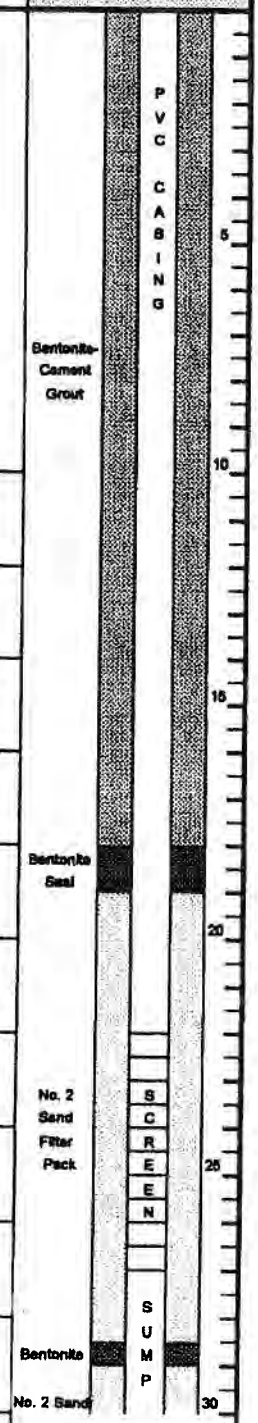
N = NUMBER OF BLOWS TO DRIVE _____" SPOON _____"
WITH _____ LB. WEIGHT FALLING _____" PER BLOW

BORING / WELL LOG	HYDRO-TERRA, INCORPORATED	P.1/2

BORING No.: MW-21 | **PROJECT: National Park Service Well Installation** | **DATE: Sept. 27, 2000**

PROJECT NO.:	00090	DRILLER:	Earth Matters, Inc.	DRILLING BIT:	8.25 in.
LOCATION:	North side of Water Street	RIG TYPE:	Mobile B-61	WELL DIAMETER:	4 in.
INSPECTOR:	T. Milk / S. Myers	METHOD:	Hollow Stem Augers	SAMPLING METHOD:	Split-spoon
				WATER ELEVATION:	2.45 ft. MSL (approx.)
WELL TYPE:	Monitoring / Recovery	SCREEN LENGTH:	5 ft. (22'-27')	PROTOP WIDTH/TYPE:	8-in. steel
WELL DEPTH:	32 ft.	GROUT LENGTH/TYPE:	16 ft. Portland cement	PAD ELEVATION:	14.95 ft. MSL
SCREEN:	Stainless Steel	SEAL LENGTH/TYPE:	1 ft. (18'-19') bentonite	TOC ELEVATION:	14.45 ft. MSL
SLOT SIZE:	0.020 in.	FILTER LENGTH/TYPE:	8.5 ft. (19'-28.5') No. 2 Sand	STICK UP/DOWN:	flush mount
SUMP:	Stainless Steel	SUMP LENGTH:	5 ft. (27'-32')	GROUND ELEVATION:	14.95 ft. MSL

DEPTH	SAMPLE COLLECTION DATA: SAMPLE NUMBER	HNU (PPM)	STP TEST BLOWS / 6"	REC (in.)	DESCRIPTION
5					
10					
	S-1	NA	3/10/16/1	18"	4" Brown Clay 2" Cinders - moist 4" Dry black Clay 6" Loose dry Cinders
	S-2	NA	6/5/3/4	6"	2" Dry brown Clay 4" Moist tarry Cinders
15	S-3	NA	2/4/3/1	20"	16" Black saturated silty Cinders & Gravel
	S-4	NA	3/2/3/4	12"	Saturated black Cinders & Gravel - 3" 4" Brown fine Sand 4" silty black saturated Cinders & Gravel
20	S-5	16.0	2/3/3/3	14"	Black saturated silty Cinders, sheen
	S-6	3.0	1/2/2/1	20"	12" Black/brown saturated Gravel, some Silt 6" Black saturated tarry Silt w/ some sand & gravel
	S-7	5.0	2/3/2/2	24"	Black saturated Sand/Gravel/Silt
25	S-8	2.0	2/1/2/2	18"	Black saturated sandy Silt
	S-9	2.0	1/2/1/1	24"	18" Brown clayey Silt
30	S-10	3.6	1/1/2/3	24"	All brown clayey Silt, little wood fragments



PROPORTIONS USED: TRACE = 0-10%, LITTLE = 10-20%, SOME 20-35%, AND = 35-50%

BORING / WELL LOG	HYDRO-TERRA, INCORPORATED	P.2/2

BORING NO.: MW-21	PROJECT: National Park Service Well Installation	DATE: Sept. 27,2000

DEPTH	SAMPLE COLLECTION DATA: SAMPLE NUMBER	HNU (PPM)	STP TEST BLOWS / 6"	REC (in.)	DESCRIPTION				
	S-11	0.0	1/2/2/3	25"	Dark brown clayey Silt, some wood fragments	No. 2 Sand		G U M P	32
					Bottom 32.0'				
35									35

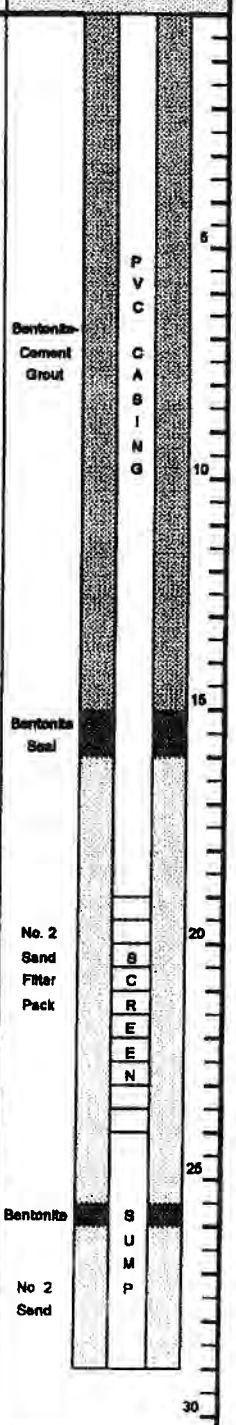
PROPORTIONS USED: TRACE = 0-10%, LITTLE = 10-20%, SOME 20-35%, AND = 35-50%

BORING / WELL LOG	HYDRO-TERRA, INCORPORATED	P.1/1

BORING NO.: MW-22 | **PROJECT: National Park Service Well Installation** | **DATE: Sept. 28,2000**

PROJECT NO.:	00090	DRILLER:	Earth Matters, Inc.	DRILLING BIT:	6.25 in.
LOCATION:	Corner of 12th St. & Water St.	RIG TYPE:	Mobile B-61	WELL DIAMETER:	4 in.
INSPECTOR:	T. Mills / S. Myers	METHOD:	Hollow Stem Augers	SAMPLING METHOD:	Split-spoon
				WATER ELEVATION:	1.27 ft. MSL (approx.)
WELL TYPE:	Monitoring / Recovery	SCREEN LENGTH:	5 ft. (19'-24')	PROTOP WIDTH/TYPE:	8-in. steel
WELL DEPTH:	29 ft.	GROUT LENGTH/TYPE:	15 ft. Portland cement	PAD ELEVATION:	15.03 ft. MSL
SCREEN:	Stainless Steel	SEAL LENGTH/TYPE:	1 ft. (15'-16') bentonite	TOC ELEVATION	14.57 ft. MSL
SLOT SIZE:	0.020 in.	FILTER LENGTH/TYPE:	9.5 ft. (16'-25.5') No.2 sand	STICK UP/DOWN:	flush mount
SUMP:	Stainless Steel	SUMP LENGTH:	5 ft. (24'-29')	GROUND ELEVATION:	15.03 ft. MSL

DEPTH	SAMPLE COLLECTION DATA: SAMPLE NUMBER	HNU (PPM)	STP TEST BLOWS / 6	REC (in.)	DESCRIPTION
5					
10					
15					
	S-1	17.0	1/2/2/2	10"	Black tar-saturated Cinders & Sand
20	S-2	5.3	2/2/2/2	12"	3" Brown Clay 3" Brown clayey Silt 9" Black cindery Gravel
	S-3	50.0	2/2/2/2	16"	3" Sandy Silt/Clay 13" Black saturated Cinders & Gravel
	S-4	31.0	2/1/1/1	26"	3" Brown/black sandy, gravelly Silt 3" Black saturated Sand & Gravel 14" Brown clayey Silt
25	S-5	107.0	2/1/1/1	30"	All brown clayey silt, with some woody fragment
30					No samples below 26 ft.



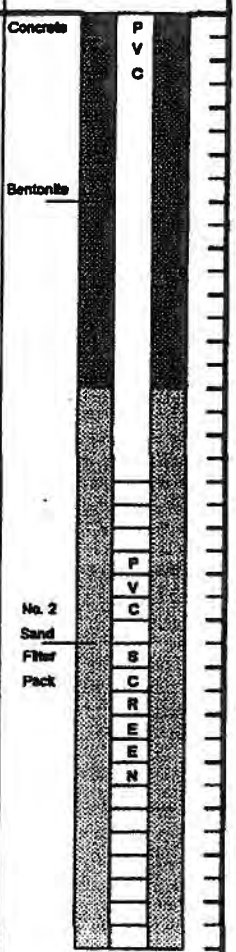
PROPORTIONS USED: TRACE = 0-10%, LITTLE = 10-20%, SOME 20-35%, AND = 35-50%

BORING / WELL LOG	HYDRO-TERRA, INCORPORATED	P.1/1

BORING NO.: MW-30	PROJECT: EAST STATION ADD'L WELLS	DATE: 3/08/06

PROJECT NO.:	04110	DRILLER:	GEOSERVICES CORP.	DRILLING BIT:	MUD ROTARY
LOCATION:	WASH. D.C.	RIG TYPE:	TRUCK-MOUNTED	WELL DIAMETER:	2-inch
INSPECTOR:	T. MILLS	METHOD:	HOLLOW STEM AUGER	SAMPLING METHOD:	SPLIT-SPOON
				WATER ELEVATION:	N/A
WELL TYPE:	monitoring	SLOT SIZE:	0.02-inch	PROTOP WIDTH/TYPE	6-inch steel flush mount
WELL DEPTH:	20 ft	GROUT LENGTH/TYPE:	N/A	PAD ELEVATION:	unknown
RISER PIPE:	0-10 ft PVC	SEAL LENGTH/TYPE:	0.75-8 ft bentonite	TOC ELEVATION	unknown
SCREEN:	10-20 ft PVC	FILTER LENGTH/TYPE:	8-20 ft No. 2 sand	STICK UP/DOWN:	-0.25 FT.
SUMP:	N/A			GROUND ELEVATION:	unknown

DEPTH	SAMPLE COLLECTION DATA: SAMPLE NUMBER	PID (PPM)	STP TEST BLOWS / 6"	REC (In.)	DESCRIPTION
	S-1	0.0	8/9/11	12	Sand & Gravel, brown, moist (fill)
	S-2	0.0	5/17/20	18	Sand & Gravel, silt near bottom, brown, moist (fill)
5	S-3	0.0	3/4/11	8	Sand, little gravel & clay, brown to black, moist, (fill)
					6.5
	S-4	0.0	5/6/8	8	Sand & Gravel, little clay, brown, moist
10	S-5	0.0	3/3/4	6	Clay, little gravel, red & brown, moist
	S-6	0.0	2/2/3	14	Clay, trace gravel, mottled red & tan, moist
15	S-7	0.0	2/2/2	10	Clay with clayey gravel lenses, red, wet
	S-8	0	2/3/3	4	Sand & Gravel, trace clay, wet
20					Stopped at 20 ft.
25					Well Construction: 1. 2-IN. PVC riser pipe 0-10 ft. 2. 2-in. PVC well screen 10 to 20 ft. 3. Filter sand 8 to 20 ft. 4. Bentonite 0.75 to 8 ft. 5. Flush well cover set in concrete
30					



PROPORTIONS USED: TRACE = 0-10%, LITTLE = 10-20%, SOME 20-35%, AND = 35-50%

TEST BORING LOG	HYDRO–TERRA, INCORPORATED	PAGE 1

BORING NO.: P-15	PROJECT: East Station 96010	DATE: 4-22

PROJECT NO:	96010	DRILLER:	PSI	DRILLING BIT:	3.25"
LOCATION:	East Station	RIG TYPE:	ATV	GROUND ELEVATION:	14.96
INSPECTOR:	B. Whipple	METHOD:	Rotary, H.S.	SAMPLING METHOD:	Split Spoon
WELL TYPE:	Piezometer	SCREEN LENGTH:	5'	PROTOP WIDTH/TYPE	—
WELL DEPTH:	24'	GROUT LENGTH/TYPE:	0'	PAD ELEVATION:	—
SCREEN:	S.S. 1"	SEAL LENGTH/TYPE:	13' Bentonite	TOC ELEVATION	13.96'
SLOT SIZE:	0.01	FILTER LENGTH/TYPE:	9' Sand (#1)	STICK UP/DOWN:	-1.0'

DEPTH	SAMPLE COLLECTION DATA: SAMPLE NUMBER	HNU (PPM)	STP TEST BLOWS / 6"	REC. (in.)	DESCRIPTION	DEPTH
		0.4	4-3-6-6	19"	Brown + tan silt, some clay, trace cinders and red brick fragments (Fill)	
		52.0	6-22-20-20	21"	2-2.5' Dk. Brown silty sand 2.5'-3.5' Black purifier sponge, very tight, strong odor 3.5-4' Brown clayey silt, some coal cinders (Fill)	
5		18.0	7-7-4-3	20"	Brown + black coal cinders, some silt, trace sand (Fill)	
		4.0 F*	2-1-3-4	14"	Mottled gray + reddish brown silty clay (Fill)	
10		1.8	2-2-3-4	9"	Mottled gray + reddish brown silty clay, trace gravel – red brick fragments. (Fill) Bent.	
		5.0 F*	2-3-4-4	9"	Same as 8-10' (Fill)	
	S-1	36.0 F	2-3-3-4	13"	12-13.5' Same as 8-10', moist 13.5'-14' Cinder fill, wet	
15		5.0 F	2-3-6-6	16"	Cinder fill and brown silty silt, saturated (Fill)	
		52.0 F	1-2-1-2	13"	Cinder fill, trace coal tar, saturated (Fill) Sand Strong c/t, odor	
20		48.0 F	1/12", 2, 2	20"	Cinder fill with 8" seam of silty clay Coal tar present, saturated (Fill) Strong odor	
	S-2	45.0 F	0/6", 1, 2, 2	16"	Cinder fill, little silt, and coal tar saturated (Fill) Strong odor	
		45.0 (3.0) ppm	1-2, -1-1	20"	22-23' Same as 20-22' (Fill) 23-24' Dk. Brown clayey silt, trace decaying plant material (Silt)	
					Sand - 15' Bent - 2' Fill - 9'	

F* - Small amount of fluorescence detected
F - Fluorescence detected

PROPORTIONS USED: TRACE = 0–10%, LITTLE = 10–20%, SOME 20–35%, AND = 35–50%

TEST BORING LOG	HYDRO–TERRA, INCORPORATED	PAGE 1

BORING NO.: P-2S	PROJECT: EAST STATION	DATE: 4-22

PROJECT NO:	96010	DRILLER:	PSI	DRILLING BIT:	3.25"
LOCATION:	EAST STATION	RIG TYPE:	ATV	GROUND ELEVATION:	15.30'
INSPECTOR:	B. WHIPPLE	METHOD:	ROTARY, H.S.	SAMPLING METHOD:	SPLIT SPOON
WELL TYPE:	PIEZOMETER	SCREEN LENGTH:	5'	PROTOP WIDTH/TYPE	—
WELL DEPTH:	20'	GROUT LENGTH/TYPE:	0'	PAD ELEVATION:	—
SCREEN:	1" Stainless Steel	SEAL LENGTH/TYPE:	11'/BENTONITE	TOC ELEVATION	13.87'
SLOT SIZE:	0.01	FILTER LENGTH/TYPE:	7'/SAND (#1)	STICK UP/DOWN:	-1.43'

DEPTH	SAMPLE COLLECTION DATA: SAMPLE NUMBER	HNU (PPM)	STP TEST BLOWS / 6"	REC (in.)	DESCRIPTION	DEPTH
		0.6	3-4-9-7	19"	0-1' BLACK CINDER MATERIAL, LITTLE SAND AND SILT, TRACE CLAY 1-2' MOTTLED BROWN + TAN ~~[illegible]~~ SILTY CLAY (FILL)	
		0.8	3-2-8-13	11"	MOTTLED BROWN + TAN SILTY CLAY, TRACE CINDERS (FILL)	2'
5		(14.8) 5.0	2-13-7-12	14"	4-4.5' MOTTLED BROWN + TAN SILTY CLAY AND THIN SEAM OF WOOD SHAVINGS (14.8 PPM) (FILL) 4.5-6' DARK BROWN SILT AND SAND, SOME CINDERS, TRACE RED BRICK	
		7.5	5-3-3-5	3"	BLACK-STAINED CLAYEY SILT, SOME WOOD SHAVINGS MOIST, SLIGHT COAL TAR ODOR (FILL)	Bentonite
10		22.0 F*	3-10-5-10	19"	BLACK CINDERS, TRACE CLAY + SAND, TIGHT, VERY MOIST, COAL TAR ODOR PRESENT.	
	S-1	23.0 F	3-6-4-3	17"	10-11.5' SAME AS 8-10' 11.5-12' SILTY SAND, LITTLE CLAY, WET C.T. ODOR PRESENT (FILL)	
		42.0 F	3-2-2-3	14"	BLACK CINDER FILL, LOOSE, SOME COAL TAR (FILL)	13
15		76.0 F	2-3-4-6	16"	SAME AS 12-14' (FILL)	SAND 15
	S-2	58.0 F	22, 50/6"	12"	16-16.5 SAME AS 12-14' 16.5 HIT LARGE PIECE OF WOOD (FILL)	
20		38.0 F	1, 12, 1/12	1"	BROWN CLAYEY SILT, SOME SAND + COAL TAR (SILT)	2
		32.0 F	1, 1, 1, 2	10"	GRAY AND BROWN SILT, SOME CINDERS, TRACE CLAY + COAL TAR (SILT)	
		1.0 F*	WEIGHT OF HAMMER	13"	DARK GRAY CLAYEY SILT, TRACE WOOD AND ROOT FRAGMENTS NO EVIDENCE OF CONTAMINATION (SILT)	
25		1.6	1, 1, 2, 3	11"	SAME AS 22-24' (SILT)	

F - FLUORESCENCE DETECTED
F* - VERY SMALL AMOUNT OF FLUORESCENCE DETECTED

PROPORTIONS USED: TRACE = 0–10%, LITTLE = 10–20%, SOME 20–35%, AND = 35–50%

BORING LOG	HYDRO-TERRA, INCORPORATED	PAGE: 1

BORING NO.: P-35 | PROJECT: EAST STATION | DATE: 4-12-96

PROJECT NO.:	96010	DRILLER:	PSI	DRILLING BIT:	3¾" ID
LOCATION:	EAST STATION	RIG TYPE:	ATV	GROUND ELEVATION:	16.36'
INSPECTOR:	B WHIPPLE	METHOD:	ROTARY, H.S.	SAMPLING METHOD:	SPLIT-SPOON
WELL TYPE:	1" PIEZOMETER	SCREEN LENGTH:	5'	PROTOP WIDTH/TYPE	–
WELL DEPTH:	15'	GROUT LENGTH/TYPE:	0	PAD ELEVATION:	–
SCREEN:	STAINLESS-STEEL (1")	SEAL LENGTH/TYPE:	6.5' BENTONITE	TOC ELEVATION	19.30'
SLOT SIZE:	0.01	FILTER LENGTH/TYPE:	6' No.1 SAND	STICK UP/DOWN:	2.94'

DEPTH	SAMPLE COLLECTION DATA: SAMPLE NUMBER	HNU (PPM)	STP TEST BLOWS/6"	REC (in.)	DESCRIPTION	DEPTH
		6.0	4-16-7-15	18"	LT. BROWN CLAYEY SILT, SOME GRAVEL AND RED BRICK FILL MATERIAL, SOME MEDIUM GRAVEL AND COAL CINDERS, MOIST	FILL
		4.5	3-2-4-5	14"	MOTTLED RED, BROWN SILTY CLAY WITH SOME COAL CINDERS AND RED BRICK FRAGMENTS, MOIST	
4		7.0	2-3-4-5	12"	4-5 MOTTLED RED, TAN, AND BROWN CLAY, MOIST 5-6 BLACK COAL CINDERS AND SOME BLACK-STAINED SILT, TRACE SAND, MOIST	
	S-1	30	1-8-7-9	18"	BLACK-STAINED DECOMPOSED WOOD FRAGMENTS AND COAL FRAGMENTS, MOIST 7.5-8' COAL FRAGMENTS, WET	BENTONITE
8		110	10-9-3-7	12"	BLACK-STAINED SILT AND COAL CINDERS, SOME RED BRICK FRAGMENTS AND SMALL GRAVEL TRACE FINE SAND, WET	
		220	3-22-4	14"	BLACK-STAINED SILT AND CINDER MATERIAL, SATURATED, SOME COAL TAR, VERY STRONG ODOR	SCREEN
12		200	2-3-4-4	13"	SAME AS 10-12' (FILL) SATURATED	SAND
		180	32-32	14"	SAME AS 10-12' (FILL) SATURATED	
16		110 F	3-2-2-3	24"	~~BOTTOM OF BORING AT 15'~~ ~~SAND TO 9'~~ ~~BENTONITE TO 2.5'~~ 16-17.5 SAME AS 10-12' (FILL)	
		22 F	~~1-16-7-12~~ 1/12, 1/12	20"	17.5-18' DARK GRAY CLAYEY SILT	
20					18-20' DARK GRAY CLAYEY SILT, TRACE SAND AND ROOTS (SILT)	
24						
28					F → FLOORESENCE UNDER UV LIGHT	

PROPORTIONS USED: TRACE = 0-10%, LITTLE = 10-20%, SOME 20-35%, AND = 35-50%

BORING LOG	HYDRO-TERRA, INCORPORATED	PAGE: 1

BORING NO.:	P-15	PROJECT:	EAST STATION	DATE:	4-16-96
PROJECT NO.:	96010	DRILLER:	PSI	DRILLING BIT:	3.25" ID
LOCATION:	EAST STATION	RIG TYPE:	ATV	GROUND ELEVATION:	13.77
INSPECTOR:	B WHIPPLE	METHOD:	ROTARY, H.S.	SAMPLING METHOD:	SPLIT SPOON
WELL TYPE:	1" PIEZOMETER	SCREEN LENGTH:	5'	PROTOP WIDTH/TYPE	=
WELL DEPTH:	16'	GROUT LENGTH/TYPE:	0'	PAD ELEVATION:	
SCREEN:	1"SS	SEAL LENGTH/TYPE:	8' / BENTONITE	TOC ELEVATION	13.46'
SLOT SIZE:	0.01	FILTER LENGTH/TYPE:	7' / No. 1 SAND	STICK UP/DOWN:	-.31

DEPTH	SAMPLE NUMBER	NNU (PPM)	STP TEST BLOWS / 6"	REC (in.)	DESCRIPTION
		0.6	8-10-8-10	13"	BROWN SILTY CLAY, TRACE ASH MATERIAL (FILL)
4		0.4	8-11-16	12"	BROWN SILTY CLAY, SOME GRAVEL AND CINDERS ~~SOME~~ SOME MOTTLED BROWN AND GRAY CLAY (FILL)
		0.4	6-10-16-5	11"	SAME AS 2-4' (FILL)
8	S-1	1.0	7-7-5-3	11"	6-7' BROWN AND DK. BROWN SAND AND GRAVEL TRACE SILT AND CLAY, MOIST. (FILL) 7-8' DK BROWN SAND & GRAVEL, TRACE CLAY, WET
		3.1	2-3-7-16	13"	BLACK SILTY SAND AND GRAVEL, SATURATED (FILL) COAL TAR ODOR
12		65	6-54-8	18"	BLACK-STAINED CLAY AND ASHAPHCT, SATURATED, COAL TAR SHEEN PRESENT. (FILL) SOME GRAVEL
		5.0	4-7-1-11	1"	MED. GRAVEL PLUGGED UP SPLIT SPOON. NO RECOVERY
16		25	6-10-10-11	20"	14-15 ~~BLACK-STAINED~~ TAN AND BROWN SILTY CLAY, SOME GRAVEL 6" OF ORGANIC SILT (FILL) 15-16' ASH MATERIAL, SOME SILT, STRONG C.T. ODOR
		22	5-7-9-6	10"	BLACK ORGANIC SILT AND CINDER MATERIAL SOME SAND AND GRAVEL, SATURATED (FILL) COAL TAR SHEEN PRESENT
20	S-2	18 7	2-3-2-3	22"	18-19' SAME AS 16-18' 19-~~19.8~~ GRAYISH BROWN ORGANIC CLAYEY SILT WITH ROOTS AND WOOD FRAGMENTS (SILT)
					~~19.8~~-20 GRAYISH BROWN CLAY

BOTTOM OF BORING AT 18'
SCREEN 16-11'
SAND 18-9'
BENTONITE 9-1'

DEPTH: BENTONITE, SAND

PROPORTIONS USED: TRACE = 0-10%, LITTLE = 10-20%, SOME 20-35%, AND = 35-50%

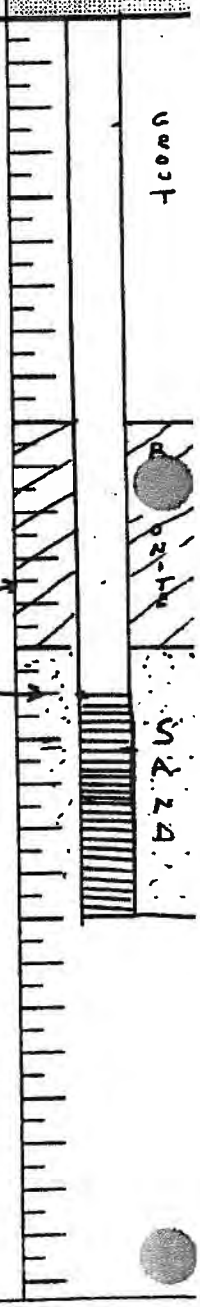
+ NO UV SCAN WAS PERFORMED.

BORING LOG	HYDRO-TERRA, INCORPORATED	PAGE: 1

BORING NO.: P-8S | PROJECT: EAST STATION | DATE: 4-15-96

PROJECT NO.:	96010	DRILLER:	PSI	DRILLING BIT:	3.25" I.D.
LOCATION:	EAST STATION	RIG TYPE:	ATV	GROUND ELEVATION:	22.05'
INSPECTOR:	B. WHIPPLE	METHOD:	ROTARY, H.S.	SAMPLING METHOD:	SPLIT SPOON
WELL TYPE:	1" PIEZOMETER	SCREEN LENGTH:	5'	PROTOP WIDTH/TYPE	—
WELL DEPTH:	20'	GROUT LENGTH/TYPE:	9' / BENT/CEMENT	PAD ELEVATION:	—
SCREEN:	1" STAINLESS-STEEL	SEAL LENGTH/TYPE:	4' / BENTONITE	TOC ELEVATION	21.58'
SLOT SIZE:	0.01	FILTER LENGTH/TYPE:	6' / No. 1 SAND	STICK UP/DOWN:	-0.47

DEPTH	SAMPLE COLLECTION DATA: SAMPLE NUMBER	HNU (PPM)	STP TEST BLOWS/6"	REC (in.)	DESCRIPTION
		—	—	—	0-0.3 ASPHALT (FILL)
		1.1		0	2.5' HIT REFUSAL WITH SPLIT SPOON (FILL) BROWN CLAYEY SILT AND SAND WITH GRAVEL AND RED BRICK FRAGMENTS AND CONCRETE
4		9.0	1-1-4-10	6"	BLACK AND BROWN CLAYEY SILT AND SAND (FILL) WITH CONCRETE PIECES, VERY MOIST. COAL TAR ODOR
	S-1	185	2-2-2-3	11"	BLACK-STAINED CLAYEY SAND AND GRAVEL, WET (FILL) STRONG COAL-TAR ODOR 7.5' THIN (2") SEAM OF MOTTLED RED & BROWN CLAY, WET
8		170	1-1-4-5	12"	BLACK-STAINED CLAYEY SAND AND GRAVEL (FILL) AND MOTTLED RED AND BROWN CLAY, SATURATED VERY STRONG COAL-TAR ODOR
		140	2-3-4-6	10"	BLACK-STAINED MOTTLED RED AND BROWN CLAY AND SAND AND GRAVEL, ALL SATURATED (FILL) WATER HAS OILY SHEEN. VERY STRONG C.T. ODOR.
12		130	2-2-1-3	2"	SAME AS 10-12' (FILL) BENTONITE
		40	2-2-3-4	6"	SAME AS 10-12' (FILL) SAND
16		12	13-11-13-8	2"	BLACK-STAINED SMALL GRAVEL AND PIECE OF WOOD. (FILL), SATURATED (FILL)
		19	2-3-4-4	15"	BROWN AND BLACK SAND AND GRAVEL, AND SILT AND MOTTLED RED AND BROWN CLAY (FILL) SATURATED
20	S-2	30	3-2-3-4	15"	BROWN AND BLACK SILTY SAND AND GRAVEL WITH WOOD FRAGMENTS AND LITTLE CLAY (FILL) SATURATED, C.T. ODOR
		30	2-3-4-5	7"	BROWN AND BLACK SILTY SAND AND GRAVEL WITH WOOD FRAGMENTS AND LITTLE CLAY SATURATED, SLIGHT C.T. ODOR. (FILL)
24		8.0	6-11-7-8	4"	BROWN SILTY SAND AND MED-SMALL GRAVEL WITH WOOD FRAGMENTS AND LITTLE CLAY, (FILL) SATURATED, SLIGHT C.T. ODOR
		4.0	2-2-5-8	10"	MOTTED RED AND BROWN CLAY AND SILTY SAND AND GRAVEL, SATURATED (ABUNDED CLAY)
28					



PROPORTIONS USED: TRACE = 0-10%, LITTLE = 10-20%, SOME 20-35%, AND = 35-50%

TEST BORING LOG	HYDRO–TERRA, INCORPORATED	PAGE 2

BORING NO.: P-BS | PROJECT: EAST STATION | DATE: 4-15-9

DEPTH	SAMPLE COLLECTION DATA: SAMPLE NUMBER	HNU (PPM)	STP TEST BLOWS / 6"	REC (in.)	DESCRIPTION	DEPTH
			2-2-5-7	0	(ARUNDEL CLAY)	
		2.5	3-11-7-9	16"	MOTTLED BROWN, TAN, AND GRAY CLAY, TRACE GRAVEL SATURATED (ARUNDEL CLAY)	
55						
					*NO UV SCAN WAS PERFORMED AT THIS LOCATION.	

PROPORTIONS USED: TRACE = 0–10%, LITTLE = 10–20%, SOME 20–35%, AND = 35–50%

BORING LOG	HYDRO-TERRA, INCORPORATED	PAGE: 1

BORING NO.:	P-9S	PROJECT:	EAST STATION	DATE:	4-11-96
PROJECT NO.:	96010	DRILLER:	PSI	DRILLING BIT:	3.25" I.D.
LOCATION:	EAST STATION	RIG TYPE:	ATV	GROUND ELEVATION:	24.22
INSPECTOR:	B. WHIPPLE	METHOD:	ROTARY, H.S.	SAMPLING METHOD:	SPLIT SPOON
WELL TYPE:	1" PIEZOMETER	SCREEN LENGTH:	5'	PROTOP WIDTH/TYPE	—
WELL DEPTH:	20'	GROUT LENGTH/TYPE:	9' - BENT/CEMENT	PAD ELEVATION:	—
SCREEN:	1" STAINLESS-STEEL	SEAL LENGTH/TYPE:	3.5' - BENTONITE	TOC ELEVATION	23.24'
SLOT SIZE:	0.01	FILTER LENGTH/TYPE:	7.5' - No.1 SAND	STICK UP/DOWN:	-0.98

DEPTH	SAMPLE COLLECTION DATA: SAMPLE NUMBER	HNU (PPM)	STP TEST BLOWS/6"	REC (in.)	DESCRIPTION	DEPTH
		0.6	4-1-21-20	18"	BROWN MEDIUM SAND AND SMALL GRAVEL, TRACE SILT AND CINDERS (FILL)	GROUT
		9.0	8-8-14-8	14"	SAME AS 0-2' WITH 2" OF BLACK-STAINED CLAYEY SILT AT 3.0' (FILL) STRONG COAL-TAR ODOR.	
4		4.0	6-6-7-7	10"	4-4.5' BLACK-STAINED CLAYEY SILT W/STRONG ODOR (TAR VOLATILES) (FILL) 4.5-6' BROWN SILTY FINE SAND, TRACE SM. GRAVEL	
		2.3	3-2-3-5	15"	BROWN AND GRAY SILTY FINE SAND, TRACE CLAY AND SMALL GRAVEL, SOME BLACK STAINING, SLIGHT TAR VOLATILES ODOR, MOIST (FILL)	
8		20	3-3-4-6	14"	DARK GRAY ~~[illegible]~~ FINE SANDY SILT, MOIST NO ODOR. TRACE CLAY (FILL)	BENTONITE
		0.5	3-2-2-1	24"	SAME AS 8-10' 11-12' WET. NO ODOR. (FILL)	
12		2.5	3-2-2-3	20"	DARK GRAY SILTY FINE SAND WITH TAR VOLATILES ODOR, WET (FILL)	SAND
		0.8	2-2-2-13	11"	DARK GRAY SILTY FINE SAND WITH TAR VOLATILES ODOR, WET, TRACE CLAY (FILL)	
16		2.0	8-7-7-5	14"	SMALL ANGULAR GRAVEL (BLACK STAINED) SOME MEDIUM SAND, TRACE SILT, SATURATED (FILL) SLIGHT COAL TAR ODOR.	
		2.0		10"	~~SMALL~~ SAME AS 16-18' (FILL)	
20					BOTTOM OF BORING AT 20' SAND FROM 20' TO 12.6' BGS.	
					BENTONITE FROM 12.6' TO 8.8' BGS GROUTED FROM 8.8' TO GROUND SURFACE WITH 95.5 CEMENT : BENTONITE MIX.	
24						
					* NO UV SCAN WAS PERFORMED AT THIS LOCATION.	
28						

PROPORTIONS USED: TRACE = 0-10%, LITTLE = 10-20%, SOME 20-35%, AND = 35-50%

BORING LOG	HYDRO-TERRA, INCORPORATED	PAGE: 1

BORING NO.:	P-115	PROJECT:	EAST STATION	DATE:	4/7/96
PROJECT NO.:	96010	DRILLER:	PSI	DRILLING BIT:	3.25" ID
LOCATION:	EAST STATION	RIG TYPE:	ATV	GROUND ELEVATION:	7.48'
INSPECTOR:	B. WHIPPLE	METHOD:	ROTARY, H.S.	SAMPLING METHOD:	SPLIT SPOON
WELL TYPE:	1" PIEZOMETER	SCREEN LENGTH:	5'	PROTOP WIDTH/TYPE	—
WELL DEPTH:	16'	GROUT LENGTH/TYPE:	0	PAD ELEVATION:	—
SCREEN:	1" STAINLESS STEEL	SEAL LENGTH/TYPE:	7' BENTONITE	TOC ELEVATION	6.71'
SLOT SIZE:	0.01	FILTER LENGTH/TYPE:	7' No. 1 SAND	STICK UP/DOWN:	-0.77'

DEPTH	SAMPLE NUMBER	HNU (PPM)	STP TEST BLOWS/6"	REC (IN.)	DESCRIPTION	DEPTH
		1.0	16-25-30-28	18"	BLACK AND BROWN SILTY FINE SAND AND GRAVEL (FILL) TRACE CLAY	
4		5.0	4-7-8-13	16"	MOTTLED REDDISH-BROWN AND TAN CLAYEY SILT, LITTLE SMALL GRAVEL AND COAL FRAGMENTS (FILL) 3.7-4 BROWN DECAYED WOOD FRAGMENTS AND SILT, TIGHT SLIGHT C.T. VOLATILES ODOR	BENTONITE
		15.0	5-9-13-12	20"	4-4.8' TAN FINE SAND, LITTLE SILT 4.8-5.1' GRAY AND BROWN CLAYEY SILT, WITH COAL FRAGMENTS 5.1-6' BLACK SAND AND COAL FRAGMENTS (FILL) C.T. ODOR	
8		40	1-2-3-8	19"	BLACK STAINED WOOD DECAYING WOOD SHAVINGS, MOIST VERY STRONG ODOR (SIMILIAR TO COAL TAR.) (FILL)	
	S1	50	7-5-4-4	12"	8-8.2 SAME AS 6-8' VERY STRONG ODOR 8.2-10' BLACK COAL CINDERS, SATURATED, TRACE COAL TAR (FILL)	
12		75	4-2-2-2	10"	10-10.3' BROWN SILTY CLAY AND COAL CINDERS 10.3-12' COAL CINDERS, TRACE SAND, SATURATED (FILL) TRACE COAL TAR	SAND
	S-2	50	2-3-4-3	14"	12-13.5' SAME AS 10.3-12 WITH SOME MOTTLED RED + GRAY CLAY (FILL) 13.5-14' GRAY CLAYEY SILT, TRACE CINDERS (SILT)	
16		50	2-1-1-2	16"	14-14.5' GRAY CLAYEY SILT AND CINDERS, TRACE COAL TAR 14.5-16' GRAY CLAYEY SILT, TRACE WOOD AND ROOT FRAGMENTS, MOIST (SILT)	
		2.0	0-0-0-0 WEIGHT OF HAMMER	18"	GRAY CLAYEY SILT, TRACE ROOTS, MOIST (SILT)	
20					BOTTOM OF BORING AT 16' SCREEN AT 16' SAND AT 9' BENTONITE TO 2'	
					*No UV SCAN WAS performed at this location	

PROPORTIONS USED: TRACE = 0-10%, LITTLE = 10-20%, SOME 20-35%, AND = 35-50%

BORING LOG	HYDRO-TERRA, INCORPORATED	PAGE 1

BORING NO.: P-12S	PROJECT: EAST STATION	DATE: 12/06/02

PROJECT NO.:	00090	DRILLER:	Tidewater, INC	DRILLING BIT:	Push Rod
LOCATION:	DPW lot area	RIG TYPE:	Geoprobe	GROUND ELEVATION:	
INSPECTOR:	S. Myers	METHOD:	Hammer Driven	SAMPLING METHOD:	NA
WELL TYPE:	Piezometer	SCREEN LENGTH:	5 Ft	PROTOP WIDTH/TYPE	
WELL DEPTH:	15.0 feet	GROUT LENGTH/TYPE:	Cement	PAD ELEVATION:	
SCREEN:	1 in. PVC	SEAL LENGTH/TYPE:	Bentonite	TOC ELEVATION	7.34
SLOT SIZE:	NA	FILTER LENGTH/TYPE:	No. 2 Silica	STICK UP/DOWN:	Flush mount

DEPTH	SAMPLE COLLECTION DATA				DESCRIPTION	DEPTH
	SAMPLE NUMBER	HNU (PPM)	STP TEST BLOWS / 6"	REC (in.)		
					0.0 to 10.0 feet - 1 inch x 10 feet schedule 20 PVC riser pipe set inside flush-mount 10.0 to 15.0 feet - 1 inch x 5 feet schedule 20 PVC slotted well screen. (8.0 to 15.0 feet No. 2 silica sand screen pack) (7.0 to 8.0 feet bentonite seal) (0.0 to 7.0 feet, soil backfill) (Flush mount cover with concrete pad) **No samples collected from this piezometer installation.**	

BORING LOG

HYDRO-TERRA, INCORPORATED

PAGE 1

BORING NO.: P-13S

PROJECT: EAST STATION

DATE: 12/06/02

PROJECT NO.:	00090	DRILLER:	Tidewater, INC	DRILLING BIT:	Push Rod
LOCATION:	DPW lot area	RIG TYPE:	Geoprobe	GROUND ELEVATION:	
INSPECTOR:	S. Myers	METHOD:	Hammer Driven	SAMPLING METHOD:	NA
WELL TYPE:	Piezometer	SCREEN LENGTH:	5 Ft.	PROTOP WIDTH/TYPE	
WELL DEPTH:	15 0 feet	GROUT LENGTH/TYPE:	Cement	PAD ELEVATION:	
SCREEN:	1 in PVC	SEAL LENGTH/TYPE:	Bentonite	TOC ELEVATION	6.71
SLOT SIZE:	NA	FILTER LENGTH/TYPE:	No 2 Silica	STICK UP/DOWN:	Flush mount

DEPTH	SAMPLE COLLECTION DATA				DESCRIPTION	DEPTH
	SAMPLE NUMBER	HNU (PPM)	STP TEST BLOWS / 6"	REC (in.)		
					0.0 to 10 0 feet - 1 inch x 10 feet schedule 20 PVC riser pipe set inside flush-mount 10.0 to 15 0 feet - 1 inch x 5 feet schedule 20 PVC slotted well screen. (8.0 to 15.0 feet No. 2 silica sand screen pack) (7 0 to 8 0 feet bentonite seal) (0.0 to 7 0 feet, soil backfill) (Flush mount cover with concrete pad) **No samples collected from this piezometer installation.**	

BORING LOG	HYDRO-TERRA, INCORPORATED	PAGE 1

BORING NO.: P-14S	PROJECT: EAST STATION	DATE: 12/06/02

PROJECT NO.:	00090	DRILLER:	Tidewater, INC	DRILLING BIT:	Push Rod
LOCATION:	OPW lot area	RIG TYPE:	Geoprobe	GROUND ELEVATION:	
INSPECTOR:	S. Myers	METHOD:	Hammer Driven	SAMPLING METHOD:	NA
WELL TYPE:	Piezometer	SCREEN LENGTH:	5 Ft.	PROTOP WIDTH/TYPE	
WELL DEPTH:	15.0 feet	GROUT LENGTH/TYPE:	Cement	PAD ELEVATION:	
SCREEN:	1 in PVC	SEAL LENGTH/TYPE:	Bentonite	TOC ELEVATION	8.47
SLOT SIZE:	NA	FILTER LENGTH/TYPE:	No. 2 Silica	STICK UP/DOWN:	Flush mount

DEPTH	SAMPLE COLLECTION DATA				DESCRIPTION	DEPTH
	SAMPLE NUMBER	HNU (PPM)	STP TEST BLOWS / 6"	REC (in.)		
					0.0 to 10.0 feet - 1 inch x 10 feet schedule 20 PVC riser pipe set inside flush-mount 10.0 to 15.0 feet - 1 inch x 5 feet schedule 20 PVC slotted well screen (8.0 to 15.0 feet No. 2 silica sand screen pack) (7.0 to 8.0 feet bentonite seal) (0.0 to 7.0 feet, soil backfill) (Flush mount cover with concrete pad) **No samples collected from this piezometer installation.**	

BORING LOG	HYDRO-TERRA, INCORPORATED	PAGE 1

BORING NO.: P-15S	PROJECT: EAST STATION	DATE: 12/06/02

PROJECT NO.:	C0090	DRILLER:	Tidewater, INC.	DRILLING BIT:	Push Rod
LOCATION:	DPW lot area	RIG TYPE:	Geoprobe	GROUND ELEVATION:	
INSPECTOR:	S. Myers	METHOD:	Hammer Driven	SAMPLING METHOD:	NA
WELL TYPE:	Piezometer	SCREEN LENGTH:	5 Ft	PROTOP WIDTH/TYPE	
WELL DEPTH:	15 0 feet	GROUT LENGTH/TYPE:	Cement	PAD ELEVATION:	
SCREEN:	1 in. PVC	SEAL LENGTH/TYPE:	Bentonite	TOC ELEVATION	NA
SLOT SIZE:	NA	FILTER LENGTH/TYPE:	No 2 Silica	STICK UP/DOWN:	Flush mount

DEPTH	SAMPLE COLLECTION DATA				DESCRIPTION	DEPTH
	SAMPLE NUMBER	HNU (PPM)	STP TEST BLOWS / 6"	REC (in.)		
					0 0 to 10 0 feet - 1 inch x 10 feet schedule 20 PVC riser pipe set inside flush-mount 10 0 to 15.0 feet - 1 inch x 5 feet schedule 20 PVC slotted well screen (8.0 to 15.0 feet No 2 silica sand screen pack) (7.0 to 8 0 feet bentonite seal) (0.0 to 7.0 feet, soil backfill) (Flush mount cover with concrete pad) **No samples collected from this piezometer installation.**	

BORING LOG	HYDRO-TERRA, INCORPORATED	PAGE 1

BORING NO.: P-16S		PROJECT:	EAST STATION	DATE: 12/06/02	
PROJECT NO.:	00090	DRILLER:	Tidewater, INC	DRILLING BIT:	Push Rod
LOCATION:	DPW lot area	RIG TYPE:	Geoprobe	GROUND ELEVATION:	
INSPECTOR:	S Myers	METHOD:	Hammer Driven	SAMPLING METHOD:	NA
WELL TYPE:	Piezometer	SCREEN LENGTH:	5 Ft	PROTOP WIDTH/TYPE	
WELL DEPTH:	15 0 feet	GROUT LENGTH/TYPE:	Cement	PAD ELEVATION:	
SCREEN:	1 in PVC	SEAL LENGTH/TYPE:	Bentonite	TOC ELEVATION	9 44
SLOT SIZE:	NA	FILTER LENGTH/TYPE:	No 2 Silica	STICK UP/DOWN:	Flush mount

DEPTH	SAMPLE COLLECTION DATA				DESCRIPTION	DEPTH
	SAMPLE NUMBER	HNU (PPM)	STP TEST BLOWS / 6"	REC (in.)		
					0.0 to 10.0 feet - 1 inch x 10 feet schedule 20 PVC riser pipe set inside flush-mount 10 0 to 15 0 feet - 1 inch x 5 feet schedule 20 PVC slotted well screen. (8.0 to 15 0 feet No 2 silica sand screen pack) (7.0 to 8.0 feet bentonite seal) (0.0 to 7.0 feet, soil backfill) (Flush mount cover with concrete pad) **No samples collected from this piezometer installation.**	

BORING LOG

HYDRO-TERRA, INCORPORATED

BORING NO.: P-17S

PROJECT: EAST STATION

DATE: 12/06/02

PROJECT NO.:	00090	DRILLER:	Tidewater, INC	DRILLING BIT:	Push Rod
LOCATION:	DPW lot area	RIG TYPE:	Geoprobe	GROUND ELEVATION:	
INSPECTOR:	S. Myers	METHOD:	Hammer Driven	SAMPLING METHOD:	NA
WELL TYPE:	Piezometer	SCREEN LENGTH:	5 Ft.	PROTOP WIDTH/TYPE	
WELL DEPTH:	15.0 feet	GROUT LENGTH/TYPE:	Cement	PAD ELEVATION:	
SCREEN:	1 in. PVC	SEAL LENGTH/TYPE:	Bentonite	TOC ELEVATION	9.58
SLOT SIZE:	NA	FILTER LENGTH/TYPE:	No. 2 Silica	STICK UP/DOWN:	Flush mount

DEPTH	SAMPLE COLLECTION DATA: SAMPLE NUMBER	HNU (PPM)	STP TEST BLOWS / 6"	REC (in.)	DESCRIPTION	DEPTH
					0.0 to 10.0 feet - 1 inch x 10 feet schedule 20 PVC riser pipe set inside flush-mount 10.0 to 15.0 feet - 1 inch x 5 feet schedule 20 PVC slotted well screen. (8.0 to 15.0 feet No. 2 silica sand screen pack) (7.0 to 8.0 feet bentonite seal) (0.0 to 7.0 feet, soil backfill) (Flush mount cover with concrete pad) **No samples collected from this piezometer installation.**	

Recovery Well Log

HYDRO-TERRA, INCORPORATED

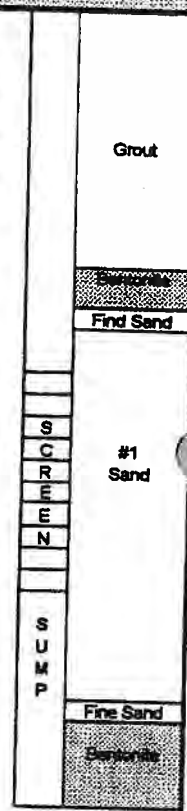
PAGE: 1

BORING NO.: RW-4S | PROJECT: EAST STATION | DATE: 12/11/96

PROJECT:	96160	DRILLER:	EDI	DRILLING BIT:	10.25"
LOCATION:	East Station	RIG TYPE:	B-61	GROUND ELEVATION:	6.26'
INSPECTOR:	B. Whipple	METHOD:	Hollow-Stem Rotary	SAMPLING METHOD:	Split Spoon
WELL TYPE:	8" Recovery Well	SCREEN LENGTH:	5'	PROTOR WIDTH/TYPE:	None
WELL DEPTH:	21' BGS	GROUT LENGTH/TYPE:	4.5' Cem./Bentonite Mix	PAD ELEVATION:	
SCREEN:	Stainless Steel	SEAL LENGTH/TYPE:	1.5' Bentonite	TOC ELEVATION:	9.50'
SLOT SIZE:	0.020	FILTER LENGTH/TYPE:	9' #1 and #00 Sand	STICK UP/DOWN:	3.24'

DEPTH	SAMPLE COLLECTION DATA: SAMPLE NUMBER	PID/FID READING	STP TEST BLOWS / 6"	PID/FID SAMPLE	DESCRIPTION
5					Black and Brown Silty Sand and Gravel FILL, Some Cinders
10					Black/Tan/Brown Clayey Silt and Cinders, Some Red Brick FILL Sheen Present from 8-10' Cinders Saturated with Coal Tar (12-12.5')
15					Grayish-Brown Organic SILT, Trace Roots, No Evidence of Contamination
20					*Bottom of Boring at 18.5' BGS*
25					

WELL CONSTRUCTION DETAILS



PROPORTIONS USED: TRACE = 0-10%, LITTLE = 10-20%, SOME 20-35%, AND = 35-50%

Hydro-Terra

Recovery Well Log

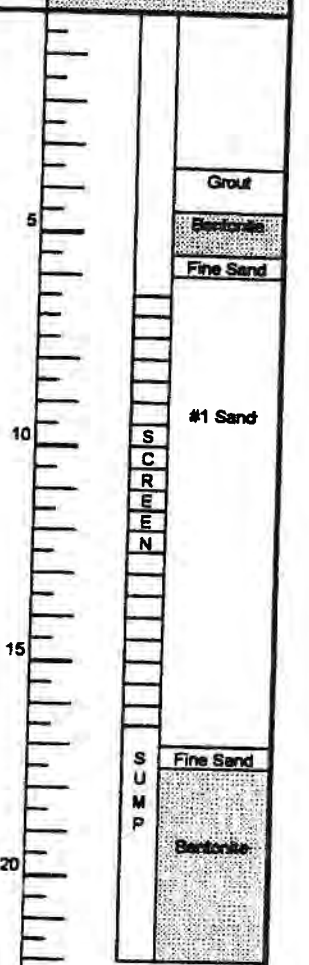
HYDRO-TERRA, INCORPORATED

PAGE: 1

BORING NO.:	RW-5S	PROJECT:	EAST STATION	DATE:	12/31/98
PROJECT NO.:	95190	DRILLER:	C.T.& E. (EDI)	DRILLING BIT:	8.25"
LOCATION:	East Station	RIG TYPE:	B-61	GROUND ELEVATION:	7.49'
INSPECTOR:	B. Whipple	METHOD:	Hollow Stem, Rotary	SAMPLING METHOD:	None
WELL TYPE:	6" Recovery Well	SCREEN LENGTH:	10'	PROTOP WIDTH/TYPE	
WELL DEPTH:	22' Below Ground Surf.	GROUT LENGTH/TYPE:	1' Cem. /Bentonite Mix	PAD ELEVATION:	7.49'
SCREEN:	Stainless Steel	SEAL LENGTH/TYPE:	1' Bentonite	TOC ELEVATION	7.22'
SLOT SIZE:	0.020	FILTER LENGTH/TYPE:	12.5' #1 & #00 Sand	STICK UP/DOWN:	-0.27'

DEPTH	SAMPLE COLLECTION DATA: SAMPLE NUMBER	HNU (PPM)	STP TEST BLOWS / 6"	REC (in.)	DESCRIPTION
					* No Samples. The recovery well, RW-5S, was sited using two nearby borings as references (TB-46 & TB-67).
					FILL
					Silt at 13.5' (From TB-46 & TB-67)
					SILT

WELL CONSTRUCTION DETAILS



PROPORTIONS USED: TRACE = 0-10%, LITTLE = 10-20%, SOME 20-35%, AND = 35-50%

Hydro-Terra

Recovery Well Log	HYDRO-TERRA, INCORPORATED	PAGE: 1

BORING NO.:	RW-6S	PROJECT:	EAST STATION	DATE:	12/26/96
PROJECT NO.:	95190	DRILLER:	C.T.& E. (EDI)	DRILLING BIT:	8.25"
LOCATION:	East Station	RIG TYPE:	B-61	GROUND ELEVATION:	7.52'
INSPECTOR:	G. Paris	METHOD:	Hollow Stem, Rotary	SAMPLING METHOD:	None
WELL TYPE:	6" Recovery Well	SCREEN LENGTH:	10'	PROTOP WIDTH/TYPE	
WELL DEPTH:	22' Below Ground Surf.	GROUT LENGTH/TYPE:	1' Cem. /Bentonite Mix	PAD ELEVATION:	7.52'
SCREEN:	Stainless Steel	SEAL LENGTH/TYPE:	1' Bentonite	TOC ELEVATION	7.12'
SLOT SIZE:	0.020	FILTER LENGTH/TYPE:	12.5' #1 & #00 Sand	STICK UP/DOWN:	-0.37'

DEPTH	SAMPLE COLLECTION DATA: SAMPLE NUMBER	HNU (PPM)	STP TEST BLOWS / 5"	REC (in.)	DESCRIPTION
					* No Samples. The recovery well, RW-6S, was sited using two nearby borings as references (P-11S & TB-65).
5					
					FILL
10					
					Silt at 14.5' (From P-11S & TB-65)
15					
					SILT
20					
25					

WELL CONSTRUCTION DETAILS

PROPORTIONS USED: TRACE = 0-10%, LITTLE = 10-20%, SOME 20-35%, AND = 35-50%

Recovery Well Log

HYDRO-TERRA, INCORPORATED

PAGE: 1

BORING NO.:	RW-7S	PROJECT:	EAST STATION	DATE:	12/26/06
PROJECT NO.:	95190	DRILLER:	C.T.& E. (EDI)	DRILLING BIT:	8.25"
LOCATION:	East Station	RIG TYPE:	B-61	GROUND ELEVATION:	9.28'
INSPECTOR:	G. Parks	METHOD:	Hollow Stem, Rotary	SAMPLING METHOD:	None
WELL TYPE:	6" Recovery Well	SCREEN LENGTH:	10'	PROTOP WIDTH/TYPE	
WELL DEPTH:	26.5' Below Ground Surf.	GROUT LENGTH/TYPE:	5' Cem. /Bentonite Mix	PAD ELEVATION:	9.28'
SCREEN:	Stainless Steel	SEAL LENGTH/TYPE:	1' Bentonite	TOC ELEVATION	8.77'
SLOT SIZE:	0.020	FILTER LENGTH/TYPE:	12.5' #1 & #00 Sand	STICK UP/DOWN:	-0.51'

DEPTH	SAMPLE COLLECTION DATA: SAMPLE NUMBER	HNU (PPM)	STP TEST BLOWS / 6"	REC (IN.)	DESCRIPTION	WELL CONSTRUCTION DETAILS
					* No Samples. The recovery well, RW-7S, was sited using a nearby boring as a reference (TB-45).	
5						Grout
					FILL	
10						Bentonite; Fine Sand
15						#1 Sand; SCREEN
20					Silt at 20.5' (From TB-45)	
25					SILT	Fine Sand; SUMP; Bentonite

PROPORTIONS USED: TRACE = 0-10%, LITTLE = 10-20%, SOME 20-35%, AND = 35-50%

Hydro-Terra

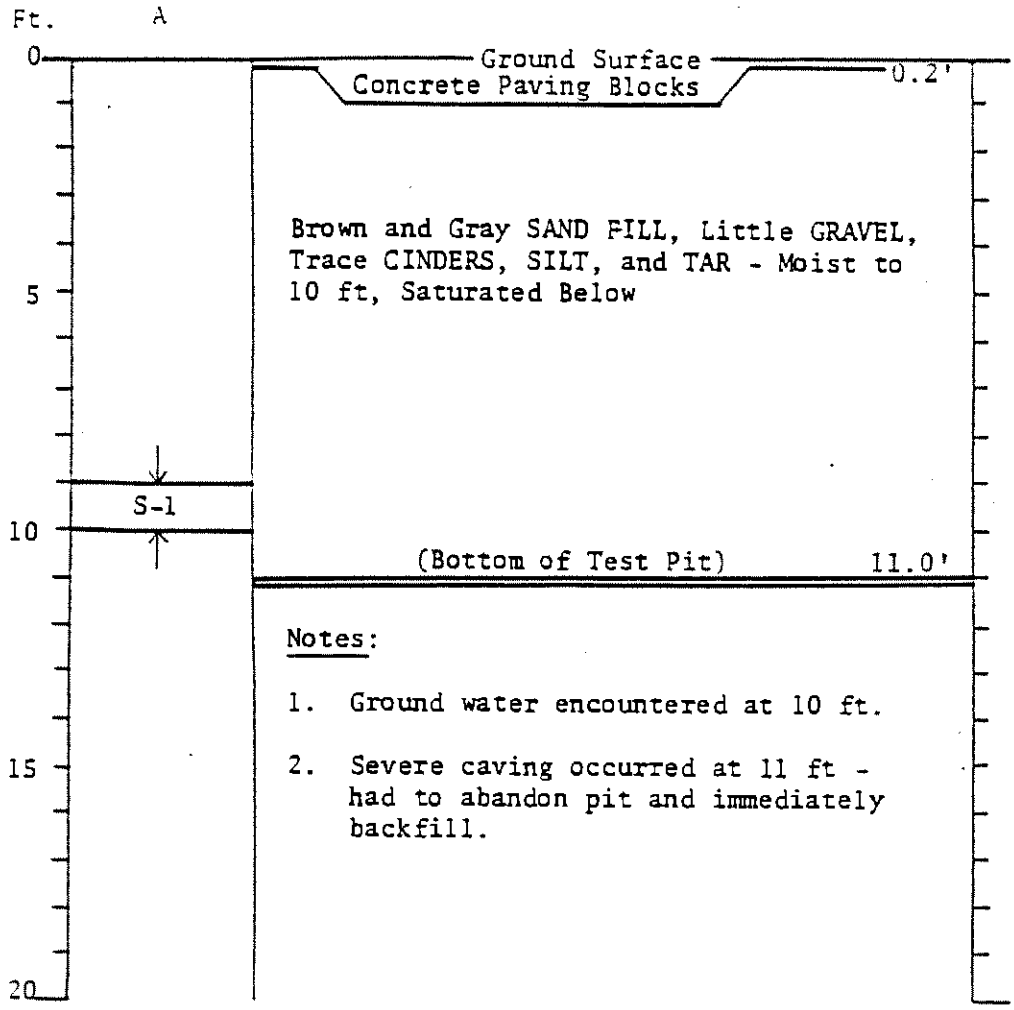
TEST PIT LOG

hydro-terra, inc.

Project: Subsurface Contamination Survey - East Station, Washington Gas

Test Pit No. 1 Elevation 22.8 ft. Date August 31, 1983

Location Southwest Side of Relief Holder No. 3, North of Fire Protection Building No. 44



Notes:

1. Ground water encountered at 10 ft.
2. Severe caving occurred at 11 ft - had to abandon pit and immediately backfill.

"A" - Sample Location

Ground Water Measurements		
Date	Elapsed Hrs.	Depth

TEST PIT LOG

hydro-terra, inc.

Project: Subsurface Contamination Survey - East Station, Washington Gas

Test Pit No. 2 Elevation 22.5 ft. Date August 31, 1983

Location Adjacent to Northwest Corner of Tar Separator No. 5

Ft.	A	
0		Ground Surface
		4" Asphalt Pavement over 6" Concrete Pavement — 0.8'
		Brown to Black SAND FILL, Some GRAVEL and CINDERS - Moist to Wet — 1.8'
		Mottled Brick Red and Brown SILTY CLAY - Moist, No Evidence of Contamination
5		(Bottom of Test Pit) — 6.8'
10		
15		
20		

Notes:

1. Water perched at 1.8 ft.
2. Dark oily film noted on water collected in pit.
3. Tar and water noticed in nearby tar separator at 20 in above ground surface (about 5 in of material in separator).
4. Shallow water ponding occurring at southwest corner of nearby containment wall for tar tanks.
5. Water sample collected by Mark Notich at about 3:30 p.m. on 9/1/83.

"A" - Sample Location

Ground Water Measurements		
Date	Elapsed Hrs.	Depth

TEST PIT LOG

hydro-terra, inc.

Project: Subsurface Contamination Survey - East Station, Washington Gas

Test Pit No. 3 Elevation 22.2 ft. Date August 30, 1983

Location South of Tar Separator No. 5, North of Northwest Corner of Generator House, Building No. 32

Ft. A

0 — Ground Surface

Brown and Black CINDERS, GRAVEL and SAND FILL - Saturated at Bottom — 1.2'

Mottled Brick Red, Tan and Gray SILTY CLAY - Moist, No Evidence of Contamination

5

6.7'

S-1

Mottled Brown and Tan SILT, Little FINE to MEDIUM SAND, Trace of CLAY in Areas - Moist, No Evidence of Contamination

10

(Bottom of Test Pit) — 12.7'

Notes:

1. Water seepage at 1.2 ft.
2. Water sample collected by Mark Notich at about 4:10 p.m.

15

20

"A" - Sample Location

Ground Water Measurements		
Date	Elapsed Hrs.	Depth

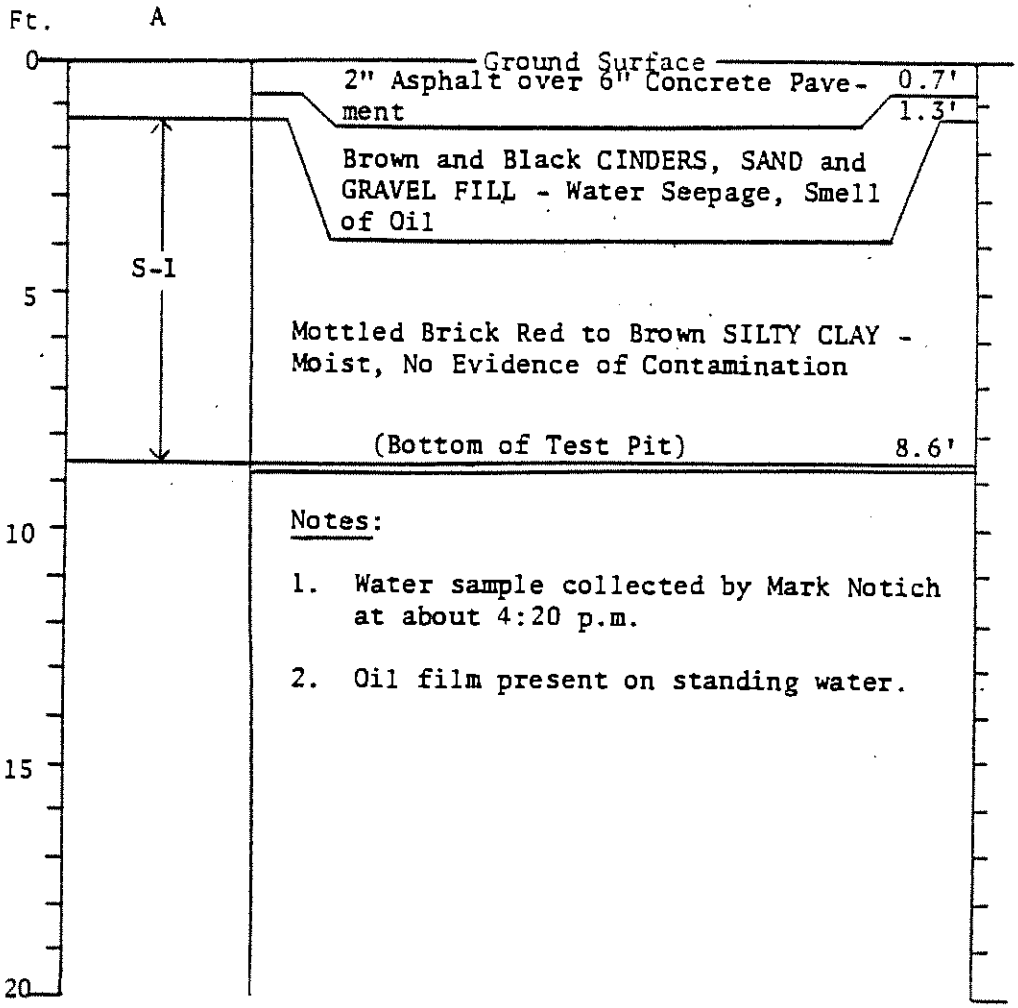
TEST PIT LOG

hydro-terra, inc.

Project: Subsurface Contamination Survey - East Station, Washington Gas

Test Pit No. 4 Elevation 22.5 ft. Date August 30, 1983

Location North End of Alley East of Generator House, Building No. 32, Near Retaining Wall



Notes:

1. Water sample collected by Mark Notich at about 4:20 p.m.
2. Oil film present on standing water.

"A" - Sample Location

Ground Water Measurements		
Date	Elapsed Hrs.	Depth

TEST PIT LOG

hydro-terra, inc.

Project: Subsurface Contamination Survey - East Station, Washington Gas

Test Pit No. 5 Elevation 29.3 ft. Date August 30, 1983

Location East Side of 13th Street between Tank No. 12 (No. 2 Oil) and Tank No. 5 (Spent Oil and No. 2 Oil)

Ft.	A	Ground Surface
0		Black to Dark Gray CINDER FILL, Some GRAVEL, Trace PURIFIER SPONGE - Wet below 12 in
	S-1	4.0'
5		Mottled Tan to Brick Red SILTY CLAY - Moist, No Evidence of Contamination
10		(Bottom of Test Pit) 10.0'
15		Notes: 1. Seepage of water with trace of dark oil at 4.0'. 2. Hole caved - unable to obtain water sample.
20		

"A" - Sample Location

Ground Water Measurements		
Date	Elapsed Hrs.	Depth

TEST PIT LOG

hydro-terra, inc.

Project: Subsurface Contamination Survey - East Station, Washington Gas

Test Pit No. 6 Elevation 21.2 ft. Date August 31, 1983

Location Midway down Alley between Gas Generator Houses, Buildings No. 1 and No. 32

Ft. A

0 — Ground Surface

Asphalt Pavement — 0.5'

Black to Brown CINDERS/ASH and SAND/GRAVEL FILL - Moist — 2.0'

Mottled Brick Red, Tan and Gray SILTY CLAY - Moist, No Evidence of Contamination

5

(Bottom of Test Pit) — 6.5'

Notes:

No ground-water seepage noted.

10

15

20

"A" - Sample Location

Ground Water Measurements		
Date	Elapsed Hrs.	Depth

TEST PIT LOG

hydro-terra, inc.

Project: Subsurface Contamination Survey - East Station, Washington Gas

Test Pit No. 7 Elevation 21.7 ft. Date August 30, 1983

Location South End of Alley, East of Generator House, Building No. 32, and West of 13th Street

Ft. A

0 — Ground Surface

3" Asphalt Paving on Top of 9" of Concrete Paving — 1.0' — 1.5'

Black CINDERS - Dry

Tan MEDIUM to FINE SAND FILL, Trace CINDERS Near Bottom - Moist, No Evidence of Contamination — 5.3'

5

Mottled Brick Red, Tan and Gray SILTY CLAY - Moist, No Evidence of Contamination

10

(Bottom of Test Pit) — 11.3'

Notes:

No ground-water seepage or trace of oil or tar.

15

20

"A" - Sample Location

Ground Water Measurements		
Date	Elapsed Hrs.	Depth

TEST PIT LOG

hydro-terra, inc.

Project: Subsurface Contamination Survey - East Station, Washington Gas

Test Pit No. 8 Elevation 21.4 ft. Date August 31, 1983

Location North Edge of Pavement South of Tar Sump No. 5 in Generator House, Building No. 1

Ft.			
0		Ground Surface	
		Asphalt Pavement	0.3'
		Black CINDER/ASH FILL, Trace GRAVEL and SAND - Moist	2.8'
		Mottled Brick Red and Tan SILTY CLAY FILL - Moist to Very Wet at Bottom	5.0'
5	S-1	Brown ORGANIC CLAYEY SAND, Some GRAVEL, Trace Tar - Very Wet	6.9'
		Mottled Brick Red, Tan and Gray SILTY CLAY, Trace GRAVEL - Moist to Wet, No Evidence of Contamination (Bottom of Test Pit)	9.8'
10			
15			
20			

Notes:

1. Considerable flow of water encountered at 5.0 ft.
2. Water in Tar Sump No. 5 was at 6.5 ft.
3. Water sample collected by Mark Notich at about 3:50 p.m.
4. Film of oil or tar noted on surface of standing water.

"A" - Sample Location

Ground Water Measurements		
Date	Elapsed Hrs.	Depth
8-31	19	7.4'

TEST PIT LOG

hydro-terra, inc.

Project: Subsurface Contamination Survey - East Station, Washington Gas

Test Pit No. 9 Elevation 20.2 ft. Date September 1, 1983

Location In Roadway South of Southwest Corner of Booster and Compressor House, Building No. 2

Ft.	A	
0		Ground Surface
		Asphalt Pavement 0.5'
		Black and Brown CINDER, SAND and GRAVEL, and SILTY CLAY FILL - Moist
		(Bottom of Test Pit) 3.6'
5		Notes:
		Abandoned test pit due to many buried pipe obstructions.
10		
15		
20		

"A" - Sample Location

Ground Water Measurements		
Date	Elapsed Hrs.	Depth

TEST PIT LOG

hydro-terra, inc.

Project: Subsurface Contamination Survey - East Station, Washington Gas

Test Pit No. 10 Elevation 20.6 ft. Date September 1, 1983

Location South of Southwest Corner of Shop Building No. 41 and West of Spent Oil Tank, Near Fence

Ft.	A	
0		Ground Surface
		Brown SILTY SAND (topsoil) - Moist, No Evidence of Contamination 1.5'
5		Mixed Black to Brown CINDER, ASH, SAND and GRAVEL, and SILTY CLAY FILL; Trace PURIFIER SPONGE, TAR and BRICK FRAGMENTS - Mostly Moist, Perched Seepage at 5.3 ft, Seepage also encountered at 13.0 ft
10		(Bottom of Test Pit) 13.0'
15		Notes: 1. Water did not collect at bottom of pit. 2. S-1 contains purifier sponge.
20		

"A" - Sample Location

Ground Water Measurements		
Date	Elapsed Hrs.	Depth

TEST PIT LOG

hydro-terra, inc.

Project: Subsurface Contamination Survey - East Station, Washington Gas

Test Pit No. 11 Elevation 31.5 ft. Date September 1, 1983

Location East Side of 13th Street, East of Tank No. 12 (No. 2 Oil)

Ft.	A	
0		Ground Surface
	S-1	Black to Brown CINDER, GRAVEL and CLAY FILL - Dry to Moist — 3.6'
	S-2	Mottled Tan to Brick Red SILTY CLAY - Moist, No Evidence of Contamination
5	S-3	(Bottom of Test Pit) — 6.9'
10		Notes: 1. S-2 taken from 46 in to 50 in; S-3 from 62 in to 66 in. 2. No ground-water seepage.
15		
20		

"A" - Sample Location

Ground Water Measurements		
Date	Elapsed Hrs.	Depth

TEST PIT LOG

hydro-terra, inc.

Project: Subsurface Contamination Survey - East Station, Washington Gas

Test Pit No. 12 Elevation 17.0 ft. Date September 1, 1983

Location South of East End of Shop Building No. 41, Near Fence

Ft.	A	
0		Ground Surface
	S-1	Brown SILTY SAND (Topsoil) - Moist, No Evidence of Contamination 2.0'
5		Dark Brown to Gray SILTY SAND FILL, Little CINDERS, Hard TAR LENSE 24 in to 27 in - Moist (Considerable Contaminated Ground Water Encountered on Abandoned Wood Structure at 6.0 ft) 6.0'
		Dark Gray COKE BREEZE - Saturated and Contaminated with Tar 7.9'
		Brown SAND and GRAVEL FILL - Saturated and Contaminated 9.3'
10		(Bottom of Test Pit)
15		
20		

Notes:

1. Abandoned wood coke breeze filter bed encountered between 6 and 8 ft. Contaminated water (considerable volatiles) found in this zone.
2. Could not dig below 9.3 ft due to caving.
3. Water sample collected by Mark Notich and by Versar at about 2:50 p.m.

"A" - Sample Location

Ground Water Measurements		
Date	Elapsed Hrs.	Depth
9-1	6	6.2'

TEST PIT LOG

hydro-terra, inc.

Project: Subsurface Contamination Survey - East Station, Washington Gas

Test Pit No. 13 Elevation 16.5 ft. Date August 31, 1983

Location Adjacent to Northwest Side of Tar Separator No. 3.

Ft.	A	Ground Surface	
0	S-1	Brown and Black CINDERS/ASH and SAND/ GRAVEL FILL - Moist	1.7'
		Brown SAND and GRAVEL FILL, Little SILT and CLAY - Moist	3.5'
5		Brown and Black CINDERS/ASH and SAND/ GRAVEL FILL, Little SILT and CLAY - Moist (Considerable Ground-Water Seepage at 8 ft)	8.0'
	S-2	Black Tar Stained CINDERS/ASH and SAND/GRAVEL FILL - Saturated and Contaminated with Tar	9.3'
10		(Bottom of Test Pit)	
15			
20			

Notes:

1. Had to stop at 9.3 ft due to obstruction in side of pit.
2. Water elevation in adjoining tar separator was 10.3 ft below ground surface at Test Pit.
3. Mark Notich collected water sample at about 3:15 p.m.
4. Water in adjacent skimmer valve pit was 2.8 ft below ground surface at Test Pit.

"A" - Sample Location

Ground Water Measurements		
Date	Elapsed Hrs.	Depth
8-31	0	9'

TEST PIT LOG

hydro-terra, inc.

Project: Subsurface Contamination Survey - East Station, Washington Gas

Test Pit No. 14 Elevation 23.8 ft. Date August 30, 1983

Location Bottom of 13th Street, East of Buried Oil Lines and Near Perimeter Fence

Ft. A

0 — Ground Surface

Dark Gray to Brown CINDER and ASH FILL, Some SILTY CLAY, SAND, GRAVEL, and BUILDING DEBRIS - Moist to 11 ft, Saturated Below

5

10

(Bottom of Test Pit) 12.5'

15

20

Notes:

1. Considerable flow of water at 11 ft.
2. Oil or tar noted on surface of standing water.
3. Buried oil lines appeared to be at about 9 to 10 ft at west side of pit.
4. Lower fill had an oil smell.
5. Water probably coming from oil pipeline trench.
6. Water sample collected at about 3:30 p.m. by Mark Notich.

"A" - Sample Location

Ground Water Measurements		
Date	Elapsed Hrs.	Depth

TEST PIT LOG

hydro-terra, inc.

Project: Subsurface Contamination Survey - East Station, Washington Gas

Test Pit No. 15 Elevation 26.8 ft. Date August 30, 1983

Location Southeast of Tank No. 5 (Spent Oil & No. 2 Oil) and Southwest of Tank No. 7 (Bunker Oil), Near Fence

Ft. A

Ground Surface

0

Brown to Black CINDER and GRAVEL FILL - Moist — 1.3'

Tan to Brick Red SILTY CLAY FILL, Little CINDERS and BRICK FRAGMENTS - Moist — 2.5'

5

Gray CINDER FILL, Some BRICK FRAGMENTS - Moist — 7.7'

Mottled Gray, Tan and Brick Red SILTY CLAY - Moist

10

(Bottom of Test Pit) — 12.0'

Notes:

1. No ground-water seepage encountered.

15

2. No evidence of oil or tar.

20

"A" - Sample Location

Ground Water Measurements		
Date	Elapsed Hrs.	Depth

TEST PIT LOG

hydro-terra, inc.

Project: Subsurface Contamination Survey - East Station, Washington Gas

Test Pit No. 16 Elevation 28.3 ft. Date August 30, 1983

Location South of Storage Holder No. 4, Near Perimeter Fence

Ft.	A	
0		Ground Surface
		Brown to Tan GRAVEL, SAND, and BRICK FRAGMENTS FILL, Trace CINDERS - Moist — 4.0'
5		Brown SAND and GRAVEL, Trace SILT - Moist — 5.3'
		Mottled Gray, Brown and Brick Red SILTY CLAY - Moist, No Evidence of Contamination
10		(Bottom of Test Pit) 10.5'
15		Notes: 1. No ground-water seepage noted. 2. No evidence of oil or tar.
20		

"A" - Sample Location

Ground Water Measurements		
Date	Elapsed Hrs.	Depth

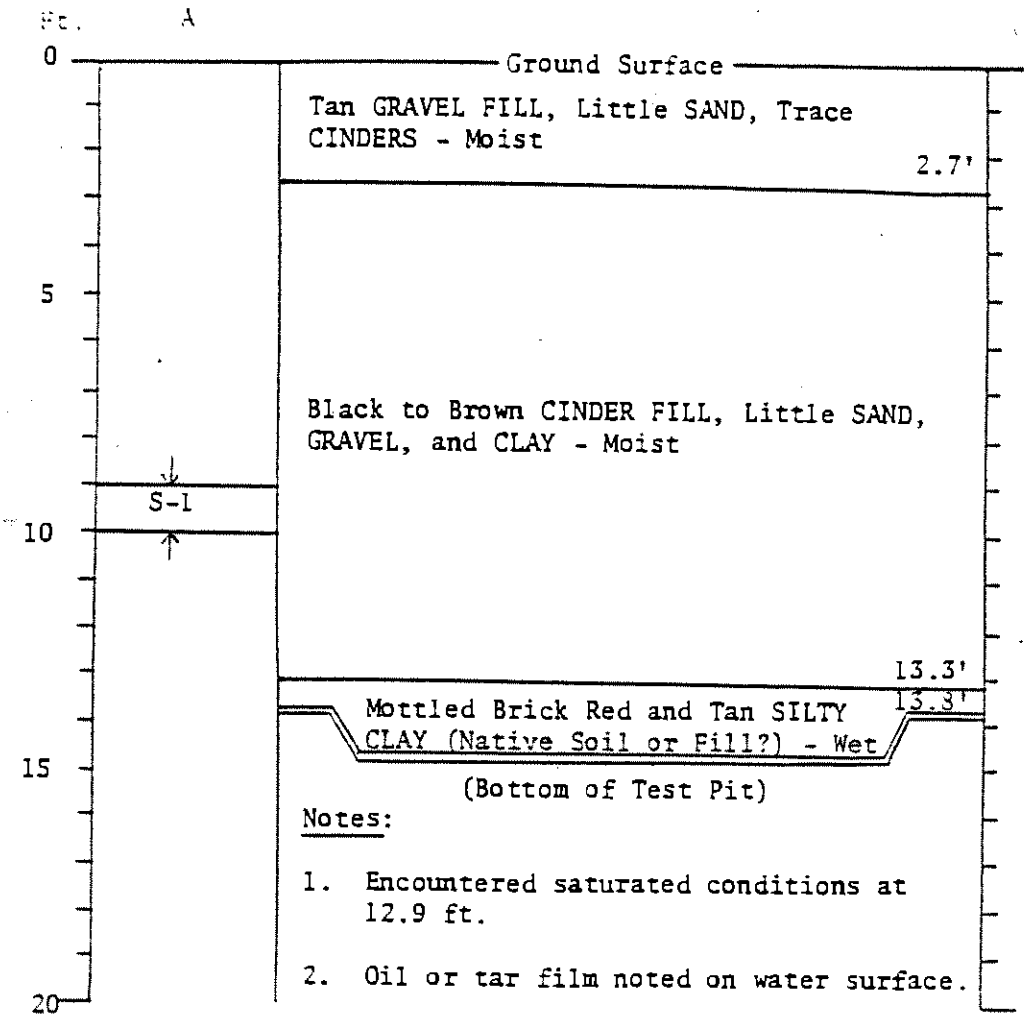
TEST PIT LOG

hydro-terra, inc.

Project: Subsurface Contamination Survey - East Station, Washington Gas

Test Pit No. 17 Elevation 25.2 ft. Date September 1, 1983

Location West of 12th Street along East Side of Lower Purifier Box



Notes:

1. Encountered saturated conditions at 12.9 ft.
2. Oil or tar film noted on water surface.
3. Water samples taken by Mark Notich and Versar at about 3:00 p.m.

"A" - Sample Location

Ground Water Measurements		
Date	Elapsed Hrs.	Depth

TEST PIT LOG

HYDRO-TERRA

Project: East Station Contaminant Investigation - Phase II
Test Pit No. 19 Elevation 15.0' Date June 14, 1988
Location: 10' West and 75' South of G-5

Ft.	A	
		Ground Surface
		Light Brown SILTY SAND FILL, Dry — 1.0'
2		Black CINDER and WOOD CHIP (Purifier Sponge?) FILL, Dry to Moist, Volatile Odor
		WOODEN TIMBERS — 3.0'
		Red CLAY FILL, Plastic — 4.0'
4		
6		Yellow and Brown SAND and GRAVEL FILL, Trace Cinders and Brick Fragments, Moist, Slight Volatile Odor
8		
10		10.0'
		Black CINDER FILL, Coarse, Wet, Very Loose, Volatile Odor, Small Amount of Visible Tar
12		Stopped at 11.5'
14		Notes:
16		1. Excavated by Washington Gas 2. Inspected and logged by Scott Sandberg
18		
20		

"A" - Sample Location

Ground Water Measurements		
Date	Elapsed Hrs.	Depth
6/14	0.5	11.0'

TEST PIT LOG

HYDRO-TERRA

Project: East Station Contaminant Investigation - Phase II
Test Pit No. 20 Elevation 8.0' Date June 7, 1988
Location: 15' West and 50' South of D-4

Ft.	A	Ground Surface
		Brown SILTY SAND and GRAVEL FILL with a layer of Cinders, Moist, No Evidence of Contamination 1.5'
2		Brick Red to Tan SILTY CLAY FILL, Moist, Well Compacted, No Evidence of Contamination
4		4.5'
6	S-1	Brown CLAY FILL, Trace Sand and Gravel, Moist, No Evidence of Contamination
8		9.5'
10	S-2	Dark Gray CINDER FILL, Wet, No Tar Odor
		Stopped at 10.5'
12		Notes:
14		1. Excavated by Washington Gas 2. Inspected and logged by Tom Mills 3. Artesian head of 1' encoutered 4. Occassional Volatile Odor from the pit
16		
18		
20		

"A" - Sample Location

Ground Water Measurements		
Date	Elapsed Hrs.	Depth
6/7	0	8.5'
6/7	0.5	7.5'

TEST PIT LOG

HYDRO-TERRA

Project: East Station Contaminant Investigation - Phase II
Test Pit No. 22 Elevation 25.5' Date July 11, 1988
Location: 45' East and 45' North of H-3

Ft.	A	
		Ground Surface
2		Brown CLAYEY SAND FIll, Trace Bricks, Pipes, Boulders and Cinders, Dry to Moist, Volatile Odor (HNU = 1-3 ppm)
4		4.5'
6		Red and Black CLAYEY SAND FILL, Some Cinders and Ash, a 1' Red Clay Layer, Volatile Odor (HNU = 8-18) 6.5'
8		
10		Gray and Black CINDER and ASH FILL, Some Brown Clayey Sand and Gray Organic Silt, Dense, Moist, Volatile Odor (HNU = 25-50)
12		Stopped at 11.5'
14		Notes:
16		1. Excavated by Washington Gas 2. Inspected and logged by Scott Sandberg
18		
20		

"A" - Sample Location

Ground Water Measurements		
Date	Elapsed Hrs.	Depth
7/11	0.5	Dry

TEST PIT LOG

HYDRO-TERRA

Project: East Station Contaminant Investigation - Phase II
Test Pit No. 23 Elevation 33.0' Date July 6, 1988
Location: 40' East and 20' North of J-8

Ft.	A	
		Ground Surface
		Yellow and Brown SAND and GRAVEL FILL, Moist, Loose, No Volatile Odor
2		
4		
		5.0'
6		Black and Brown SAND and GRAVEL FILL, Moist to Wet, Very Loose, Some Pockets saturated with Black Oil, Volatile Odor
8		
10		
		Stopped at 11.0'
12		
		Notes:
14		1. Depth limited due to caving 2. Excavated by Washington Gas 3. Inspected and logged by Scott Sandberg
16		
18		
20		

"A" - Sample Location

Ground Water Measurements		
Date	Elapsed Hrs.	Depth
7/6	0.5	Dry

TEST PIT LOG

HYDRO-TERRA

Project: East Station Contaminant Investigation - Phase II
Test Pit No. 24 Elevation 20.5' Date June 20, 1988
Location: 25' West and 50' North of H-6

Ft.	A	
		Ground Surface
		Light Brown SILTY SAND and GRAVEL FILL, Trace Brick Fragments, Dry 1.0'
2	S-1	Dark Brown and Black SAND and GRAVEL FILL, Some Cinders, Trace Brick Fragments, Moist, Loose, Coal Tar Odor, Broke a 2" tar line and tar ran out of it
4		
6		
		8.0'
	S-2	Black GRAVEL FILL, Wet, Loose, Visible Tar/Oil floating on the water in the hole
8		
		Stopped at 9.0'
10		
		Notes:
12		1. Encountered many pipes. Gravel most likely bedding material.
		2. Excavated by Washington Gas
14		3. Inspected and logged by Scott Sandberg
16		
18		
20		

"A" - Sample Location

Ground Water Measurements		
Date	Elapsed Hrs.	Depth
6/20	0.5	8.0'

TEST PIT LOG

HYDRO-TERRA

Project: East Station Contaminant Investigation - Phase II
Test Pit No. 25 Elevation 20.5' Date July 20, 1988
Location: 25' West and 37' North of H-6

Ft.	A	Ground Surface
2		BUILDING DEBRIS consisting of roofing plywood, bricks and pipes, No Volatile Odor
		3.5'
4		Stopped at 3.5'
6		
8		Notes: 1. Water filled the hole. No Evidence of contamination 2. Test pit located in the former location of a tar well
10		3. Excavated by Washington Gas 4. Inspected and logged by Scott Sandberg
12		
14		
16		
18		
20		

"A" - Sample Location

Ground Water Measurements		
Date	Elapsed Hrs.	Depth
6/20	0.5	3.5

TEST PIT LOG

HYDRO-TERRA

Project: East Station Contaminant Investigation - Phase II
Test Pit No. 26 Elevation 19.0' Date June 20, 1988
Location: 23' East and 60' South of H-5

Ft.	A	Ground Surface
2	S-2	Red and Black CLAY and CINDER FILL, Dense, Moist, Volatile Odor (HNU = 70 ppm)
4		4.0' Mottled Red and Gray CLAY, Stiff, No Evidence of Contamination
6		Stopped at 5.5'
8		
10		
12		
14		
16		
18		
20		

Notes:

1. Test pit is located next to a tar pit. When the brick wall of the tar pit was exposed it was leaking black water
2. Excavated by Washington Gas
3. Inspected and logged by Scott Sandberg

"A" - Sample Location

Ground Water Measurements		
Date	Elapsed Hrs.	Depth
6/20	0.5	Dry

TEST PIT LOG

HYDRO-TERRA

Project: East Station Contaminant Investigation - Phase II
Test Pit No. 27 Elevation 25.0' Date June 29, 1988
Location: 27' West and 68' South of I-8

Ft.	A	Ground Surface	
		Gray and Black SAND, GRAVEL and CINDER FILL, Dry, No Volatile Odor	1.0'
		Brown WOOD CHIP (Purifier Sponge?) FILL Fine, Dry, Slight Volatile Odor	2.0'
2			
		Dark Brown SOIL, SAND and GRAVEL FILL, Some Mottled Red and Yellow SILTY CLAY, Trace Brick Fragments, a 7' Tree Trunk, Dry to Moist, Slight Volatile Odor (HNU = 12.5 ppm)	
4			
6			
8			8.0'
		Black CINDER FILL, Coarse, Wet, Very Loose, Visible Oil, Fuel Oil Odor (HNU = 25)	9.0'
10		Gray and Black ORGANIC SILTY SAND, Soft, Volatile Odor (HNU = 21)	
12		Stopped at 12.0'	
14		Notes:	
16		1. Seepage of water into the hole from the black cinder unit 2. Excavated by Washington Gas 3. Inspected and logged by Scott Sandberg	
18			
20			

"A" - Sample Location

Ground Water Measurements		
Date	Elapsed Hrs.	Depth

TEST PIT LOG

HYDRO-TERRA

Project: East Station Contaminant Investigation - Phase II
Test Pit No. 28 Elevation 27.0' Date June 29, 1988
Location: 75' West and 10' South of I-8

Ft.	A	Ground Surface
		Gray SAND and GRAVEL FILL, Trace Cinder, Bricks and Hard Tar, Dry 1.0'
2		Yellow and Red CLAYEY SAND and GRAVEL FILL, Dense, No Volatile Odor 3.0'
4		Gray ORGANIC SILTY SAND, Some Gravel, Soft, Strong Odor of Oil (HNU = 45) 5.0'
6		Yellow and Red CLAY, Mottled, Very Plastic, No Evidence of Contamination
8		
10		Stopped at 10.0'
12		Notes:
		1. Excavated by Washington Gas
14		2. Inspected and logged by Scott Sandberg
16		
18		
20		

"A" - Sample Location

Ground Water Measurements		
Date	Elapsed Hrs.	Depth
6/29	0.5	Dry

TEST PIT LOG

HYDRO-TERRA

Project: East Station Contaminant Investigation - Phase II
Test Pit No. 29 Elevation 26.0' Date June 29, 1988
Location: 75' West and 30' South of I-8

Ft.	A	Ground Surface
2		Black and Brown CINDER FILL, Trace Brick Fragments and peices of solid Tar, Moist, Slight Volatile Odor
4		
		5.0'
6		Yellow and Red CLAYEY SAND and GRAVEL FILL, Moist, Dense 6.0'
8		Gray and Black ORGANIC SILTY SAND, Some Gravel, Wet, Soft, Strong Odor of Oil (HNU = 40), Visible Oil/Tar
		9.0'
10		Red and Yellow CLAY, Plastic
		Stopped at 9.5'
12		Notes:
14		1. Excavated by Washington Gas 2. Inspected and logged by Scott Sandberg
16		
18		
20		

"A" - Sample Location

Ground Water Measurements		
Date	Elapsed Hrs.	Depth
6/29	0.5	Dry

TEST PIT LOG

HYDRO-TERRA

Project: East Station Contaminant Investigation - Phase II
Test Pit No. 30 Elevation 22.5' Date June 29, 1988
Location: 55' South of K-6

Ft.	A	Ground Surface
		Light Brown SILTY SAND and GRAVEL FILL, Dry 1.0'
2		Dark Brown SAND and GRAVEL FILL, Some Cinders, Trace Organic Material, Slight Volatile Odor (HNU = 3ppm) 3.0'
4		Red CLAY, Plastic, Stiff, No Volatile Odor (HNU = 3 ppm)
6		Stopped at 6.0'
8		
10		Notes:
12		1. Started digging the pit at grid location K-6, Concrete at a depth of 1' forced the pit to be moved 55' south where the concrete dropped off
14		2. Excavated by Washington Gas
16		3. Inspected and logged by Scott Sandberg
18		
20		

"A" - Sample Location

Ground Water Measurements		
Date	Elapsed Hrs.	Depth
6/29	0.5	Dry

TEST PIT LOG

HYDRO-TERRA

Project: East Station Contaminant Investigation - Phase II
Test Pit No. 31 Elevation 24.0' Date June 29, 1988
Location: 60' West of K-6

Ft.	A	Ground Surface
		Light Brown SILTY SAND and GRAVEL FILL, Dry, No Volatile Odor 1.0'
2		Yellow and Dark Brown SAND and GRAVEL FILL, Dry, Loose, No Volatile Odor
4		Red CLAY, Plastic, Stiff, No Evidence of Contamination
		5.0'
		Stopped at 5.0'
6		
8		
10		Notes:
		1. Appears that clay surface has been excavated for pipes and building foundations
12		2. Backhoe couldn't go deeper due to pipe and concrete barriers
		3. Excavated by Washington Gas
		4. Inspected and logged by Scott Sandberg
14		
16		
18		
20		

"A" - Sample Location

Ground Water Measurements		
Date	Elapsed Hrs.	Depth
6/29	0.5	Dry

TEST PIT LOG

HYDRO-TERRA

Project: East Station Contaminant Investigation - Phase II
Test Pit No. 32 Elevation 20.0' Date July 1, 1988
Location: 10' West and 60' South of H-6

Ft.	A	
		Ground Surface
2		Black and Brown CINDER and SOIL FILL, Trace Pipes and Bricks, Moist, Loose, No Volatile Odor (HNU = 0)
4		
6		
		7.0'
8		Red and Yellow CLAY FILL, Trace Cinder, Some Black Staining, Slight Volatile Odor (HNU = 1-2 ppm)
10		Stopped at 9.0'
12		Notes: 1. Excavated by Washington Gas 2. Inspected and logged by Scott Sandberg
14		
16		
18		
20		

"A" - Sample Location

Ground Water Measurements		
Date	Elapsed Hrs.	Depth
7/1	0.5	Dry

TEST PIT LOG

HYDRO-TERRA

Project: East Station Contaminant Investigation - Phase II
Test Pit No. 33 Elevation 31.0' Date July 6, 1988
Location: 45' East and 65' South of J-8

Ft.	A	Ground Surface
2		Yellow and Brown SAND and GRAVEL FILL, Moist, Loose, Slight Volatile Odor (HNU = 0.5 ppm)
4		4.0'
6		Black SAND and GRAVEL FILL, Moist, Loose, Visble tar in the lower 2', Volatile Odor (HNU = 7-22 ppm)
8		
10	S-1	10.0'
	S-2	Yellow Plastic CLAY grading to Brick Red Hard CLAY, No Evidence of Contamination
12		Stopped at 11.0'
14		Notes:
16		1. Some seepage of water 2. Excavated by Washington Gas 3. Inspected and logged by Scott Sandberg
18		
20		

"A" - Sample Location

Ground Water Measurements		
Date	Elapsed Hrs.	Depth
7/6	0.5	Dry

TEST PIT LOG

HYDRO-TERRA

Project: East Station Contaminant Investigation - Phase II
Test Pit No. 34 Elevation 22.0' Date June 30, 1988
Location: 25' East and 85' South of J-4

Ft.	A	Ground Surface
		6" of Cement
2		Black SAND and GRAVEL FILL, Moist, Sticky, Extremely Volatile, (HNU = 60-140 ppm), Visible Tar coating the sand grains
4		
6		
8		
10		Stopped at 10.0'
12		Notes:
14		1. Monitored the air quality downwind of the pit at a height of 4'. HNU = 5-20 ppm 2. Excavated by Washington Gas 3. Inspected and logged by Scott Sandberg
16		
18		
20		

"A" - Sample Location

Ground Water Measurements		
Date	Elapsed Hrs.	Depth
7/6	0.5	Dry

TEST PIT LOG

HYDRO-TERRA

Project: East Station Contaminant Investigation - Phase II
Test Pit No. 35 Elevation 21.0' Date July 1. 1988
Location: 75' West and 15' North of I-5

Ft.	A	Ground Surface
2		Light to Dark Brown SILTY SAND FILL, Trace Bricks, Cobble and Cement, Dry to Wet, No Volatile Odor
4		5.0'
6		Black SAND and GRAVEL FILL, Trace Cobble, Wet, Very Loose, Visible Oil (HNU = 40), Strong Smell of Fuel Oil
8		
10		10.5'
12		Mottled Red and Yellow CLAY, Small amount obtained appears clean Stopped at 11.5'
14		Notes: 1. This appears to be the former location of a pit. This test pit was bordered on two sides by stone walls. Water filled the hole with oil floating on it.
16		2. Severe caving was encountered below 8'.
18		3. Excavated by Washington Gas 4. Inspected and logged by Scott Sandberg
20		

"A" - Sample Location

Ground Water Measurements		
Date	Elapsed Hrs.	Depth
7/1	0.5	8.0'

TEST PIT LOG

HYDRO-TERRA

Project: East Station Contaminant Investigation - Phase II
Test Pit No. 36 Elevation 18.5' Date June 30, 1988
Location: 42' East and 65' South of H-5

Ft.	A	
		Ground Surface
2	S-1	Black and Brown CINDER, SAND and GRAVEL FILL, Some Red Clay, Moist, Dense, Slight Volatile Odor, 3" seam of gray sand with visible fuel oil
4		
6		7.0'
8	S-2	Yellow, Brown and Red CLAY FILL, Stiff to Hard, Heterogeneous Texture, Visible Tar/Oil in the cracks and crevices of the clay (HNU = 20-45 ppm)
10		
		Stopped at 11.0'
12		
14		Notes:
		1. Excavated by Washington Gas
		2. Inspected and logged by Scott Sandberg
16		
18		
20		

"A" - Sample Location

Ground Water Measurements		
Date	Elapsed Hrs.	Depth
6/30	0.5	Dry

TEST PIT LOG

HYDRO-TERRA

Project: East Station Contaminant Investigation - Phase II
Test Pit No. 37 Elevation 22.0' Date June 30, 1988
Location: 90' North of I-5

Ft.	A	Ground Surface
		Light Brown SILTY SAND and GRAVEL FILL, Trace Brick Fragments, Dry 1.0'
2		Red CLAY FILL, Some Sand and Gravel, No Evidence of Contamination 2.0'
4		Red CLAY, Stiff, Homogeneous Texture, No Evidence of Contamination
6		Stopped at 5.0'
8		Notes: 1. Excavated by Washington Gas 2. Inspected and logged by Scott Sandberg
10		
12		
14		
16		
18		
20		

"A" - Sample Location

Ground Water Measurements		
Date	Elapsed Hrs.	Depth
6/30	0.5	Dry

TEST PIT LOG

HYDRO-TERRA

Project: East Station Contaminant Investigation - Phase II
Test Pit No. 38 Elevation 21.0' Date June 30, 1988
Location: 90' South of I-5

Ft.	A	Ground Surface
		Brown SAND and GRAVEL FILL, Trace Brick Fragments, Dry, (HNU = 2 ppm) 1.5'
2		Mottled Red, Yellow and White CLAY, Plastic, Homogeneous Texture, No Volatile Odor
4		
6		Stopped at 6.5'
8		Notes:
10		1. Excavated by Washington Gas 2. Inspected and logged by Scott Sandberg
12		
14		
16		
18		
20		

"A" - Sample Location

Ground Water Measurements		
Date	Elapsed Hrs.	Depth
6/30	0.5	Dry

TEST PIT LOG

HYDRO-TERRA

Project: East Station Contaminant Investigation - Phase II
Test Pit No. 39 Elevation 23.0' Date June 30, 1988
Location: 15' West and 25' South of J-6

Ft.	A	Ground Surface
2		Black and Gray SAND and GRAVEL FILL, Some Red Clay, Trace steel plates, concrete, pipes, bricks and asphalt, Volatile Odor (HNU = 8), Visible Tar in the bottom 2"
4		4.0'
6		Mottled Red, White and Yellow CLAY, Homogeneous Texture, Plastic, No Evidence of Contamination 6.0'
		Stopped at 6.0'
8		Notes:
10		1. The 2" tarry layer was thick and sat right above the clay 2. Excavated by Washington Gas 3. Inspected and logged by Scott Sandberg
12		
14		
16		
18		
20		

"A" - Sample Location

Ground Water Measurements		
Date	Elapsed Hrs.	Depth
6/30	0.5	Dry

TEST PIT LOG

HYDRO-TERRA

Project: East Station Contaminant Investigation - Phase II
Test Pit No. 40 Elevation 34.0' Date July 6, 1988
Location: 50' East and 60' South of K-8

Ft.	A	Ground Surface
		Surface Gravel
2		
4		Yellow and Brown SAND and GRAVEL FILL, Trace Cinders, Clay, and Brick Fragments, Moist to Wet, Very Loose, Trace Blue Staining, No Volatile Odor (HNU = 0)
6	S-1	
8		
10		
12		12.0' Red Clay, Plastic, No Evidence of Contamination
14		Stopped at 12.5'
16		Notes: 1. Exact depth was difficult to find because of caving 2. Excavated by Washington Gas 3. Inspected and logged by Scott Sandberg
18		
20		

"A" - Sample Location

Ground Water Measurements		
Date	Elapsed Hrs.	Depth
7/6	0.5	Dry

TEST PIT LOG

HYDRO-TERRA

'roject: East Station Contaminant Investigation - Phase II
'est Pit No. 41 Elevation 31.0' Date July 6, 1988
.ocation: 75' West and 80' South of J-8

't.	A	Ground Surface
		Black CINDERS and COKE, Fine, Dry to Moist, Volatile Odor (HNU = 70 ppm) 2.0'
2		
4		Mottled Red and Yellow CLAY FILL, Some Cinders, Very Plastic, Hetergeneous Texture, Black and Blue Staining, No visible Tar/Oil, Volatile Odor (HNU = 4-8 ppm)
6		
8	S-1	9.0'
10		Red CLAY, Stiff, Homogeneous Texture, No Evidence of Contamination
		Stopped at 10.0'
12		
14		Notes: 1. Some seepage of water into the hole 2. Excavated by Washington Gas 3. Inspected and logged by Scott Sandberg
16		
18		
20		

"A" - Sample Location

Ground Water Measurements		
Date	Elapsed Hrs.	Depth

TEST PIT LOG

HYDRO-TERRA

Project: East Station Contaminant Investigation - Phase II
Test Pit No. 42 Elevation 21.0' Date July 6, 1988
Location: 5' East and 7' South of I-7

Ft.	A	Ground Surface	
		Light Brown SILTY SAND and GRAVEL FILL, Some Cement, Dry	1.0'
2		Brown and Black SAND and GRAVEL FILL, Trace Cobble, Volatile Odor (HNU = 15)	2.0'
		White and Gray ASH FILL, Moist, Volatile Odor (HNU = 22)	2.5'
4		Mottled Red and Yellow CLAY, Plastic, Homogeneous Texture, No Evidence of Contamination	
		Stopped at 4.5'	
6			
		Notes:	
8		1. Excavated by Washington Gas 2. Inspected and logged by Scott Sandberg	
10			
12			
14			
16			
18			
20			

"A" - Sample Location

Ground Water Measurements		
Date	Elapsed Hrs.	Depth
7/6	0.5	Dry

TEST PIT LOG

HYDRO-TERRA

Project: East Station Contaminant Investigation - Phase II
Test Pit No. 43 Elevation 24.0' Date July 7. 1988
Location: 5' South and 5' West of J-7

Ft.	A	
		Ground Surface
		Light Brown SILTY SAND and GRAVEL FILL, Wet, No Volatile Odor (HNU = 0 ppm) 1.5'
2		Black CINDER FILL, Fine, Moist, No Volatile Odor (HNU = 0 ppm) 1.8'
		Yellow-Brown SAND and GRAVEL FILL, Slight Volatile Odor (HNU = 3ppm) 2.5'
4		Mottled Red and White CLAY, Plastic, Homogeneous Texture, No Evidence of Contamination
		Stopped at 4.5'
6		
8		Notes:
		1. Excavated by Washington Gas
		2. Inspected and logged by Scott Sandberg
10		
12		
14		
16		
18		
20		

"A" - Sample Location

Ground Water Measurements		
Date	Elapsed Hrs.	Depth
7/7	0.5	Dry

TEST PIT LOG

HYDRO-TERRA

Project: East Station Contaminant Investigation - Phase II
Test Pit No. 44 Elevation 22.0' Date July 7, 1988
Location: 50' East and 80' South of J-6

Ft.	A	Ground Surface	
		Light Brown SILTY SAND and GRAVEL FILL, Trace Brick Fragments and Cement, Dry, No Volatile Odor	1.5'
2	S-1	Red-Brown SILTY SAND and GRAVEL FILL, Trace Brick Fines, Strong Volatile Odor (HNU = 100 ppm)	2.5'
		Yellow-Brown SAND and GRAVEL FILL	3.0'
4		Black CINDERS, Moist, Volatile Odor (HNU = 45 ppm)	3.5'
		Mottled Red and Gray CLAY, Moist, Stiff, Homogeneous Texture, No Evidence of Contamination	
6		Stopped at 5.5'	
8			
10			
12			
14			
16			
18			
20			

Notes:

1. Excavated by Washington Gas
2. Inspected and logged by Scott Sandberg

"A" - Sample Location

Ground Water Measurements		
Date	Elapsed Hrs.	Depth
7/7	0.5	Dry

TEST PIT LOG

HYDRO-TERRA

Project: East Station Contaminant Investigation - Phase II
Test Pit No. 45 Elevation 34.0' Date July 7, 1988
Location: 67' East and 60' South of K-7

Ft.	A	Ground Surface	
		Gray and Black SAND and GRAVEL FILL, Trace Brick Fragments and Coke, Dry, Slight Volatile Odor (HNU = 7 ppm)	0.9'
2		Red CLAY FILL, Trace Cinder (HNU = 3 ppm)	1.5'
4		Black COKE BREEZE FILL, Trace Coarse Coke, Dry, Loose, Volatile Odor (HNU = 4 ppm)	2.4'
6		Red, Yellow and Gray CLAY FILL, Little Cinders, Mottled Texture and Color, No Volatile Odor (HNU = 0 ppm)	
8	S-1		
		Stopped at 9.0'	
10			
12		Notes: 1. Excavated by Washington Gas 2. Inspected and logged by Scott Sandberg	
14			
16			
18			
20			

"A" - Sample Location

Ground Water Measurements		
Date	Elapsed Hrs.	Depth
7/7	0.5	Dry

TEST PIT LOG

HYDRO-TERRA

Project: East Station Contaminant Investigation - Phase II
Test Pit No. 46 Elevation 9.0' Date July 7, 1988
Location: 35' West and 25' South of D-4

Ft.	A	Ground Surface	
		Grey and Brown SAND and GRAVEL FILL, Some Silt, Dry, Loose, No Volatile Odor	1.5'
2		Gray and Black ASH and CINDER FILL, Some Sand and Gravel, No Volatile Odor (HNU = 0 ppm)	3.0'
4		Yellow and Brown CLAYEY SILT FILL, Trace Gravel and Cobble, Moist, Stiff, No Volatile Odor (HNU = 0 ppm)	7.0'
8		Dark Brown WOOD CHIP FILL (Purifier Sponge?), Moist, Volatile Odor (HNU = 13 ppm)	8.5'
10		Black CINDER and SHALE FILL, Wet, Coarse, Very Loose, Visible Oil, Smells like oil (HNU = 13 ppm)	
12		Stopped at 10.5'	
14		Notes:	
16		1. Water filled the hole. Visible floating oil 2. Stopped due to caving 3. Excavated by Washington Gas 4. Inspected and logged by Scott Sandberg	
18			
20			

"A" - Sample Location

Ground Water Measurements		
Date	Elapsed Hrs.	Depth
7/7	0.5	9.0'

TEST PIT LOG

HYDRO-TERRA

Project: East Station Contaminant Investigation - Phase II
Test Pit No. 47 Elevation 10.0' Date July 7, 1988
Location: 57' North of C-3

Ft.	A	Ground Surface
2		Yellow and Brown SILTY SAND FILL, Trace Cement, Brick Fragments, Steel, Pipe and Cinders, Dry to Moist, Loose, No Volatile Odor (HNU = 0 ppm)
4		
6		7.0'
8		Light and Dark Gray ORGANIC SILT and SAND, Trace Organic Material, Moist to Wet, Soft, No Volatile Odor (HNU = 0 ppm)
10		Stopped at 10.0'
12		Notes:
14		1. Stopped due to severe caving 2. No seepage was seen 3. Excavated by Washington Gas 4. Inspected and logged by Scott Sandberg
16		
18		
20		

"A" - Sample Location

Ground Water Measurements		
Date	Elapsed Hrs.	Depth
7/7	0.5	Dry

TEST PIT LOG

HYDRO-TERRA

Project: East Station Contaminant Investigation - Phase II
Test Pit No. 48 Elevation 20.0' Date July 11, 1988
Location: 85' West and 25' South of H-7

Ft.	A	
		Ground Surface
2		Black and Gray SAND and GRAVEL FILL, Trace Cinder, Brick Fragments and Wood, Moist, Loose, Slight Volatile Odor (HNU = 1-2 ppm)
		4.0'
4		Black and Gray SAND FILL, Moist, Loose, Volatile Odor (HNU = 5-10 ppm)
6		
		7.5'
8	S-1	Yellow, Red and Brown CLAY FILL, Moist, Mottled color and texture, Tar/Oil present in the void and cracks, (HNU = 12 ppm)
10		
12		Stopped at 11.5'
14		Notes:
16		1. Excavated by Washington Gas 2. Inspected and logged by Scott Sandberg
18		
20		

"A" - Sample Location

Ground Water Measurements		
Date	Elapsed Hrs.	Depth
7/11	0.5	Dry

TEST PIT LOG

HYDRO-TERRA

Project: East Station Contaminant Investigation - Phase II
Test Pit No. 49 Elevation 21.0' Date July 11, 1988
Location: 7' East and 10' South of I-4

Ft.	A	Ground Surface
		Layers of ASPHALT, BRICK and CONCRETE 1.5'
2		
4		Brown, Gray and Black SAND and GRAVEL FILL, Little Cobble, Moist, Loose, Volatile Odor (HNU = 4-20 ppm), Black Staining
6		
8		8.0'
		Black SAND and GRAVEL FILL, Wet, Loose, Visible Tar, Strong Volatile Odor (HNU = 50-70 ppm)
10		Stopped at 10.0'
12		Notes:
14		1. Couldn't go any deeper due to caving 2. Excavated by Washington Gas 3. Inspected and logged by Scott Sandberg
16		
18		
20		

"A" - Sample Location

Ground Water Measurements		
Date	Elapsed Hrs.	Depth
7/11	0.5	Dry

TEST PIT LOG

HYDRO-TERRA

Project: East Station Contaminant Investigation - Phase II
Test Pit No. 50 Elevation 20.0' Date July 12, 1988
Location: 25' East and 3' South of H-4

Ft.	A	Ground Surface
		Black and Brown CINDER, SAND and GRAVEL FILL, Moist, Loose, Volatile Odor (HNU = 1-3 ppm) 2.0'
2		
		Black SAND and GRAVEL FILL, Moist to Wet, Very Loose, Strong Volatile Odor (sulfurous) (HNU = 15-20 ppm), Large peices of wooden 4x4
4		
6		
		8.0'
8		Black SAND and GRAVEL FILL, Wet, Very Loose, Visible Oil/Tar floating on the water
10		Stopped at 9.0'
		Notes:
12		1. Test pit was positioned to locate the sewer pipe going to the street to determine if it may be acting as a conduit to the storm sewer. Sewer was not located.
14		2. Excavated by Washington Gas
		3. Inspected and logged by Scott Sandberg
16		
18		
20		

"A" - Sample Location

Ground Water Measurements		
Date	Elapsed Hrs.	Depth
7/12	0.5	8.0'

TEST PIT LOG

HYDRO-TERRA

roject: East Station Contaminant Investigation - Phase II
est Pit No. 51 Elevation 7.0' Date July 12, 1988
ocation: 45' West and 75' South of D-4

t.	A	Ground Surface
2	S-1	Red CLAY FILL, Some Sand and Gravel, Brick Fragments, Cinders and Wood Chips (Purifier Sponge?), Moist, Volatile Odor (HNU = 5-7 ppm) 2.5'
4		Yellow-Brown SILTY CLAY FILL, Trace Sand, Gravel and Cinders, Moist, No Volatile Odor (HNU = 0) 6.0'
6	S-2	Black CINDER FILL, Wet, Visible Oil/Tar Pinches out just before the sewer 7.0'
8		Gray ORGANIC SILT, Trace Wood Fragments Plastic, No Evidence of Contamination
10		Stopped at 9.0'
12		Notes:
14		1. The area around the sewer looks free of contamination (ie. No Black staining) 2. Some seepage into the hole from the black gravel unit containing oil material
16		3. Excavated by Washington Gas 4. Inspected and logged by Scott Sandberg
18		
20		

"A" - Sample Location

Ground Water Measurements		
Date	Elapsed Hrs.	Depth

TEST PIT LOG

HYDRO-TERRA

Project: East Station Contaminant Investigation - Phase II
Test Pit No. 52 Elevation 11.0' Date July 12, 1988
Location: 70' West and 20' North of D-4

Ft.	A	Ground Surface
2		Yellow-Brown SAND and GRAVEL FILL, Moist to Wet, Very Loose, No Evidence of Contamination
4		
		Stopped at 5.0'
6		
8		
10		Notes: 1. Could not go any deeper due to severe caving. 2. Excavated by Washington Gas 3. Inspected and logged by Scott Sandberg
12		
14		
16		
18		
20		

"A" - Sample Location

Ground Water Measurements		
Date	Elapsed Hrs.	Depth
7/12	0.5	Dry

TEST PIT LOG

HYDRO-TERRA

Project: East Station Contaminant Investigation - Phase II
Test Pit No. 53 Elevation 21.5' Date July 12, 1988
Location: 40' West and 65' North of I-5

Ft.	A	Ground Surface	
		CEMENT	0.5'
		Black SAND and GRAVEL FILL, Some Cinders and Bricks, Moist, Moderate Volatile Odor (HNU = 3-8 ppm), No Visible Tar/Oil	2.5'
		Yellow-Brown SAND and GRAVEL FILL, Moist, Very Loose, No Volatile Odor (HNU = 1-2 ppm)	
			8.0'
		Red CLAY (FILL?), Trace Gravel, Moist, Very Plastic, No Volatile Odor	
		Stopped at 8.5'	

Notes:

1. Could not go any deeper due to severe caving
2. Excavated by Washington Gas
3. Inspected and logged by Scott Sandberg

"A" - Sample Location

Ground Water Measurements		
Date	Elapsed Hrs.	Depth
7/12	0.5	Dry

TEST PIT LOG

HYDRO-TERRA

Project: East Station Contaminant Investigation - Phase II
Test Pit No. 54 Elevation 17.5' Date July 13, 1988
Location: 45' West and 30' North of G-5

Ft.	A	Ground Surface
2		Yellow-Brown SILTY SAND and GRAVEL FILL, Trace Brick Fragments and Cement, Dry, Hard, No Volatile Odor (HNU = 0 ppm)
		4.0'
4		Black and Gray CINDER and ASH FILL, Some Gravel, Trace Cement, Moist to Wet, No visible tar/oil, Moderate Volatile Odor (HNU = 3-5 ppm)
6		
8		
		10.0'
10		Red and Gray CLAY FILL, Little Gravel, Moist, No Evidence of Contamintaion (HNU = 0 ppm)
12		Stopped at 11.0'
14		Notes:
		1. Excavated by Washington Gas
16		2. Inspected and logged by Scott Sandberg
18		
20		

"A" - Sample Location

Ground Water Measurements		
Date	Elapsed Hrs.	Depth

TEST PIT LOG

HYDRO-TERRA

Project: East Station Contaminant Investigation - Phase II
Test Pit No. 55 Elevation 21.0' Date July 15, 1988
Location: 42' West and 25' North of H-5

Ft.	A	Ground Surface
		Light Brown SILTY SAND and GRAVEL FILL, Trace Brick Fragments, Dry 1.0'
2		Black SAND and GRAVEL FILL, Trace Wood Fragments, Moist, Loose, Strong Volatile Odor, Often a tarry sticky consistency
4	S-1	
		Stopped at 5.0'
6		
		Notes:
8		1. Moved four times due to concrete obstructions. Were never able to get deeper than 5'.
		2. Excavated by Washington Gas
10		3. Inspected and logged by Scott Sandberg
12		
14		
16		
18		
20		

"A" - Sample Location

Ground Water Measurements		
Date	Elapsed Hrs.	Depth
7/13	0.5	Dry

TEST PIT LOG

HYDRO-TERRA

Project: East Station Contaminant Investigation - Phase II
Test Pit No. 56 Elevation 21.0' Date July 13, 1988
Location: 40' West and 80' North of H-5

Ft.	A	Ground Surface
		Light Brown SILTY SAND and GRAVEL FILL, Some Brick Fragments, Dry 1.0'
2		Black and Red CLAYEY SAND FILL, Trace Bricks, Concrete, Wood and Gravel, Moist, Medium Plasticity, Strong Volatile Odors, Visible Tar in a 6" Sand Layer, Some Blue and Black Staining
4	S-1	
6		6.5'
		Yellow, Red and Gray CLAY, Moist, Stiff, Medium Plasticity, No Evidence of Contamination
8		Stopped at 8.0'
10		Notes:
12		1. Excavated by Washington Gas 2. Inspected and logged by Scott Sandberg
14		
16		
18		
20		

"A" - Sample Location

Ground Water Measurements		
Date	Elapsed Hrs.	Depth
7/13	0.5	Dry

TEST PIT LOG

HYDRO-TERRA

Project: East Station Contaminant Investigation - Phase II
Test Pit No. 57 Elevation 15.0' Date July 13, 1988
Location: 25' East and 7' South of F-4

Ft.	A	Ground Surface
		Yellow-Brown SAND and GRAVEL FILL, Dry, Dense, No Volatile Odor (2.0')
		Black-Brown SAND and GRAVEL FILL, Some Cinders and Wood Chips (Purifier Sponge?), Volatiles coming off the wood chips (5.0')
		Varying layers of Yellow, Gray and Red SILTY CLAY, Moist, Medium Stiff, Volatile Odor and Black-Grey SAND, Trace Gravel, Moist, Sticky, Strong Volatile Odor, Visible Tar
		Stopped at 11.0'

Notes:

1. The wood chip material had a strong odor and was very dense, 6" to 1' of material
2. No seepage
3. Excavated by Washington Gas
4. Inspected and logged by Scott Sandberg

"A" - Sample Location

Ground Water Measurements		
Date	Elapsed Hrs.	Depth
7/13	0.5	Dry

TEST PIT LOG

HYDRO-TERRA

Project: East Station Contaminant Investigation - Phase II
Test Pit No. 58 Elevation 24.5' Date July 13, 1988
Location: 5' East of J-4

Ft.	A	Ground Surface
2		Varying layers of Yellow SAND and GRAVEL FILL with Brown SAND and GRAVEL FILL, Some Silt, Trace Brick Fragments and Cinders, Moist, Loose, No Volatile Odor
4		
6		
8		Stopped at 8.5'
10		Notes:
12		1. A large abandoned gas main lay to one side of the test pit.
		2. Excavated by Washington Gas
		3. Inspected and logged by Scott Sandberg
14		
16		
18		
20		

"A" - Sample Location

Ground Water Measurements		
Date	Elapsed Hrs.	Depth
7/13	0.5	Dry

TEST PIT LOG

HYDRO-TERRA

Project: East Station Contaminant Investigation - Phase II
Test Pit No. 59 Elevation 7.0' Date July 14, 1988
Location: 15' West and 35' South of F-7

Ft.	A	Ground Surface
		Yellow SAND and GRAVEL FILL, Dry, Loose, No Volatile Odor 1.0'
2		Brown SAND and GRAVEL FILL, Trace Brick and Cinder Fines, Slight Volatile Odor 4.0'
4		Black SAND and GRAVEL FILL, Wet, Very Loose, No Visible Tar/Oil
		Stopped at 6.0'
6		
8		Notes:
		1. Stopped because water filled the hole
10		2. Excavated by Washington Gas
		3. Inspected and logged by Scott Sandberg
12		
14		
16		
18		
20		

"A" - Sample Location

Ground Water Measurements		
Date	Elapsed Hrs.	Depth
7/14	0.5	4.5'

TEST PIT LOG

HYDRO-TERRA

Project: East Station Contaminant Investigation - Phase II
Test Pit No. 60 Elevation 4.0' Date July 14, 1988
Location: 105' East and 20' North of G-8

Ft.	A	Ground Surface
2		Yellow-Brown CLAYEY SAND and GRAVEL FILL, Trace Bricks, Cobble, and Organic Silt, Dry, Hard, Organic Silt unit at 4' was very volatile (HNU = 150-180 ppm)
4		
		5.0'
6		Black CINDERS and SHALE, Wet, Very Loose, Visible Oil/Tar, Oil Smell
		Stopped at 6.0'
8		Notes:
		1. Water rose in the hole 1-2' when we broke into the cinder unit
10		2. There was floating oil/tar on the water in the hole
		3. Excavated by Washington Gas
		4. Inspected and logged by Scott Sandberg
12		
14		
16		
18		
20		

"A" - Sample Location

Ground Water Measurements		
Date	Elapsed Hrs.	Depth
7/14	0.5	3.5

TEST PIT LOG

HYDRO-TERRA

Project: East Station Contaminant Investigation - Phase II
Test Pit No. 61 Elevation 10.5' Date July 20, 1988
Location: 40' West and 82' South of G-7

Ft.	A	Ground Surface
		Light Brown SILTY SAND FILL, Some Gravel, Trace Cobble, Brick Fragments and Roots, 6" of wood chips (Purifier Sponge?) 2.0'
2		Mottled Pink, Yellow and Gray CLAY FILL, Trace Cinder, Very Plastic, No Volatile Odor (HNU=0) 3.5'
4		
6		Gray and Black SAND and GRAVEL FILL, Some Cinders, Moist to Wet, Very Loose, Visible Oil/Tar, Smells of Fuel Oil (HNU=9-35)
8		
10	S-1	
		Stopped at 11.0'
12		
14		Notes:
16		1. Downhole HNU reading at 4.0' was 40 ppm 2. The water in the hole had floating oil on it 3. Stopped due to caving 4. Excavated by Washington Gas 5. Inspected and logged by Scott Sandberg
18		
20		

"A" - Sample Location

Ground Water Measurements		
Date	Elapsed Hrs.	Depth
7/20	0.5	10.0

TEST PIT LOG

HYDRO-TERRA

Project: East Station Contaminant Investigation - Phase II
Test Pit No. 62 Elevation 22.0' Date July 15, 1988
Location: 5.0' East and 65' North of I-4

Ft.	A	Ground Surface
		8" of Asphalt and Bricks
2	S-1	Gray-Brown SILTY SAND and GRAVEL FILL, Trace Bricks, Moist, Loose, Slight Volatile Odor
4		
6		Stopped at 6.0'
8		Notes:
10		1. Ambient air in the pit was sampled for volatiles at a depth of 3.0'
		2. Excavated by Washington Gas
		3. Inspected and logged by Scott Sandberg
12		4. HNU readings: 3 ppm (over excavated soil), 1.3 ppm within trench immediately after excavation, 0.5 ppm within trench after 2 hours
14		
16		
18		
20		

"A" - Sample Location

Ground Water Measurements		
Date	Elapsed Hrs.	Depth
7/15	6.0	Dry

TEST PIT LOG

HYDRO-TERRA

Project: East Station Contaminant Investigation - Phase II
Test Pit No. 63 Elevation 18.0' Date July 15, 1988
Location: 20' East and 12' South of G-4

Ft.	A	Ground Surface
2	S-1	Mottled Brown and Gray SILTY CLAY FILL, Trace Brick Fragments, Gravel and Cinders, Dry to Moist, Dense
4		
6		Stopped at 6.0'
8		
10		Notes:
12		1. Ambient air in the pit was sampled for volatiles at a depth of 3.0'
		2. Excavated by Washington Gas
		3. Inspected and logged by Scott Sandberg
14		4. HNU readings: 1.2 ppm (over excavated soil), 3.0 - 4.0 ppm within test pit after excavation
16		
18		
20		

"A" - Sample Location

Ground Water Measurements		
Date	Elapsed Hrs.	Depth
7/15	6.0	Dry

TEST PIT LOG

HYDRO-TERRA

Project: East Station Contaminant Investigation - Phase II
Test Pit No. 64 Elevation 17.0' Date July 15, 1988
Location: 78' West and 17' South of G-5

Ft.	A	Ground Surface
		Light Brown SILT, Some Sand and Gravel, Dry 1.5'
2		
	S-1	Black CINDER and SAND FILL, Some Brick Fragments and Cement, Moist to Dry
4		
6		Stopped at 6.0'
8		
10		Notes: 1. Ambient air in the pit was sampled for volatiles at a depth of 3.0' 2. Excavated by Washington Gas 3. Inspected and logged by Scott Sandberg 4. HNU readings: 1.5 - 2.5 ppm (over exvavated soil), 2.0 ppm within test pit after excavation
12		
14		
16		
18		
20		

"A" - Sample Location

Ground Water Measurements		
Date	Elapsed Hrs.	Depth
7/15	6.0	Dry

TEST PIT LOG

HYDRO-TERRA

Project: East Station Contaminant Investigation - Phase II
Test Pit No. 65 Elevation 19.0' Date July 20, 1988
Location: 45' West and 42' South of I-9

Ft.	A	Ground Surface	
		Brown SANDY LOAM, Trace Roots	0.5'
2		Black and Gray ASH and CINDER FILL, Dry, Very Loose, No Volatile Odor	2.5'
	S-1	Yellow SAND and GRAVEL FILL, Moist, Slight "Lemon" Smell	3.5'
4		Black and Gray SAND and GRAVEL FILL, Some Organic Silt, Moist, Visible Oil/Tar (HNU=25), Smells similar to Fuel Oil	5.5'
6	S-2	Mottled Red and Yellow CLAY, Stiff, Tight, No Evidence of Contamination	
8		Stopped at 7.0'	
10			
12			
14			
16			
18			
20			

Notes:

1. No Seepage
2. Excavated by Washington Gas
3. Inspected and logged by Scott Sandberg

"A" - Sample Location

Ground Water Measurements		
Date	Elapsed Hrs.	Depth
7/20	0.5	Dry

TEST PIT LOG

HYDRO-TERRA

Project: East Station Contaminant Investigation - Phase II
Test Pit No. 66 Elevation 20.5' Date July 20, 1988
Location: 45' East and 10' South of H-7

Ft.	A	Ground Surface	
2		Layered Black and Gray ASH and CINDER FILL, Dry, Very Loose, No Volatile Odor (NHU=0)	
			4.0'
4		BRICK FRAGMENTS	4.5'
6		Black and Gray ASH and CINDER FILL, Some Brick Fines and Sand, Dry, Very Loose, No Volatile Odor	
8			
		Stopped at 9.0'	
10			
12		Notes:	
		1. Stopped due to caving.	
		2. Excavated by Washington Gas	
14		3. Inspected and logged by Scott Sandberg	
16			
18			
20			

"A" - Sample Location

Ground Water Measurements		
Date	Elapsed Hrs.	Depth
7/20	0.5	Dry

TEST PIT LOG

HYDRO-TERRA

Project: East Station Contaminant Investigation - Phase II
Test Pit No. 67 Elevation 21.0' Date July 20, 1988
Location: 6' East of I-4

Ft.	A	Ground Surface
		6" of Asphalt
2		Gray-Brown grading to Shiny Black SILTY SAND, Moist to Wet, Soft, Slight Volatile odor at 5-6' (HNU=2ppm),
4		
6	S-1	Stopped at 6.0'
8		Notes:
10		1. This test pit was located to investigate the contents of an old brick unknown pit. Looks like this was a former Valve Box. No concentration of tar/oil was found. Pit Dimensions 3' X 4.5'
12		2. We were not able to locate the bottom because of a pipe obstruction.
		3. Excavated by Washington Gas
14		4. Inspected and logged by Scott Sandberg
16		
18		
20		

"A" - Sample Location

Ground Water Measurements		
Date	Elapsed Hrs.	Depth
7/20	0.5	Dry

TEST PIT LOG

HYDRO-TERRA

Project: East Station Contaminant Investigation - Phase II
Test Pit No. 68 Elevation 8.0' Date July 21, 1988
Location: 45' East and 50' South of G-7

Ft.	A	Ground Surface
		Layered Black and Brown SAND, GRAVEL and CINDER FILL, Moist, Loose, No Volatile Odor 1.0'
2	S-1	
4		Black and Gray ASH and CINDER FILL, Some Sand and Gravel, Trace Concrete and Steel, Dry to Wet, Very Loose, Dry Material HNu=2ppm, Wet Material HNu=10ppm
6		
8		
10		Stopped at 9.0'
12		Notes:
14		1. The water which filled the hole had floating oil/tar on the surface 2. The water in the hole had the same sulfurous smell as the treatment trench
16		3. Excavated by Washington Gas 4. Inspected and logged by Scott Sandberg
18		
20		

"A" - Sample Location

Ground Water Measurements		
Date	Elapsed Hrs.	Depth
7/21	0.5	7

TEST PIT LOG

HYDRO-TERRA

Project: East Station Contaminant Investigation - Phase II
Test Pit No. 69 Elevation 8.5' Date July 21, 1988
Location: 60' East and 45' South of J-10

Ft.	A	Ground Surface	
		Brown SILTY SAND and GRAVEL FILL	0.5'
2		Black and Gray ASH and CINDER FILL, Some Coke, Dry, Very Loose, Very Coarse, Slight Volatile Odor	
4			
6	S-1		7.0'
		Gray ORGANIC SILT, Soft, No Volatiles	8.0'
8		Red CLAY, Stiff, Medium Plasicity	9.5'
10		Yellow SILTY SAND and GRAVEL, Wet Stopped at 10.0'	
12		Notes:	
14		1. Lower depths are approximate due to severe caving. 2. Excavated by Washington Gas 3. Inspected and logged by Scott Sandberg	
16			
18			
20			

"A" - Sample Location

Ground Water Measurements		
Date	Elapsed Hrs.	Depth
7/21	0.5	7.0'

TEST PIT LOG

HYDRO-TERRA

Project: East Station Contaminant Investigation - Phase II
Test Pit No. 70 Elevation 17.0 Date August 1, 1988
Location: 62' East and 34' North of G-5

Ft.	A	Ground Surface	
		Brown SILTY SAND and GRAVEL FILL, Some Brick Fragments, Dry, No Odor	0.5'
2	S-1	Green-Gray SILTY SAND FILL, Trace of White Stringy Material	0.8'
		Dark Brown SAND and GRAVEL FILL, Some Brick Fragments and Cinders, Trace of White Powder Material, Moist	2.0'
4		Yellow SILTY SAND and GRAVEL FILL, Some Red Clay, Moist	3.5'
		Hit Concrete at 3.5'	
6			
8		Notes: 1. Excavated by Washington Gas 2. Inspected and logged by Scott Sandberg	
10			
12			
14			
16			
18			
20			

"A" - Sample Location

Ground Water Measurements		
Date	Elapsed Hrs.	Depth
8/1	0.5	Dry

TEST PIT LOG

HYDRO-TERRA

Project: East Station Contaminant Investigation - Phase II
Test Pit No. 71 Elevation 20.5' Date August 1, 1988
Location: 23' West and 33' South of H-7

Ft.	A	Ground Surface
		6" of Asphalt
2	S-1	Black and Yellow SAND and GRAVEL FILL, Black Material is stained from tar or oil, Moist, Very Loose, Volatile odor
4		
		Stopped at 5.0'
6		
8		Notes:
10		1. Excavated by Washington Gas 2. Inspected and logged by Scott Sandberg
12		
14		
16		
18		
20		

"A" - Sample Location

Ground Water Measurements		
Date	Elapsed Hrs.	Depth
8/1	0.5	Dry

TEST PIT LOG

HYDRO-TERRA

Project: East Station Contaminant Investigation - Phase II
Test Pit No. 72 Elevation 15.0' Date August 1, 1988
Location: 20' East and 57' South of G-5

Ft.	A	Ground Surface
		Light Brown SILTY SAND and GRAVEL FILL, Some Bricks, Dry, No Volatile Odor 1'
2	S-1	Reddish Brown CLAYEY SAND and GRAVEL FILL, Some Cinders, Moist, Slight Coal Tar Odor
4		
		Stopped at 5.0'
6		
8		Notes:
		1. Excavated by Washington Gas
		2. Inspected and logged by Scott Sandberg
10		
12		
14		
16		
18		
20		

"A" - Sample Location

Ground Water Measurements		
Date	Elapsed Hrs.	Depth
8/1	.5	Dry

TEST PIT LOG

HYDRO-TERRA

Project: East Station Contaminant Investigation - Phase II
Test Pit No. 73 Elevation 8.0' Date August 1, 1988
Location: 45' East and 60' South of G-7

Ft.	A	Ground Surface
2		Yellow-Brown SILTY SAND and GRAVEL FILL Some Cinders, 6" of Wood Chips (Purifier Sponge), Medium Dense, Dry 2.5'
4	S-1	Black ASH and CINDER FILL, Dry, Very Loose, Very Coarse, Slight Volatile Odor 5.0'
		Stopped at 5.0'
6		
8		Notes: 1. Excavated by Washington Gas 2. Inspected and logged by Scott Sandberg
10		
12		
14		
16		
18		
20		

"A" - Sample Location

Ground Water Measurements		
Date	Elapsed Hrs.	Depth
8/1	0.5	Dry

TEST PIT LOG

Test Pit: **TP-74**
Date: 03-Jan-97
Inspector: T. Mills

0 - 8.5 ft	Mixed soil and building debris fill, trace cinders. Slight odor. No oil noted. Hnu - background.

Water table at 7.3 ft (87 in).

NOTES:
1. Sample was taken from 7.5 to 8.0 ft.
2. Sample taken from pit was split with Noel Simmons, Versar

TEST PIT LOG

Test Pit:	**TP-75**
Date:	03-Jan-97
Inspector:	B. Whipple

0 - 6.5 ft	Demolition debris (red brick fragments & gravel) and fill.
	Water at 6.7 ft (80 in).
6.5 - 8.0 ft	Coal ash. No oil or odor noted. Hnu - background.

NOTES:
1. Sample was taken from 6.5 to 7.0 ft.
2. Sample taken from pit was split with Noel Simmons, Versar

TEST PIT LOG

Test Pit: TP-76
Date: 03-Jan-97
Inspector: T. Mills

0 - 7 ft	Mixed soil & building debris fill.
6.5 ft	Cinders with odor noted at 6.5 ft
	Water observed at 6.9 ft (83 in). Oil on water.
7.5 ft	Hnu in saturated soil - 24 ppm.

NOTES:
1. Sample was taken from 7 to 7.5 ft.
2. Sample taken from pit was split with Noel Simmons, Versar

97060/Appendix B/TP-logs.WB3 - 01/15/98

TEST PIT LOG

Test Pit: TP-77
Date: 03-Jan-97
Inspector: T. Mills

0 - 4 ft	Mixed soil and demo debris fill.
4 - 6.5 ft	Cinders, Coke Fill, Trace Wood Chips (Hnu - 2 ppm on chips). Water Table at 7.0 feet.
6.5 ft	Cinders & Coke, LNAPL present.

NOTES:
1. Sample was taken at 6.5 ft.
2. Sample taken from pit was split with Noel Simmons, Versar

97060/Appendix B/TP-logs.WB3 - 01/15/98

TEST PIT LOG

Test Pit: **TP-78**
Date: 03-Jan-97
Inspector: B. Whipple

0 - 5.6 ft	Brown silty sand and gravel fill.
5.6 - 8.5 ft	Black coke fill and silty sand Water table at 8.3 ft.

NOTES:
1. Sample was taken from
2. Sample taken from pit was split with Noel Simmons, Versar

97060/Appendix B/TP-logs.WB3 - 01/15/98

Appendix B-3

Table of Well Construction Information and March 2012 to April 2014 Water Levels

Appendix B-3
Well Construction Info and March 2012 to November 2014 Water Levels
Operable Unit 2 – Remedial Investigation and Feasibility Study Work Plan
Washington Gas East Station Site

Well Construction Information						March 2012 Groundwater Gauging Information			
Well	Measuring Point Elevation (ft AMSL) (a)	Total Well Depth (ft bgs)	Screened Interval (ft bgs)	Screened Interval (ft AMSL)	Screened Within	Date of Measurement	Time of Measurement	Depth to Water (ft)	Groundwater Elevation (ft AMSL)
MW-2	-	35	15-35	-	Clay	NM	NM	NM	NM
MW-3	17.68	61	52-61	-34.32 to -43.32	Sand and Gravel	NM	NM	NM	NM
MW-4	8.85	16	5-13	3.85 to -4.15	Fill	3/7/2012	1115	7.22	1.63
MW-5	4.07	8	3-8	1.07 to -3.93	Fill	3/7/2012	830	2.27	1.8
MW-6	3.84	54	34-54	-30.16 to -50.16	Sand and Gravel	3/7/2012	837	1.5	2.14
MW-7	5.88	13	5-13	0.88 to -7.12	Fill	3/7/2012	1225	5.92	-0.04
MW-8	6.96	55	45-55	-38.04 to -48.04	Sand and Gravel	3/7/2012	1505	6.18	0.78
MW-10	-	38	30-38	-	Clay	NM	NM	NM	NM
MW-11	14.99	14	4-14	10.99 to 0.99	Fill	3/7/2012	NR	15.05	-0.06
MW-12	16.76	25	13-25	3.76 to -8.24	Fill	NM	NM	NM	NM
MW-18	4.7	14	4-9	0.7 to -4.3	Fill	3/7/2012	1200	4.2	0.5
MW-19	5.34	10	5-8	0.34 to -2.66	Fill	3/7/2012	1150	5.25	0.09
MW-20	6.73	62.5	47-57	-40.27 to -50.27	Sand and Gravel	3/7/2012	1008	5.2	1.53
MW-21	14.45	32	22-27	-7.55 to -12.55	Fill	NM	NM	NM	NM
MW-22	14.57	29	19-24	-4.43 to -9.43	Fill	NM	NM	NM	NM
MW-23	3.47	16	9.5-11	-6.03 to -7.53	Fill	3/7/2012	842	4.85	-1.38
MW-24	3.61	8.5	3.5-6	0.11 to -2.39	Fill	3/7/2012	848	2.97	0.64
MW-25	4.68	74	44-64	-39.32 to -59.32	Clay	3/7/2012	1115	3.59	1.09
MW-26	5.66	14	4-14	1.66 to -8.34	Fill	3/7/2012	1000	4.43	1.23
MW-27	4.03	13	3-13	1.03 to -8.97	Fill	3/7/2012	1132	3.55	0.48
MW-28	4.15	13	3-8	1.15 to -3.85	Fill	3/7/2012	1125	3.62	0.53
MW-29	4.17	9	4-9	0.17 to -4.83	Fill	3/7/2012	829	2.6	1.57
MW-30	-	20	10-20	-	Fill	3/7/2012	1400	9.87	NC
MW-31	4.73	66	46-56	-41.27 to -51.27	Sand and Gravel	3/7/2012	1140	3.77	0.96
P-1S	13.96	24	19-24	-5.04 to -10.04	Fill	NM	NM	NM	NM
P-2S	13.87	20	15-20	-1.13 to -6.13	Fill	NM	NM	NM	NM
P-3S	19.3	15	10-15	9.3 to 4.3	Fill	NM	NM	NM	NM
P-5S	4.47	9	4-9	0.47 to -4.53	Fill	3/7/2012	817	2.67	1.8
P-6S	4.11	10	5-10	-0.89 to -5.89	Fill	3/7/2012	900	4.12	-0.01
P-7S	6.71	13	8-13	-1.29 to -6.29	Fill	3/7/2012	1230	6.75	-0.04
P-10S	9.78	17	12-17	-2.22 to -7.22	Fill	NM	NM	NM	NM
P-11S	6.71	16	11-16	-4.29 to -9.29	Fill	3/7/2012	942	8.86	-2.15
RW-1	12.02	Unknown	Unknown	Unknown	Unknown	NM	NM	NM	NM
RW-2	11.77	Unknown	Unknown	Unknown	Unknown	NM	NM	NM	NM
RW-3	12.12	Unknown	Unknown	Unknown	Unknown	NM	NM	NM	NM
RW-4S	6.17	18.5	8.5-13.5	-2.33 to -7.33	Recovery Well	3/7/2012	801	5.55	0.62
RW-5S	7.22	22	6.5-16.5	0.72 to -9.28	Recovery Well	3/7/2012	1046	5.21	2.01
RW-6S	7.12	22	6.5-16.5	0.62 to -9.38	Recovery Well	3/7/2012	952	7.3	-0.18
RW-7S	7.55	16.5	11-21	-3.45 to -13.45	Recovery Well	3/7/2012	1440	12.5	-4.95
WGL-01D	7.43	56	35-55	-27.57 to -47.57	Sand and Gravel	3/7/2012	1040	5.85	1.58
WGL-01S	6.94	19	4-19	2.94 to -12.06	Fill	3/7/2012	1500	8.09	-1.15
WGL-02D	9.31	60	40-60	-30.69 to -50.69	Sand and Gravel	3/7/2012	1445	8.76	0.55
WGL-02S	12.77	24	9-24	3.77 to -11.23	Fill	3/7/2012	1056	10.5	2.27
WGL-03D	10.75	55	35-55	-24.25 to -44.25	Sand and Gravel	3/7/2012	1020	10.15	0.6
WGL-03S	9.33	28	13-28	-3.67 to -18.67	Fill	3/7/2012	1025	10.05	-0.72
WGL-04D	17.19	59	39-59	-21.81 to -41.81	Sand and Gravel	3/7/2012	1355	15.92	1.27

Notes:
(a) Measuring point elevation taken from Table 1, Second Three-Year Review and Evaluation of Ground Water Pumping and Treatment at the East Station Site, March 2007.
Measuring point elevations will be resurveyed as part of the OU2 RI/FS field effort.
AMSL - Above mean sea level.
bgs - Below ground surface.
ft - Feet.
NM - Not measured.
NC - Not calculated due to no measuring point elevation.
NR - Not recorded at time of measurement.
- No available measuring point elevation.
Washington Naval Yard (tidesandcurrents.noaa.gov)
- April 16, 2014 high tide 3.42 ft. at 09:39 am
- November 17, 2014 low tide 0.3 ft. at 10:18 am

Appendix B-3
Well Construction Info and March 2012 to November 2014 Water Levels
Operable Unit 2 – Remedial Investigation and Feasibility Study Work Plan
Washington Gas East Station Site

Well Construction Information						April 2013 Groundwater Gauging Information			
Well	Measuring Point Elevation (ft AMSL) (a)	Total Well Depth (ft bgs)	Screened Interval (ft bgs)	Screened Interval (ft AMSL)	Screened Within	Date of Measurement	Time of Measurement	Depth to Water (ft)	Groundwater Elevation (ft AMSL)
MW-2	-	35	15-35	-	Clay	NM	NM	NM	NM
MW-3	17.68	61	52-61	-34.32 to -43.32	Sand and Gravel	4/9/2013	1523	18.43	-0.75
MW-4	8.85	16	5-13	3.85 to -4.15	Fill	4/8/2013	1240	7.99	0.86
MW-5	4.07	8	3-8	1.07 to -3.93	Fill	4/8/2013	1245	3.29	0.78
MW-6	3.84	54	34-54	-30.16 to -50.16	Sand and Gravel	4/8/2013	1313	2.97	0.87
MW-7	5.88	13	5-13	0.88 to -7.12	Fill	4/8/2013	1146	6.02	-0.14
MW-8	6.96	55	45-55	-38.04 to -48.04	Sand and Gravel	NM	NM	NM	NM
MW-10	-	38	30-38	-	Clay	NM	NM	NM	NM
MW-11	14.99	14	4-14	10.99 to 0.99	Fill	4/8/2013	1110	15.33	-0.34
MW-12	16.76	25	13-25	3.76 to -8.24	Fill	NM	NM	NM	NM
MW-18	4.7	14	4-9	0.7 to -4.3	Fill	4/8/2013	1211	4.42	0.28
MW-19	5.34	10	5-8	0.34 to -2.66	Fill	4/8/2013	1213	5.3	0.04
MW-20	6.73	62.5	47-57	-40.27 to -50.27	Sand and Gravel	4/8/2013	1100	5.41	1.32
MW-21	14.45	32	22-27	-7.55 to -12.55	Fill	4/8/2013	1228	12.79	1.66
MW-22	14.57	29	19-24	-4.43 to -9.43	Fill	NM	NM	NM	NM
MW-23	3.47	16	9.5-11	-6.03 to -7.53	Fill	4/8/2013	1314	2.97	0.5
MW-24	3.61	8.5	3.5-6	0.11 to -2.39	Fill	4/8/2013	1315	3.16	0.45
MW-25	4.68	74	44-64	-39.32 to -59.32	Clay	4/8/2013	1140	3.93	0.75
MW-26	5.66	14	4-14	1.66 to -8.34	Fill	NM	NM	NM	NM
MW-27	4.03	13	3-13	1.03 to -8.97	Fill	4/8/2013	1145	3.73	0.3
MW-28	4.15	13	3-8	1.15 to -3.85	Fill	4/8/2013	1142	3.78	0.37
MW-29	4.17	9	4-9	0.17 to -4.83	Fill	4/8/2013	1257	3.21	0.96
MW-30	-	20	10-20	-	Fill	NM	NM	NM	NM
MW-31	4.73	66	46-56	-41.27 to -51.27	Sand and Gravel	4/8/2013	1204	4.13	0.6
P-1S	13.96	24	19-24	-5.04 to -10.04	Fill	NM	NM	NM	NM
P-2S	13.87	20	15-20	-1.13 to -6.13	Fill	NM	NM	NM	NM
P-3S	19.3	15	10-15	9.3 to 4.3	Fill	4/9/2013	1526	16.45	2.85
P-5S	4.47	9	4-9	0.47 to -4.53	Fill	4/8/2013	1300	3.02	1.45
P-6S	4.11	10	5-10	-0.89 to -5.89	Fill	4/8/2013	1040	4.18	-0.07
P-7S	6.71	13	8-13	-1.29 to -6.29	Fill	4/8/2013	1150	6.59	0.12
P-10S	9.78	17	12-17	-2.22 to -7.22	Fill	NM	NM	NM	NM
P-11S	6.71	16	11-16	-4.29 to -9.29	Fill	4/8/2013	1115	6.79	-0.08
RW-1	12.02	Unknown	Unknown	Unknown	Unknown	NM	NM	NM	NM
RW-2	11.77	Unknown	Unknown	Unknown	Unknown	NM	NM	NM	NM
RW-3	12.12	Unknown	Unknown	Unknown	Unknown	NM	NM	NM	NM
RW-4S	6.17	18.5	8.5-13.5	-2.33 to -7.33	Recovery Well	4/8/2013	1255	5.95	0.22
RW-5S	7.22	22	6.5-16.5	0.72 to -9.28	Recovery Well	4/8/2013	1130	5.57	1.65
RW-6S	7.12	22	6.5-16.5	0.62 to -9.38	Recovery Well	4/8/2013	1102	7.41	-0.29
RW-7S	7.55	16.5	11-21	-3.45 to -13.45	Recovery Well	NM	NM	NM	NM
WGL-01D	7.43	56	35-55	-27.57 to -47.57	Sand and Gravel	4/8/2013	1120	6.15	1.28
WGL-01S	6.94	19	4-19	2.94 to -12.06	Fill	4/8/2013	1215	7.34	-0.4
WGL-02D	9.31	60	40-60	-30.69 to -50.69	Sand and Gravel	4/8/2013	1115	8.53	0.78
WGL-02S	12.77	24	9-24	3.77 to -11.23	Fill	4/8/2013	NR	10.9	1.87
WGL-03D	10.75	55	35-55	-24.25 to -44.25	Sand and Gravel	4/8/2013	1222	10.22	0.53
WGL-03S	9.33	28	13-28	-3.67 to -18.67	Fill	4/8/2013	1107	9.04	0.29
WGL-04D	17.19	59	39-59	-21.81 to -41.81	Sand and Gravel	4/9/2013	1532	16.3	0.89

Notes:
(a) Measuring point elevation taken from Table 1, Second Three-Year Review and Evaluation of Ground Water Pumping and Treatment at the East Station Site, March 2007.
Measuring point elevations will be resurveyed as part of the OU2 RI/FS field effort.
AMSL - Above mean sea level.
bgs - Below ground surface.
ft - Feet.
NM - Not measured.
NC - Not calculated due to no measuring point elevation.
NR - Not recorded at time of measurement.
- No available measuring point elevation.
Washington Naval Yard (tidesandcurrents.noaa.gov)
- April 16, 2014 high tide 3.42 ft. at 09:39 am
- November 17, 2014 low tide 0.3 ft. at 10:18 am

Appendix B-3
Well Construction Info and March 2012 to November 2014 Water Levels
Operable Unit 2 – Remedial Investigation and Feasibility Study Work Plan
Washington Gas East Station Site

Well Construction Information						October 2013 Groundwater Gauging Information			
Well	Measuring Point Elevation (ft AMSL) (a)	Total Well Depth (ft bgs)	Screened Interval (ft bgs)	Screened Interval (ft AMSL)	Screened Within	Date of Measurement	Time of Measurement	Depth to Water (ft)	Groundwater Elevation (ft AMSL)
MW-2	-	35	15-35	-	Clay	NM	NM	NM	NM
MW-3	17.68	61	52-61	-34.32 to -43.32	Sand and Gravel	10/29/2013	1500	17.95	-0.27
MW-4	8.85	16	5-13	3.85 to -4.15	Fill	10/28/2013	1005	8.4	0.45
MW-5	4.07	8	3-8	1.07 to -3.93	Fill	10/28/2013	1010	3.48	0.59
MW-6	3.84	54	34-54	-30.16 to -50.16	Sand and Gravel	10/28/2013	1027	3.2	0.64
MW-7	5.88	13	5-13	0.88 to -7.12	Fill	10/28/2013	1245	5.95	-0.07
MW-8	6.96	55	45-55	-38.04 to -48.04	Sand and Gravel	NM	NM	NM	NM
MW-10	-	38	30-38	-	Clay	NM	NM	NM	NM
MW-11	14.99	14	4-14	10.99 to 0.99	Fill	10/28/2013	NR	14.87	0.12
MW-12	16.76	25	13-25	3.76 to -8.24	Fill	10/29/2013	1504	13.9	2.86
MW-18	4.7	14	4-9	0.7 to -4.3	Fill	10/28/2013	1102	5.32	-0.62
MW-19	5.34	10	5-8	0.34 to -2.66	Fill	10/28/2013	1240	5.53	-0.19
MW-20	6.73	62.5	47-57	-40.27 to -50.27	Sand and Gravel	10/28/2013	1040	6.61	0.12
MW-21	14.45	32	22-27	-7.55 to -12.55	Fill	10/28/2013	1205	12.35	2.1
MW-22	14.57	29	19-24	-4.43 to -9.43	Fill	10/28/2013	1222	12.78	1.79
MW-23	3.47	16	9.5-11	-6.03 to -7.53	Fill	10/28/2013	1029	2.61	0.86
MW-24	3.61	8.5	3.5-6	0.11 to -2.39	Fill	10/28/2013	NM	3.4	0.21
MW-25	4.68	74	44-64	-39.32 to -59.32	Clay	10/28/2013	1049	4.68	0
MW-26	5.66	14	4-14	1.66 to -8.34	Fill	NM	NM	NM	NM
MW-27	4.03	13	3-13	1.03 to -8.97	Fill	10/28/2013	1055	4.52	-0.49
MW-28	4.15	13	3-8	1.15 to -3.85	Fill	10/28/2013	1047	5.02	-0.87
MW-29	4.17	9	4-9	0.17 to -4.83	Fill	10/28/2013	1025	2.83	1.34
MW-30	-	20	10-20	-	Fill	NM	NM	NM	NM
MW-31	4.73	66	46-56	-41.27 to -51.27	Sand and Gravel	10/28/2013	1058	4.7	0.03
P-1S	13.96	24	19-24	-5.04 to -10.04	Fill	10/28/2013	1218	12.2	1.76
P-2S	13.87	20	15-20	-1.13 to -6.13	Fill	NM	NM	NM	NM
P-3S	19.3	15	10-15	9.3 to 4.3	Fill	10/29/2013	1452	15.73	3.57
P-5S	4.47	9	4-9	0.47 to -4.53	Fill	10/28/2013	NR	3	1.47
P-6S	4.11	10	5-10	-0.89 to -5.89	Fill	10/28/2013	1043	4.2	-0.09
P-7S	6.71	13	8-13	-1.29 to -6.29	Fill	10/28/2013	1250	6.82	-0.11
P-10S	9.78	17	12-17	-2.22 to -7.22	Fill	NM	NM	NM	NM
P-11S	6.71	16	11-16	-4.29 to -9.29	Fill	10/28/2013	1300	6.82	-0.11
RW-1	12.02	Unknown	Unknown	Unknown	Unknown	NM	NM	NM	NM
RW-2	11.77	Unknown	Unknown	Unknown	Unknown	NM	NM	NM	NM
RW-3	12.12	Unknown	Unknown	Unknown	Unknown	NM	NM	NM	NM
RW-4S	6.17	18.5	8.5-13.5	-2.33 to -7.33	Recovery Well	10/28/2013	NR	5.6	0.57
RW-5S	7.22	22	6.5-16.5	0.72 to -9.28	Recovery Well	10/28/2013	1310	5.12	2.1
RW-6S	7.12	22	6.5-16.5	0.62 to -9.38	Recovery Well	10/28/2013	NM	NM	NM
RW-7S	7.55	16.5	11-21	-3.45 to -13.45	Recovery Well	10/28/2013	NM	NM	NM
WGL-01D	7.43	56	35-55	-27.57 to -47.57	Sand and Gravel	10/28/2013	1020	7.04	0.39
WGL-01S	6.94	19	4-19	2.94 to -12.06	Fill	10/28/2013	1228	6.6	0.34
WGL-02D	9.31	60	40-60	-30.69 to -50.69	Sand and Gravel	10/28/2013	NM	NM	NM
WGL-02S	12.77	24	9-24	3.77 to -11.23	Fill	10/28/2013	1340	10.36	2.41
WGL-03D	10.75	55	35-55	-24.25 to -44.25	Sand and Gravel	10/28/2013	1115	10.73	0.02
WGL-03S	9.33	28	13-28	-3.67 to -18.67	Fill	10/28/2013	1305	9.82	-0.49
WGL-04D	17.19	59	39-59	-21.81 to -41.81	Sand and Gravel	10/28/2013	1345	16.31	0.88

Notes:
(a) Measuring point elevation taken from Table 1, Second Three-Year Review and Evaluation of Ground Water Pumping and Treatment at the East Station Site, March 2007.
Measuring point elevations will be resurveyed as part of the OU2 RI/FS field effort.
AMSL - Above mean sea level.
bgs - Below ground surface.
ft - Feet.
NM - Not measured.
NC - Not calculated due to no measuring point elevation.
NR - Not recorded at time of measurement.
- No available measuring point elevation.
Washington Naval Yard (tidesandcurrents.noaa.gov)
- April 16, 2014 high tide 3.42 ft. at 09:39 am
- November 17, 2014 low tide 0.3 ft. at 10:18 am

Appendix B-3
Well Construction Info and March 2012 to November 2014 Water Levels
Operable Unit 2 – Remedial Investigation and Feasibility Study Work Plan
Washington Gas East Station Site

Well Construction Information						April 2014 Groundwater Gauging Information (Collected During High Tide)			
Well	Measuring Point Elevation (ft AMSL) (a)	Total Well Depth (ft bgs)	Screened Interval (ft bgs)	Screened Interval (ft AMSL)	Screened Within	Date of Measurement	Time of Measurement	Depth to Water (ft)	Groundwater Elevation (ft AMSL)
MW-2	-	35	15-35	-	Clay	NM	NM	NM	NM
MW-3	17.68	61	52-61	-34.32 to -43.32	Sand and Gravel	4/16/2014	1051	19.2	-1.52
MW-4	8.85	16	5-13	3.85 to -4.15	Fill	4/16/2014	745	7.91	0.94
MW-5	4.07	8	3-8	1.07 to -3.93	Fill	4/16/2014	1032	2.98	1.09
MW-6	3.84	54	34-54	-30.16 to -50.16	Sand and Gravel	4/16/2014	805	3.33	0.51
MW-7	5.88	13	5-13	0.88 to -7.12	Fill	4/16/2014	858	5.78	0.1
MW-8	6.96	55	45-55	-38.04 to -48.04	Sand and Gravel	NM	NM	NM	NM
MW-10	-	38	30-38	-	Clay	NM	NM	NM	NM
MW-11	14.99	14	4-14	10.99 to 0.99	Fill	4/16/2014	853	14.84	0.15
MW-12	16.76	25	13-25	3.76 to -8.24	Fill	NM	NM	NM	NM
MW-18	4.7	14	4-9	0.7 to -4.3	Fill	4/16/2014	925	4.88	-0.18
MW-19	5.34	10	5-8	0.34 to -2.66	Fill	4/16/2014	930	5.16	0.18
MW-20	6.73	62.5	47-57	-40.27 to -50.27	Sand and Gravel	4/16/2014	845	7.51	-0.78
MW-21	14.45	32	22-27	-7.55 to -12.55	Fill	4/16/2014	1045	12.05	2.4
MW-22	14.57	29	19-24	-4.43 to -9.43	Fill	NM	NM	NM	NM
MW-23	3.47	16	9.5-11	-6.03 to -7.53	Fill	4/16/2014	800	2.65	0.82
MW-24	3.61	8.5	3.5-6	0.11 to -2.39	Fill	4/16/2014	803	2.47	1.14
MW-25	4.68	74	44-64	-39.32 to -59.32	Clay	4/16/2014	905	5.41	-0.73
MW-26	5.66	14	4-14	1.66 to -8.34	Fill	NM	NM	NM	NM
MW-27	4.03	13	3-13	1.03 to -8.97	Fill	4/16/2014	913	4.46	-0.43
MW-28	4.15	13	3-8	1.15 to -3.85	Fill	4/16/2014	909	4.65	-0.5
MW-29	4.17	9	4-9	0.17 to -4.83	Fill	4/16/2014	815	2.17	2
MW-30	-	20	10-20	-	Fill	NM	NM	NM	NM
MW-31	4.73	66	46-56	-41.27 to -51.27	Sand and Gravel	4/16/2014	918	5.49	-0.76
P-1S	13.96	24	19-24	-5.04 to -10.04	Fill	NM	NM	NM	NM
P-2S	13.87	20	15-20	-1.13 to -6.13	Fill	NM	NM	NM	NM
P-3S	19.3	15	10-15	9.3 to 4.3	Fill	4/16/2014	1105	14.52	4.78
P-5S	4.47	9	4-9	0.47 to -4.53	Fill	4/16/2014	820	2.11	2.36
P-6S	4.11	10	5-10	-0.89 to -5.89	Fill	4/16/2014	855	4.05	0.06
P-7S	6.71	13	8-13	-1.29 to -6.29	Fill	4/16/2014	901	6.61	0.1
P-10S	9.78	17	12-17	-2.22 to -7.22	Fill	NM	NM	NM	NM
P-11S	6.71	16	11-16	-4.29 to -9.29	Fill	4/16/2014	848	6.69	0.02
RW-1	12.02	Unknown	Unknown	Unknown	Unknown	NM	NM	NM	NM
RW-2	11.77	Unknown	Unknown	Unknown	Unknown	NM	NM	NM	NM
RW-3	12.12	Unknown	Unknown	Unknown	Unknown	NM	NM	NM	NM
RW-4S	6.17	18.5	8.5-13.5	-2.33 to -7.33	Recovery Well	4/16/2014	832	4.89	1.28
RW-5S	7.22	22	6.5-16.5	0.72 to -9.28	Recovery Well	4/16/2014	832	4.66	2.56
RW-6S	7.12	22	6.5-16.5	0.62 to -9.38	Recovery Well	NM	NM	NM	NM
RW-7S	7.55	16.5	11-21	-3.45 to -13.45	Recovery Well	NM	NM	NM	NM
WGL-01D	7.43	56	35-55	-27.57 to -47.57	Sand and Gravel	4/16/2014	835	7.68	-0.25
WGL-01S	6.94	19	4-19	2.94 to -12.06	Fill	4/16/2014	940	7.19	-0.25
WGL-02D	9.31	60	40-60	-30.69 to -50.69	Sand and Gravel	4/16/2014	1005	10.2	-0.89
WGL-02S	12.77	24	9-24	3.77 to -11.23	Fill	4/16/2014	830	9.48	3.29
WGL-03D	10.75	55	35-55	-24.25 to -44.25	Sand and Gravel	4/16/2014	950	11.51	-0.76
WGL-03S	9.33	28	13-28	-3.67 to -18.67	Fill	4/16/2014	845	9.35	-0.02
WGL-04D	17.19	59	39-59	-21.81 to -41.81	Sand and Gravel	4/16/2014	1059	16.5	0.69

Notes:
(a) Measuring point elevation taken from Table 1, Second Three-Year Review and Evaluation of Ground Water Pumping and Treatment at the East Station Site, March 2007.
Measuring point elevations will be resurveyed as part of the OU2 RI/FS field effort.
AMSL - Above mean sea level.
bgs - Below ground surface.
ft - Feet.
NM - Not measured.
NC - Not calculated due to no measuring point elevation.
NR - Not recorded at time of measurement.
- No available measuring point elevation.
Washington Naval Yard (tidesandcurrents.noaa.gov)
- April 16, 2014 high tide 3.42 ft. at 09:39 am
- November 17, 2014 low tide 0.3 ft. at 10:18 am

Appendix B-3
Well Construction Info and March 2012 to November 2014 Water Levels
Operable Unit 2 – Remedial Investigation and Feasibility Study Work Plan
Washington Gas East Station Site

Well Construction Information						November 2014 Groundwater Gauging Information (Collected During Low Tide)			
Well	Measuring Point Elevation (ft AMSL) (a)	Total Well Depth (ft bgs)	Screened Interval (ft bgs)	Screened Interval (ft AMSL)	Screened Within	Date of Measurement	Time of Measurement	Depth to Water (ft)	Groundwater Elevation (ft AMSL)
MW-2	-	35	15-35	-	Clay	NM	NM	NM	NM
MW-3	17.68	61	52-61	-34.32 to -43.32	Sand and Gravel	NM	NM	NM	NM
MW-4	8.85	16	5-13	3.85 to -4.15	Fill	11/17/2014	854	8.35	0.5
MW-5	4.07	8	3-8	1.07 to -3.93	Fill	11/17/2014	859	3.62	0.45
MW-6	3.84	54	34-54	-30.16 to -50.16	Sand and Gravel	11/17/2014	932	3.41	0.43
MW-7	5.88	13	5-13	0.88 to -7.12	Fill	11/17/2014	906	6.05	-0.17
MW-8	6.96	55	45-55	-38.04 to -48.04	Sand and Gravel	NM	NM	NM	NM
MW-10	-	38	30-38	-	Clay	NM	NM	NM	NM
MW-11	14.99	14	4-14	10.99 to 0.99	Fill	11/17/2014	1015	15.33	-0.34
MW-12	16.76	25	13-25	3.76 to -8.24	Fill	NM	NM	NM	NM
MW-18	4.7	14	4-9	0.7 to -4.3	Fill	11/17/2014	921	4.57	0.13
MW-19	5.34	10	5-8	0.34 to -2.66	Fill	11/17/2014	922	5.26	0.08
MW-20	6.73	62.5	47-57	-40.27 to -50.27	Sand and Gravel	11/17/2014	1103	20.82	-14.09
MW-21	14.45	32	22-27	-7.55 to -12.55	Fill	11/17/2014	1027	13.18	1.27
MW-22	14.57	29	19-24	-4.43 to -9.43	Fill	11/17/2014	1045	13.44	1.13
MW-23	3.47	16	9.5-11	-6.03 to -7.53	Fill	11/17/2014	935	5.39	-1.92
MW-24	3.61	8.5	3.5-6	0.11 to -2.39	Fill	11/17/2014	934	3.40	0.21
MW-25	4.68	74	44-64	-39.32 to -59.32	Clay	11/17/2014	911	5.46	-0.78
MW-26	5.66	14	4-14	1.66 to -8.34	Fill	NM	NM	NM	NM
MW-27	4.03	13	3-13	1.03 to -8.97	Fill	11/17/2014	915	4.16	-0.13
MW-28	4.15	13	3-8	1.15 to -3.85	Fill	11/17/2014	913	4.26	-0.11
MW-29	4.17	9	4-9	0.17 to -4.83	Fill	11/17/2014	952	3.30	0.87
MW-30	-	20	10-20	-	Fill	NM	NM	NM	NM
MW-31	4.73	66	46-56	-41.27 to -51.27	Sand and Gravel	11/17/2014	917	5.57	-0.84
P-1S	13.96	24	19-24	-5.04 to -10.04	Fill	11/17/2014	1048	12.83	1.13
P-2S	13.87	20	15-20	-1.13 to -6.13	Fill	11/17/2014	1038	12.64	1.23
P-3S	19.3	15	10-15	9.3 to 4.3	Fill	11/17/2014	1044	12.70	6.6
P-5S	4.47	9	4-9	0.47 to -4.53	Fill	11/17/2014	900	3.65	0.82
P-6S	4.11	10	5-10	-0.89 to -5.89	Fill	11/17/2014	906	4.35	-0.24
P-7S	6.71	13	8-13	-1.29 to -6.29	Fill	11/17/2014	911	6.97	-0.26
P-10S	9.78	17	12-17	-2.22 to -7.22	Fill	11/17/2014	NM	NM	NM
P-11S	6.71	16	11-16	-4.29 to -9.29	Fill	11/17/2014	NM	NM	NM
RW-1	12.02	Unknown	Unknown	Unknown	Unknown	11/17/2014	1033	15.90	-3.88
RW-2	11.77	Unknown	Unknown	Unknown	Unknown	11/17/2014	1030	13.00	-1.23
RW-3	12.12	Unknown	Unknown	Unknown	Unknown	11/17/2014	1026	14.00	-1.88
RW-4S	6.17	18.5	8.5-13.5	-2.33 to -7.33	Recovery Well	11/17/2014	901	6.10	0.07
RW-5S	7.22	22	6.5-16.5	0.72 to -9.28	Recovery Well	11/17/2014	1007	5.91	1.31
RW-6S	7.12	22	6.5-16.5	0.62 to -9.38	Recovery Well	11/17/2014	1003	7.62	-0.5
RW-7S	7.55	16.5	11-21	-3.45 to -13.45	Recovery Well	11/17/2014	958	8.00	-0.45
WGL-01D	7.43	56	35-55	-27.57 to -47.57	Sand and Gravel	11/17/2014	951	7.50	-0.07
WGL-01S	6.94	19	4-19	2.94 to -12.06	Fill	11/17/2014	916	7.28	-0.34
WGL-02D	9.31	60	40-60	-30.69 to -50.69	Sand and Gravel	11/17/2014	940	13.26	-3.95
WGL-02S	12.77	24	9-24	3.77 to -11.23	Fill	11/17/2014	946	11.46	1.31
WGL-03D	10.75	55	35-55	-24.25 to -44.25	Sand and Gravel	11/17/2014	937	11.65	-0.9
WGL-03S	9.33	28	13-28	-3.67 to -18.67	Fill	11/17/2014	932	10.10	-0.77
WGL-04D	17.19	59	39-59	-21.81 to -41.81	Sand and Gravel	11/17/2014	928	17.41	-0.22

Notes:
(a) Measuring point elevation taken from Table 1, Second Three-Year Review and Evaluation of Ground Water Pumping and Treatment at the East Station Site, March 2007.
Measuring point elevations will be resurveyed as part of the OU2 RI/FS field effort.
AMSL - Above mean sea level.
bgs - Below ground surface.
ft - Feet.
NM - Not measured.
NC - Not calculated due to no measuring point elevation.
NR - Not recorded at time of measurement.
- No available measuring point elevation.
Washington Naval Yard (tidesandcurrents.noaa.gov)
- April 16, 2014 high tide 3.42 ft. at 09:39 am
- November 17, 2014 low tide 0.3 ft. at 10:18 am