



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-19
SHEET 1 of 4
FILE NO. 48138.07
CHKD. BY J. Trotter

Boring Co. Atlantic Testing Laboratories, Limited Boring Location northing 2696353.5 easting 814172.2
Driller R. Pryce Ground Surface El. 6.98 Datum NGVD
Logged By R. Chase Date Start 9/8/99 Date End 9/9/99

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: CME 75 truck mount
Drilling Method: 4-inch I.D. (HW) flush-joint casing; spin and wash.

Groundwater Readings (from ground surface)				
Date	Time	Depth	Elev.	Stabilization Time
9/9	7:00 AM	4.1 ft.	2.88	12 hours

DEPTH (ft)	Casing Elows (ft)	SAMPLE INFORMATION					SAMPLE DESCRIPTION (ASTM D2488)	STRATUM DESCRIPTION	REMARKS
		Type & No.	PEN/REC (inches)	DEPTH (feet)	BLOWS PER 6 INCHES	SPT N-Value			
1	Spin	S-1	15/9	0-2	6-50-50/3*	>50	Poorly graded sand (SP); dry, very dense, 50% fine sand, 30% medium sand, <5% coarse sand, 5% fine gravel, 5% silt, <5% brick, brown. (FILL) Advance HW drill casing to 3 ft.	SP (FILL)	
2	Spin								
3	Spin								
4	Spin	S-2	8/3	3-3.6	8-50/2*	>50	Poorly graded sand (SP); wet, very dense, 50% medium sand, 30% coarse sand, 5% fine sand, 10% fine gravel, <5% silt, brown. (FILL) Advance HW drill casing to 5 ft. Advance 3-7/8 in. roller bit to 8.5 ft. Probable nested boulders from 3.6 to 8.5 ft.	SP (FILL)	
5	Spin								
6	Spin								Probable Nested Boulders
7	Spin								
8	Spin								
9	Spin	S-3	24/9	8.5-10.5	33-20-13-20	33	Poorly graded sand (SP); wet, dense, 80% fine sand, 5% medium sand, <5% coarse sand, <5% fine gravel, 5% silt, oily odor, black. Advance HW drill casing to 13 ft.	SP	
10	Spin								
11	Spin								
12	Spin								
13	Spin								
14	Spin	S-4	24/14	13-15	44-36-25-37	61	Similar to S-3 except very dense. Oily odor noted. Advance 3-7/8 in. roller bit to 18 ft. (open hole)	SP	
15	Spin								
16	Spin								
17	Spin								
18	Spin								
19	Spin	S-5	24/8	18-20	12-6-22-35	28	Poorly graded sand (SP); wet, medium dense, 55% fine sand, 5% medium sand, <5% coarse sand, 30% fine gravel, 5% silt, gray. Advance HW drill casing to 23 ft.	SP	
20	Spin								

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) Grout the completed borehole from 0 to 71 ft.
2)
3)
4)



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SHEET 2 of 4
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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: CME 75 truck mount
Drilling Method: 4-inch I.D. (HW) flush-joint casing; spin and wash.

Groundwater Readings (from ground surface)				
Date	Time	Depth	Elev.	Stabilization Time
9/9	7:00 AM	4.1 ft.	2.88	12 hours

DEPTH	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	Spin								
22	Spin								
23	Spin								
24	Spin	S-6	24/9	23-25	25-20-20-20	40	Silt (ML); wet, hard, 100% silt, gray. Advance HW drill casing to 28 ft.	ML	
25	Spin								
26	Spin								
27	Spin								
28	Spin								
29	Spin	S-7	24/17	28-30	20-19-27-34	46	Similar to S-6, except several lenses of fine sand noted in sample. Advance HW drill casing to 33 ft.	ML	
30	Spin								
31	Spin								
32	Spin								
33	Spin								
34	Spin	S-8	24/22	33-35	15-15-20-22	35	Similar to S-7. Advance HW drill casing to 38 ft.	ML	
35	Spin								
36	Spin								
37	Spin								
38	Spin								
39	Spin	S-9	24/12	38-40	10-19-22-20	41	Silt (ML); wet, hard, 95% silt, 5% fine gravel. Advance HW drill casing to 43 ft.	ML	
40	Spin								

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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 Drill Rig: CME 75 truck mount
 Drilling Method: 4-inch I.D. (HW) flush-joint casing, spin and wash.

Groundwater Headings (from ground surface)				
Date	Time	Depth	Elev.	Stabilization Time
9/9	7:00 AM	4.1 ft.	2.88	12 hours

DEPTH (ft)	Casing Blows (ft)	SAMPLE INFORMATION					SAMPLE DESCRIPTION (ASTM D2488)	STRATUM DESCRIPTION	REMARKS
		Type & No.	PENREC (inches)	DEPTH (feet)	BLOWS PER 8 INCHES	SPT N-Value			
41	Spin								
42	Spin								
43	Spin								
44	Spin	S-10	24/4	43-45	23-19-20-21	39	Poorly graded gravel (GP); wet, dense, 95% fine gravel, 5% coarse sand, gray. Advance HW drill casing to 48 ft.	GP	
45	Spin								
46	Spin								
47	Spin								
48	Spin								
49	Spin	S-11	24/7	48-50	32-15-20-24	35	Poorly graded sand (SP); wet, dense, 50% fine sand, 30% medium sand, 10% coarse sand, <5% fine gravel, 5% silt, brown. Advance HW drill to 53 ft.	SP	
50	Spin								
51	Spin								
52	Spin								
53	Spin								
54	Spin	S-12	5/3	53-53.4	50/5*	>50	Poorly graded sand (SP); wet, dense, 55% medium sand, 40% coarse sand, 5% fine sand, brown. Advance HW drill casing to 58 ft. Possible cobble from 53.4 to 53.8 ft.	SP	
55	Spin								
56	Spin								
57	Spin								
58	Spin								
59		S-13	0/0	58-58	50/0*	>50	Refusal. Top of bedrock at 58 ft. Advance 3-7/8 in. roller bit to 60.8 ft.	BEDROCK	
60							Advance HW drill casing from 58 to 60.7 ft.		

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Drilling Method: 4-inch I.D. (HW) flush-joint casing; spin and wash.

Groundwater Readings (from ground surface)				
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9/9	7:00 AM	4.1 ft.	2.88	12 hours

DEPTH (ft)	Casing Blows (#)	SAMPLE INFORMATION					SAMPLE DESCRIPTION (ASTM D2488)	STRATUM DESCRIPTION	REMARKS
		Type & No.	PEN/REC (inches)	DEPTH (feet)	BLOWS PER 6 INCHES	SPT N-Value			
61							Advance 3-7/8 in. roller bit to 61 ft. Begin NX rock core at 61 ft.	BEDROCK	1
62		R1	61-62		7.75 mins.		R1: 61 to 66 ft. Fresh, medium hard, gray, aphanitic GNEISS with very low angle, very closely spaced, rough, planar, fresh, open joints.		
63			62-63		8 mins.		REC = 80%; RQD = 78%		
64			63-64		7.8 mins.		90% of rock core breaks are mechanical.		
65			64-65		7 mins.				
66			65-66		11.4 mins.				
67		R2	66-67		10.9 mins.		R2: 66 to 71 ft. Similar to R1		
68			67-68		9.5 mins.		REC = 98%; RQD = 98%		
69			68-69		9.1 mins.				
70			69-70		9.6 mins.				
71			70-71		11.1 mins.				
72							Bottom of exploration at 71 ft.; boring terminated in bedrock.		
73									
74									
75									
76									
77									
78									
79									
80									

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