



Nobis Engineering
PO Box 2890
Concord, New Hampshire 03302

PROJECT

Remedial Design For Operable Unit 01
New Bedford Harbor Superfund Site
New Bedford, Massachusetts

BORING NO. FD-32
SHEET 1 of 3
FILE NO. 48138.07
CHKD. BY J. Trottier

Boring Co. Atlantic Testing Laboratories, Limited Boring Location northing 2696749.0 easting 814392.8
Driller A. Carter Mudline El. -10.8 Datum NGVD
Logged By E. Thibodeau Date Start 7/30/99 Date End 8/2/99

Sampler: 2-inch O.D. split-barrel sampler driven 24 inches with a 140 lb safety hammer free falling from a height of 30 inches.
Drill Rig: Acker AD2 truck mount
Drilling Method: 5-inch I.D. (PW) flush-joint casing and 4-inch I.D. (HW) flush-joint casing. All casing driven with a 300 lb center hole hammer free falling from a height of 30-inches.

Groundwater Readings Not Applicable for Offshore Borings				
Date	Time	Depth	Elev.	Stabilization Time

DEPTH	Casing Blows (R)	SAMPLE INFORMATION					SAMPLE DESCRIPTION (ASTM D2488)	STRATUM DESCRIPTION	REMARKS
		Type	PEN/REC (inches)	DEPTH (feet)	BLOWS PER 6 INCHES	SPT N-Value			
1	Hyd. Push						Advance PW outer drill casing to 6 ft. (hydraulic push) Advance 4-7/8 in. roller bit from 0 to 6 ft.		
2	Hyd. Push								
3	Hyd. Push								
4	Hyd. Push								
5	Hyd. Push								
6	Hyd. Push								
7	Hyd. Push	UO-1	24/24	6-8			Sandy organic clay (OH); 69% organic clay, 25% fine sand, 5% medium sand, 1% coarse sand, slight organic odor, dark gray. Shells and shell fragments noted in sample.	OH	1
8	Hyd. Push						Advance PW outer drill casing to 10 ft. (hydraulic push) Advance 4-7/8 in. roller bit from 6 to 10 ft.		
9	Hyd. Push								
10	Hyd. Push								
11	Hyd. Push	UO-2	24/24	10-12			Top: Poorly graded sand with silt (SP-SM); 85% fine sand, 5% medium sand, 10% silt, gray. Bottom: Similar to UO-1.	SP-SM	2
12	Hyd. Push						Advance PW outer drill casing to 16 ft. (hydraulic push) Advance 4-7/8 in. roller bit from 10 to 16 ft.	OH	
13	Hyd. Push								
14	Hyd. Push								
15	Hyd. Push								
16	Hyd. Push								
17	3	S-1	24-20	16-18	2-5-5-10	10	Poorly graded sand with silt (SP-SM); loose, 65% medium sand, 20% fine sand, 5% coarse sand, 10% silt, gray. Approximate 2 in. organic layer noted in sample. Shell fragments noted in top portion of sample.	SP-SM	
18	8						Telescope and advance HW inner drill casing to 20 ft. Advance 3-7/8 in. button bit from 16 to 20 ft.		
19	18						Organic material noted in wash cuttings.		
20	23								

0 to 4 - Very Loose 5 to 10 - Loose 11 to 30 - Medium Dense 31 to 50 - Dense Over 50 - Very Dense	0 to 2 - Very Soft 3 to 4 - Soft 5 to 8 - Medium Stiff 9 to 15 - Stiff 16 to 30 - Very Stiff Over 30 - Hard	1. S denotes split-barrel sampler. 2. U denotes 3-inch O.D. undisturbed sample. 3. UO denotes 3-inch Osterberg undisturbed sample. 4. PEN denotes penetration length of sampler. 5. REC denotes recovered length of sample. 6. SPT denotes Standard Penetration Test.	7. PID denotes Photoionization Detector 8. PPM denotes parts per million. 9. PP denotes Pocket Penetrometer. 10. FVST denotes field vane shear test. 11. RQD denotes Rock Quality Designation 12. R denotes core run number.
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REMARKS:
1) Sample description based on laboratory test data and ASTM D2487. Refer to Test Report No. 3, prepared by GeoTensing Express, dated October 28, 1999.
2) Tide dropped substantially during sampling activities; therefore, actual sample interval may be slightly deeper than indicated here.
3)
4)



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SHEET 2 of 3

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Date	Time	Depth	Elev.	Stabilization Time

DEPTH (ft)	Casing Blows (ft)	SAMPLE INFORMATION					SAMPLE DESCRIPTION (ASTM D2488)	STRATUM DESCRIPTION	REMARKS
		Type & No.	PEN/REC (inches)	DEPTH (feet)	BLOWS PER 6 INCHES	SPT N-Value			
21	24	S-2	24/12	20-22	12-10-9-11	19	S-2A: Poorly graded sand with silt (SP-SM); medium dense, 40% medium sand, 30% fine sand, 10% coarse sand, 10% gravel, 10% silt, gray (6 in.)	SP-SM	
22	20						S-2B: Silt with sand (ML); 50% silt, 30% clay, 20% fine sand, brown. (6 in.)	ML	
23	19						Advance HW inner drill casing to 25 ft.		
24	17						Advance 3-7/8 in. button bit from 20 to 25 ft.		
25	22								
26	34	S-3	24/18	25-27	11-10-11-11	21	Silt with sand (ML); very stiff, 70% silt, 10% clay, 20% fine sand, brown. Approximately 1 in. coarse to medium sand lense noted in bottom portion of sample.	ML	
27	56						Advance HW inner drill casing to 30 ft.		
28	51						Advance 3-7/8 in. button bit from 25 to 30 ft.		
29	48								
30	47								
31	38	S-4	24/6	30-32	6-16-8-6	24	Poorly graded sand with silt (SP-SM); medium dense, 45% medium sand, 25% fine sand, 15% coarse sand, 5% gravel, 10% silt, brown.	SP-SM	
32	40						Advance HW inner drill casing to 35 ft.		
33	55						Advance 3-7/8 in. button bit from 30 to 35 ft.		
34	42								
35	59								
36	25	S-5	24/10	35-37	4-4-24-14	28	S-5A: Poorly graded sand (SP); medium dense, 50% fine sand, 45% medium sand, 5% silt, brown. (8 in.)	SP	
37	48						S-5B: Poorly graded sand (SP); medium dense, 40% coarse sand, 25% medium sand, 20% fine sand, 10% gravel, 5% silt, brown. (2 in.)		
38	73						Advance HW inner drill casing to 40 ft.		
39	66						Add bentonite to drilling fluid.		
40	71						Advance 3-7/8 in. button bit from 35 to 40 ft.		

FRANCOIS SPT (N-Values)	COHESIVE SOILS (N-Values)	SYMBOLS	TESTS
0 to 4 - Very Loose	0 to 2 - Very Soft	1. S denotes split-barrel sampler.	7. PID denotes Photoionization Detector
5 to 10 - Loose	3 to 4 - Soft	2. U denotes 3-inch O.D. undisturbed sample.	8. PPM denotes parts per million.
11 to 30 - Medium Dense	5 to 8 - Medium Stiff	3. UO denotes 3-inch Osterberg undisturbed sample.	9. PP denotes Pocket Penetrometer.
31 to 50 - Dense	9 to 15 - Stiff	4. PEN denotes penetration length of sampler.	10. FVST denotes field vane shear test
Over 50 - Very Dense	16 to 30 - Very Stiff	5. REC denotes recovered length of sample.	11. RQD denotes Rock Quality Designation.
	Over 30 - Hard	6. SPT denotes Standard Penetration Test.	12. R denotes core run number.

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		Type & No.	PENREC (inches)	DEPTH (feet)	BLOWS PER 8 INCHES	SPT N-Value			
41	117	S-6	24/12	40-42	62-29-29-31	58	Poorly graded sand with gravel (SP); very dense, 40% medium sand, 30% fine sand, 10% coarse sand, 15% gravel, 5% silt, brown.	SP	
42	128						Advance HW inner drill casing to 45 ft.		
43	127						Advance 3-7/8 in. button bit from 40 to 45 ft.		
44	127								
45	141								
46	111	S-7	21/4	45-46.7	45-25-15-	40	Poorly graded sand with silt (SP-SM); dense, 45% fine sand, 25% medium sand, 15% coarse sand, 5% gravel, 10% silt, brown.	SP-SM	
47	175/9"				14/3"-25/0"		Advance HW inner drill casing to 46.7 ft.; casing refusal.		
48							Advance 3-7/8 in. button bit from 45 to 46.7 ft.		
48							Top of bedrock at 46.7 ft.		
48							Advance 3-7/8 in. button bit from 46.7 to 48.2 ft.	BEDROCK	
49		R1	48.2-49.2		4 mins.		Begin NX rock core at 48.2 ft.		
49							R1: 48.2 to 50.5 ft.		
50			49.2-50.2		8 mins.		Fresh, hard, gray, aphanitic GNEISS with low angle, very close, rough, planar, discolored, open, joints. REC = 100%; RQD = 48% (poor)		
51			50.2-50.5		2 mins.		49.2 ft: loss of water return observed.		
51							50.5 to 51.3 ft: core barrel dropped; probable void or cavity.		
52		R2	51.3-52.3		8 mins.		Terminate core run at 51.3 ft., attempt split-barrel sample.		
52							S-8: 51.3 to 51.3 ft: 25/0". No material recovered.		
53			52.3-53.3		5 mins.		R2: 51.3 to 56.6 ft.		
53							Fresh, hard, gray, aphanitic GNEISS with horizontal, moderately spaced, rough, planar, slightly discolored, partly open joints.		
54			53.3-54.3		6 mins.		REC = 100%; RQD = 90% (excellent)		
54							51.5 to 51.8 ft: highly fractured zone.		
55			54.3-55.3		8 mins.				
56			55.3-56.3		4 mins.				
57			56.3-56.6		1 min.		Bottom of exploration at 56.6 ft.; boring terminated in bedrock.		
58									
59									
60									

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