



Environmental Corporation

57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

SOIL BORING LOG

BORING NUMBER

1R-22.1-ENV-10

PROJECT NAME: Spectra NJ-NY Expansion

LOCATION: Staten Island, New York

PROJECT NO.: 168217

CONTRACTOR: Land Air Water Environmental Services

DATE DRILLED: 03/08/12

SAMPLER TYPE/DIA.: Hand Auger/Macro-Core/2"

DEPTH TO WATER: 6.0 feet

DRILLER: K. McGourty

BORING METHOD: Hand Auger/Geoprobe

TOTAL DEPTH DRILLED: 20 feet

LOGGED BY: W. Lindemuth

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
0						
1		Hand cleared	ND	1R-22.1-ENV-10/2		0.0 to 3.0 - FILL: Brown silt and coarse to fine sand; little coarse to fine gravel. Dry; no odor; no staining.
2						
3						
4						3.0 to 4.0 - FILL: Brown, coarse to fine sand; little silt, trace coarse to fine gravel. Dry; no odor; no staining.
5						4.0 to 6.0' - FILL: Brown, coarse to fine sand; little coarse to fine gravel, trace coal. Dry; no odor; no staining.
6						
7		32	ND	1R-22.1-ENV-10/6	SW	6.0 to 15' - Brown to gray, coarse to fine SAND; some coarse to fine, rounded gravel. Wet; no odor; no staining.
8						
9						
10		45	ND			
11						
12						
13						
14						
15						



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SOIL BORING LOG

BORING NUMBER

1R-22.1-ENV-10

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
16		60	ND		SW	15 to 19' - Gray, coarse to fine SAND; little fine gravel, trace shells. Wet; no odor; no staining.
17						
18			ND		OH	19 to 20' - Gray-black CLAY; trace vegetation. Wet; slight sulfur-like odor; no staining.
19						
20			5.5			End of boring at 20'.
			1.3			Note: Borehole backfilled with soil cuttings and restored to grade.



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57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

SOIL BORING LOG

BORING NUMBER

1R-22.1-ENV-11

PROJECT NAME: Spectra NJ-NY Expansion

LOCATION: Staten Island, New York

PROJECT NO.: 168217

CONTRACTOR: Land Air Water Environmental Services

DATE DRILLED: 03/07/12

SAMPLER TYPE/DIA.: Hand Auger/Macro-Core/2"

DEPTH TO WATER: 4.0 feet

DRILLER: J. Lamprecht

BORING METHOD: Hand Auger/Geoprobe

TOTAL DEPTH DRILLED: 20 feet

LOGGED BY: B. Chaky

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
0						
1		Hand cleared	ND	1R-22.1-ENV-11/2		0 to 8.5' - FILL: Red-brown to brown to gray, medium to fine sand; some coarse to fine, sub-angular to rounded gravel, little silt, root materials and cobbles. Dry to 3.0', moist to 4.0'; medium dense. Wet at 4.0'.
2						
3						
4						
5		48	ND ND ND	1R-22.1-ENV-11/7.5		
6						
7						
8						
9		56	0.9 17.0 19.8 9.8	1R-22.1-ENV-11/7.5	OH	8.5 to 11.5' - Black to gray CLAY; little silt, trace fine sand. Wet; loose; petroleum-like odor.
10						
11						
12						
13		56	0.3 0.8 0.5 0.3 0.2 0.1 ND	1R-22.1-ENV-11/7.5	SC	11.5 to 15' - Gray, coarse to fine SAND; little fine, rounded gravel, trace silt. Two 6" bands of dark gray CLAY, little silt and trace fine sand from 12 to 12.5' and 14 to 14.5'. Wet; loose. Petroleum-like odor from 12 to 12.5' and 14 to 14.5'.
14						
15						
15						



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SOIL BORING LOG

BORING NUMBER

1R-22.1-ENV-11

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
16		53	ND		SW	15 to 20' - Gray, coarse to fine SAND; little fine, rounded gravel, trace silt. 3" band of black clay at bottom of interval. Wet; loose.
17						
18						
19						
20						
						End of boring at 20'.
						Note: Borehole backfilled with soil cuttings and restored to grade.



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SOIL BORING LOG

BORING NUMBER

1R-22.1-ENV-12

PROJECT NAME: Spectra NJ-NY Expansion

LOCATION: Staten Island, New York

PROJECT NO.: 168217

CONTRACTOR: Land Air Water Environmental Services

DATE DRILLED: 03/07/12

SAMPLER TYPE/DIA.: Hand Auger/Macro-Core/2"

DEPTH TO WATER: 4.0 feet

DRILLER: K. McGourty

BORING METHOD: Hand Auger/Geoprobe

TOTAL DEPTH DRILLED: 20 feet

LOGGED BY: W. Lindemuth

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
0						
1				1R-22.1-ENV-12/1	SM	0.0 to 4.0' - Brown SILT; some coarse to fine sand, little coarse to fine gravel. Moist; no odor; no staining.
2						
3		Hand cleared	ND			
4						
5				1R-22.1-ENV-12/5	SW	4.0 to 6.0 - Brown, coarse to fine SAND; little coarse to fine gravel. Wet; no odor; no staining.
6						6.0 to 10' - No recovery.
7						
8		ND	ND			
9						
10						
11					SC	10 to 19' - Gray to gray-black, coarse to fine SAND and CLAY. Wet; no odor; no staining.
12						
13		2	ND			
14						
15						



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SOIL BORING LOG

BORING NUMBER

1R-22.1-ENV-12

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
16		60	ND			19 to 20' - Black PEAT. Moist; no odor; no staining.
			ND			
			ND			
17			ND			
			ND			
			ND			
18			ND			
			ND			
			ND			
19			ND			
		1.9			PT	
20		1.9				
						End of boring at 20'.
						Note: Borehole backfilled with soil cuttings and restored to grade.



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57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

SOIL BORING LOG

BORING NUMBER

1R-22.1-ENV-13

PROJECT NAME: Spectra NJ-NY Expansion

LOCATION: Staten Island, New York

PROJECT NO.: 168217

CONTRACTOR: Land Air Water Environmental Services

DATE DRILLED: 03/07/12

SAMPLER TYPE/DIA.: Hand Auger/Macro-Core/2"

DEPTH TO WATER: 4.0 feet

DRILLER: J. Lamprecht

BORING METHOD: Hand Auger/Geoprobe

TOTAL DEPTH DRILLED: 20 feet

LOGGED BY: B. Chaky

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
0						
1		Hand cleared	ND	1R-22.1-ENV-13/1		0 to 7.0' - FILL: Dark brown to orange-brown, coarse to fine sand and coarse to fine, angular to sub-rounded gravel; little silt, cobbles. Dry to 1.0', moist from 1.0 to 4.0'; loose to 1.0', medium dense from 1.0 to 7.0'. Wet at 4.0'.
2						
3						
4						
5		48	ND	1R-22.1-ENV-13/7	SW	7.0 to 7.5' - FILL: Black to dark gray clay; little fine sand. Wet; loose; petroleum-like odor. 7.5 to 14' - Dark brown to dark gray, coarse to fine SAND; little medium to fine, angular to rounded gravel, trace silt. Wet; medium dense.
6						
7						
8						
9		44	ND	OH		14 to 15' - Black to dark gray CLAY; little silt and fine sand. Wet; loose; petroleum-like odor.
10						
11						
12						
13						
14						
15						



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SOIL BORING LOG

BORING NUMBER

1R-22.1-ENV-13

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
16		51	ND		SM	15 to 18.5' - Black to dark gray, medium to fine SAND; trace silt and fine, rounded gravel. Wet; loose.
			ND			
			ND			
17			ND			
			1.9			
			1.7			
18			0.5			
			0.7			
19			ND			
			ND			
20					OH	18.5 to 20' - Black to dark gray CLAY; little silt and fine sand, root materials at bottom 4". Wet; loose; organic-like odor.
						End of boring at 20'.
						Note: Borehole backfilled with soil cuttings and restored to grade.



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SOIL BORING LOG

BORING NUMBER

1R-22.1-ENV-14

PROJECT NAME: Spectra NJ-NY Expansion

LOCATION: Staten Island, New York

PROJECT NO.: 168217

CONTRACTOR: Land Air Water Environmental Services

DATE DRILLED: 03/07/12

SAMPLER TYPE/DIA.: Hand Auger/Macro-Core/2"

DEPTH TO WATER: 3.0 feet

DRILLER: K. McGourty

BORING METHOD: Hand Auger/Geoprobe

TOTAL DEPTH DRILLED: 20 feet

LOGGED BY: W. Lindemuth

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS		
0								
1		Hand cleared	ND	1R-22.1-ENV-14/2	GM	0 to 0.5' - Brown SILT; some coarse to fine gravel, trace roots. Dry; no odor; no staining.		
2			0.7		SW	0.5 - 7.0' - Brown, coarse to fine SAND; some coarse to fine gravel. Moist from 0.5 to 3.0'; no odor; no staining.		
3			0.7					
4			0.7					
5			0.9					
6			0.9					
7		36	1.3		1R-22.1-ENV-14/7	SM	7.0 to 10' - Brown/gray, coarse to fine SAND; little silt. No odor; no staining.	
8			0.9					
9			4.9					
10			7.2					
11			3.1					
12		60	3.1		SC	10 to 15' - Black, coarse to fine SAND and CLAY. Wet; slight petroleum-like odor; no staining.		
13			2.3					
14			2.3					
15			3.9					
			4.7					
		7.8						
		32.4						
		29.4						
		16.4						
		312						
		224						



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SOIL BORING LOG

BORING NUMBER

1R-22.1-ENV-14

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
16		50	36.2		PT	15 to 18' - Brown PEAT. Moist; strong sulfur-like odor; no staining.
			48.1			
17			53.2		OH	18 to 20' - Gray CLAY; trace peat. Moist; moderate sulfur-like odor; no staining.
			72.5			
18			41.1			
			17.1			
19		13.2				
20		6.4				
						End of boring at 20'.
						Note: Borehole backfilled with soil cuttings and restored to grade.



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SOIL BORING LOG

BORING NUMBER

1R-22.1-ENV-15

PROJECT NAME: Spectra NJ-NY Expansion

LOCATION: Staten Island, New York

PROJECT NO.: 168217

CONTRACTOR: Land Air Water Environmental Services

DATE DRILLED: 03/09/12

SAMPLER TYPE/DIA.: Hand Auger/Macro-Core/2"

DEPTH TO WATER: 2.0 feet

DRILLER: C. Pederson

BORING METHOD: Hand Auger/Geoprobe

TOTAL DEPTH DRILLED: 20 feet

LOGGED BY: B. Chaky

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS			
0									
1		Hand cleared	ND	1R-22.1-ENV-15/1		0 to 6.0' - FILL: Red-brown to orange-brown, coarse to fine sand; some coarse to fine, sub-rounded to rounded gravel, little silt, roots at 0 to 1.0'. Moist; medium dense.			
2									Wet at 2.0'.
3									
4									
5									
6									
7		48	ND	1R-22.1-ENV-15/7.5		7.0 to 10' - FILL: Black to dark gray clay; little silt, trace fine sand. Wet; loose; petroleum-like odor; little staining; little sheen.			
8			0.1						
9			1.2						
10			0.7						
11		55	0.9			10 to 11' - FILL: Gray, medium to fine sand; trace silt, shell fragments. Wet; medium dense.			
12			0.8					11 to 14' - FILL: Black to dark gray clay; little silt and fine sand. Wet; loose.	
13			5.4						
14			8.8						
14			51.3						
15			ND		PT	14 to 15' - Gray-brown PEAT; little clay, trace silt. Wet, medium dense.			



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SOIL BORING LOG

BORING NUMBER

1R-22.1-ENV-15

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
16		48	50.3		OH	15 to 20' - Gray CLAY; little silt, shell fragments. Wet; loose.
			57.3			
			29.4			
17			50			
			54			
18			120			
			68.5			
19		ND				
		ND				
20		ND				
						End of boring at 20'.
						Note: Borehole backfilled with soil cuttings and restored to grade.



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SOIL BORING LOG

BORING NUMBER

1R-22.1-ENV-16

PROJECT NAME: Spectra NJ-NY Expansion

LOCATION: Staten Island, New York

PROJECT NO.: 168217

CONTRACTOR: Land Air Water Environmental Services

DATE DRILLED: 03/09/12

SAMPLER TYPE/DIA.: Hand Auger/Macro-Core/2"

DEPTH TO WATER: 3.0 feet

DRILLER: S. Pederson

BORING METHOD: Hand Auger/Geoprobe

TOTAL DEPTH DRILLED: 20 feet

LOGGED BY: W. Lindemuth

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
0						
1		Hand cleared	ND	1R-22.1-ENV-16/2	OL	0.0 to 5.0 - Light brown to brown-gray SILT and CLAY; little coarse to fine sand. Moist; no odor; no staining.
2			ND			
3			ND			
4			ND			
5			1.6			
6		33	1.6	1R-22.1-ENV-16/5	OH	5.0 to 10' - Gray-brown CLAY; little silt, trace vegetation. Wet; no odor; no staining.
7			1.8			
8			1.8			
9			1.4			
10			1.4			
11		37	1.1			10 to 17' - Gray CLAY; some peat. Moist; strong sulfur-like odor; no staining.
12			1.1			
13			1.3			
14			1.3			
15			1.9			
			2.4			
			359.1			
			160.3			
			117.4			
			78			
			139			
			ND			
			ND			
			ND			
			ND			
			ND			



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SOIL BORING LOG

BORING NUMBER

1R-22.1-ENV-16

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
16		29	139			PT 17 to 19' - Brown PEAT and WOOD. Moist; strong sulfur-like odor; no staining. SW 19 to 20' - Gray, coarse to fine SAND. Moist; strong sulfur-like odor; no staining.
			1609			
			8605			
17			159			
			270			
18			ND			
			ND			
19			ND			
			ND			
20			ND			
					End of boring at 20'.	
					Note: Borehole backfilled with soil cuttings and restored to grade.	



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57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

SOIL BORING LOG

BORING NUMBER

1R-22.1-ENV-17

PROJECT NAME: Spectra NY/NJ Expansion

LOCATION: Staten Island, New York

PROJECT NO.: 168217

CONTRACTOR: Land Air Water Environmental Services

DATE DRILLED: 09/19/12

SAMPLER TYPE/DIA.: Hand Auger

DEPTH TO WATER: 3 Feet

DRILLER: K. McCourty
U. Hallaceli

BORING METHOD: Hand Auger

TOTAL DEPTH DRILLED: 8 Feet

LOGGED BY: J. Nichols

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
0						Unpaved.
1			2.0	1R-22.1-ENV-17/0-4	SW	0.0 to 3.0' - Brown fine to medium sand, some medium, rounded gravel, little medium to coarse, rounded gravel.
2		0.6				
3		2.0				
4		0.6		1R-22.1-ENV-17/4-8	SM	3.0 to 4.0' - Brown to dark brown fine to medium SAND; little silt. Wet.
5		1.0			SW	
6			2.1		SM	5.0 to 8.0' - Dark brown SAND and SILT. Wet, odor.
7			3.5			
8			1.1			
						End of Boring at 8 feet Note: Borehole backfilled with soil cuttings & restored to grade. 1R-22.1-ENV-17-WC/2 thru 8 collected for TPHC analysis every 2 feet. 1R-22.1-ENV-17-WC composited for waste characterization analyses.



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57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

SOIL BORING LOG

BORING NUMBER

1R-22.1-ENV-18

PROJECT NAME: Spectra NY/NJ Expansion

LOCATION: Staten Island, New York

PROJECT NO.: 168217

CONTRACTOR: Land Air Water Environmental Services

DATE DRILLED: 09/25/12

SAMPLER TYPE/DIA.: Hand Auger

DEPTH TO WATER: 3 Feet

DRILLER: K. McCourty
U. Hallaceli

BORING METHOD: Hand Auger

TOTAL DEPTH DRILLED: 8 Feet

LOGGED BY: J. Nichols

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
0						Unpaved.
1			ND	1R-22.1-ENV-18/0-4	SW	0.0 to 2.0' - Brown fine to medium SAND; some silt, little small, rounded gravel, trace organics 2.0 to 3.0' - Dark brown fine to medium SAND and SILT, trace organics. 3.0 to 8.0' - Dark brown SILT and SAND. Wet, odor. Wet at 3'
2		ND	SM			
3		2.4	SM			
4		1.4				
5			1.6	1R-22.1-ENV-18/4-8		
6		1.3				
7		1				
8						
						End of Boring at 8 feet Note: Borehole backfilled with soil cuttings & restored to grade. 1R-22.1-ENV-18-WC/2 thru 8 collected for TPHC analysis every 2 feet. 1R-22.1-ENV-18-WC composited for waste characterization analyses.



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57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

SOIL BORING LOG

BORING NUMBER

1R-22.1-ENV-19

PROJECT NAME: Spectra NY/NJ Expansion

LOCATION: Staten Island, New York

PROJECT NO.: 168217

CONTRACTOR: Land Air Water Environmental Services

DATE DRILLED: 09/25/12

SAMPLER TYPE/DIA.: Hand Auger

DEPTH TO WATER: 5 Feet

DRILLER: K. McCourty
U. Hallaceli

BORING METHOD: Hand Auger

TOTAL DEPTH DRILLED: 8 Feet

LOGGED BY: J. Nichols

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
0						Unpaved.
1			1.0		SW	0.0 to 3.0' - Brown, fine to medium SAND; little small, rounded gravel, trace to little organics.
2			0.4			
3			0.6	1R-22.1-ENV-19/3	SM	3.0 to 5.0' - Brown to dark brown SAND and SILT. Slight odor.
4			4.2			
5			3.7		SM	Wet at 5' 5.0 to 8.0' - Dark brown, very fine SAND and SILT. Wet, odor.
6			1.7			
7			2.2	1R-22.1-ENV-19/7		
8			1.6			
						End of Boring at 8 feet Note: Borehole backfilled with soil cuttings & restored to grade. 1R-22.1-ENV-19-WC/2 thru 8 collected for TPHC analysis every 2 feet. 1R-22.1-ENV-19-WC composited for waste characterization analyses.

**Environmental Corporation**

57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

SOIL BORING LOG**BORING NUMBER****1R-22.1-ENV-20****PROJECT NAME:** Spectra NY/NJ Expansion**LOCATION:** Staten Island, New York**PROJECT NO.:** 168217**CONTRACTOR:** Land Air Water Environmental Services**DATE DRILLED:** 09/25/12**SAMPLER TYPE/DIA.:** Hand Auger**DEPTH TO WATER:** 4 Feet**DRILLER:** K. McCourty
U. Hallaceli**BORING METHOD:** Hand Auger**TOTAL DEPTH DRILLED:** 8 Feet**LOGGED BY:** J. Nichols

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
0						Unpaved.
1			1.0		SW	0.0 to 3.0' - Brown fine to medium SAND; little small, rounded gravel, little organics. 3.0 to 4.0' - Dark brown SILT and SAND. slight odor. Wet at 4' 4.0 to 8.0' - Dark brown, very fine SILT and SAND. Wet, odor.
2			0.4			
3			0.6	1R-22.1-ENV-20/3	SM	
4			4.2		SM	
5			3.7	1R-22.1-ENV-20/5		
6			1.7			
7			2.2			
8			1.6			
						End of Boring 8 feet. Note: Borehole backfilled with soil cuttings & restored to grade. 1R-22.1-ENV-20-WC/2 thru 8 collected for TPHC analysis every 2 feet. 1R-22.1-ENV-20-WC composited for waste characterization analyses.



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57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

SOIL BORING LOG

BORING NUMBER

1R-22.1-ENV-4

PROJECT NAME: Spectra NJ-NY Expansion

LOCATION: Staten Island, New York

PROJECT NO.: 168217

CONTRACTOR: Land Air Water Environmental Services

DATE DRILLED: 07/07/11

SAMPLER TYPE/DIA.: Macrocore/2"

DEPTH TO WATER: 5 feet

DRILLER: K. McGourty

BORING METHOD: Geoprobe Direct Push

TOTAL DEPTH DRILLED: 15 feet

LOGGED BY: B. Chaky

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS			
0									
1		24	ND	1R-22.1-4/1		0 to 1.0' - FILL: Brown silt, little clay, trace fine gravel. Moist, roots.			
2								1.0 to 5.0' - FILL: Brown, medium to fine sand, little sub-rounded gravel, trace silt. Moist.	
3									
4									
5		15	ND	1R-22.1-4/5		5.0 to 6.0' - FILL: Brown, fine sand, little clay, trace gravel. Wet.			
6								6.0 to 10' - FILL: Gray brown, coarse to fine sand, little sub-rounded medium to fine gravel, trace silt. Wet.	
7									
8									
9		30	196		OL	10 to 15' - Gray CLAY, little peat. Moist.			
10									
11									
12								32.1	
13								195	
14								368 407	
15			362		End of Boring @ 15'				



Environmental Corporation

57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

SOIL BORING LOG

BORING NUMBER

1R-22.1-ENV-5

PROJECT NAME: Spectra NJ-NY Expansion

LOCATION: Staten Island, New York

PROJECT NO.: 168217

CONTRACTOR: Land Air Water Environmental Services

DATE DRILLED: 07/07/11

SAMPLER TYPE/DIA.: Macrocore/2"

DEPTH TO WATER: 5 feet

DRILLER: K. McGourty

BORING METHOD: Geoprobe Direct Push

TOTAL DEPTH DRILLED: 15 feet

LOGGED BY: B. Chaky

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
0						
1		24	ND	1R-22.1-5/1		0 to 1.0' - FILL: Brown, medium to fine sand; some silt. Moist, roots.
2						1.0 to 5.0' - FILL: Brown silt; little clay, trace fine sand. Moist, roots.
3						
4						
5		36	ND	1R-22.1-5/6	OL	5.0 to 6.5' - FILL: Gray, medium to fine sand; little medium to fine sub-rounded gravel, trace silt. Wet, roots.
6						
7						
8						0.2
9						8.3
10						39.2
11		54.4		OL	10.0 to 13.0' - Gray CLAY; trace fine sand. Moist, roots, odor.	
12		40	47.1			
13						57.3
14						45.1
15						42.3
					PT	13.0 to 15.0' - Dark brown to black PEAT. Moist, odor.
						End of Boring @ 15'



Environmental Corporation

57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

TEMPORARY WELL AND SOIL BORING LOG

WELL NUMBER

1R-22.1-ENV-6W

PROJECT NAME: Spectra NJ-NY Expansion

LOCATION: Staten Island, New York

PROJECT NO.: 168217

CONTRACTOR: Land Air Water Environmental Services

SAMPLER TYPE/DIA.: Hand Auger/ Macrocore/2"

TYPE OF WELL: Temporary

DEPTH TO BEDROCK: Not Encountered

DRILLING METHOD: Hollow Stem Auger

TOTAL DEPTH DRILLED: 20 feet

BIT TYPE: Auger Bit

START DATE: 07/06/11

FINISH DATE: 07/06/11

DRILLER: K. McGourty

LOGGED BY: B. Chaky

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	WELL DIAGRAM	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
0							
1		Hand Cleared	ND	1R-22.1-6W/4			0 to 5.0' - FILL: Brown, medium to fine sand; some medium gravel, little silt, trace roots, trace concrete, trace cobbles. Wet @ 3', subangular to sub-rounded.
2			ND				
3			ND				
4		5.8					
5		8		1R-22.1-6W/5		SW	5.0 to 10' - Brown, coarse to fine SAND; some medium to fine gravel, trace silt. Wet, sub-rounded.
6			13.3				
7							
8			5.7				
9							
10		15				SM	10 to 15' - Dark gray to dark brown, medium to fine SAND; little silt, little clay, trace roots. Wet, petroleum-like odor.
11			72.9				
12							
13			105				
14							
15			89.8				

CASING TYPE/DIAMETER (IN.) INNER: <u>PVC/3</u> OUTER: <u>N/A</u>	STATIC WATER LEVEL: <u>3.00 (07/07/11)</u> feet below surface DEPTH WATER ENCOUNTERED: <u>3</u> feet below surface
SCREENED OR OPEN INTERVAL: <u>0 - 20</u> (FEET BELOW SURFACE)	MEASURING POINT ELEVATION: <u>NA</u> ft.msl GROUND SURFACE ELEVATION: <u>NA</u> ft.msl



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57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

TEMPORARY WELL AND SOIL BORING LOG

WELL NUMBER

1R-22.1-ENV-6W

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	WELL DIAGRAM	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
16		30	25.8			SW	15 to 20' - Dark gray, medium to fine SAND; little medium to fine gravel, little clay. Wet, petroleum-like odor.
			9.7				
17			39.4				
18			47.2				
19			16.3				
20							End of boring at 20'
							<p style="text-align: center;"><u>Well Construction Details</u></p> 0 to 20 ft. below surface - 3" diameter 0.010 slot PVC screen 0 to 20 ft. below surface - No. 01 sand



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SOIL BORING LOG

BORING NUMBER

1R-22.1-ENV-7

PROJECT NAME: Spectra NJ-NY Expansion

LOCATION: Staten Island, New York

PROJECT NO.: 168217

CONTRACTOR: Land Air Water Environmental Services

DATE DRILLED: 03/08/12

SAMPLER TYPE/DIA.: Hand Auger/Macro-Core/2"

DEPTH TO WATER: 1.5 feet

DRILLER: K. McGourty

BORING METHOD: Hand Auger/Geoprobe

TOTAL DEPTH DRILLED: 20 feet

LOGGED BY: B. Chaky

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
0						
1		Hand cleared	ND	1R-22.1-ENV-7/2		0.0 to 5.0' - Fill: Brown, fine to coarse, sand with fine to coarse, sub-angular to rounded gravel and trace silt. Medium dense, wet at 1.5 feet below grade, cobbles and shell material.
2						
3						
4						
5						
6				1R-22.1-ENV-7/5	OH	5.0 to 6.5' - Black CLAY; some silt, trace fine sand. Wet, loose.
7		12	2.7		SC	6.5 to 10.5' - Dark gray/brown, fine SAND; some clay, little silt. Wet, loose.
8						
9						
10			0.5			
11		17	ND		OH	10.5 to 15.5' - Dark gray to black CLAY; some silt, trace fine sand. Wet, loose.
12						
13						
14						
15			1.9			



Environmental Corporation

57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

SOIL BORING LOG

BORING NUMBER

1R-22.1-ENV-8

PROJECT NAME: Spectra NJ-NY Expansion

LOCATION: Staten Island, New York

PROJECT NO.: 168217

CONTRACTOR: Land Air Water Environmental Services

DATE DRILLED: 03/08/12

SAMPLER TYPE/DIA.: Hand Auger/Macro-Core/2"

DEPTH TO WATER: 3.0 feet

DRILLER: K. McGourty

BORING METHOD: Hand Auger/Geoprobe

TOTAL DEPTH DRILLED: 20 feet

LOGGED BY: W. Lindemuth

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS	
0							
1		Hand cleared	ND	1R-22.1-ENV-8/4	OL	0.0 to 3.0 - Gray-brown SILT and CLAY; some coarse to fine gravel. Dry; no odor; no staining.	
2			ND				
3			ND				
4			ND				
5			0.9				
6			0.9				
7		ND	ND	1R-22.1-ENV-8/5.5	SC	3.0 to 6.0 - Gray-brown to gray-black, coarse to fine SAND; some clay, little coarse to fine, rounded gravel. Wet; no odor; no staining.	
8							
9							
10							
11							
12							
13		36	42.1	1R-22.1-ENV-8/5.5	OH	10 to 14.5' - Black CLAY; little silt. Moist; slight petroleum-like odor; no staining.	
14			31.2				
15			4.2				
16			1.0				
17		36	1.7	1R-22.1-ENV-8/5.5	SM	14.5 to 15' - Black, fine SAND; some silt. Moist; slight petroleum-like odor; no staining.	
18			4.0				
19			ND				
20			ND				



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SOIL BORING LOG

BORING NUMBER

1R-22.1-ENV-8

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
16		50	1.3		OH	15 to 16' - Gray CLAY; little peat. Moist; slight sulfur-like odor; no staining. 16 to 20' - Brown PEAT. Moist; slight sulfur-like odor; no staining.
			1.4			
			3.0		PT	
17			97.2			
			157.1			
18			332			
			242			
19			412			
			ND			
20			ND			
					End of boring at 20'.	
					Note: Borehole backfilled with soil cuttings and restored to grade.	



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SOIL BORING LOG

BORING NUMBER

1R-22.1-ENV-9

PROJECT NAME: Spectra NJ-NY Expansion

LOCATION: Staten Island, New York

PROJECT NO.: 168217

CONTRACTOR: Land, Air, Water Environmental Services

DATE DRILLED: 03/08/12

SAMPLER TYPE/DIA.: Hand Auger/Macro-Core/2"

DEPTH TO WATER: 6.0 feet

DRILLER: K. McGourty

BORING METHOD: Hand Auger/Geoprobe

TOTAL DEPTH DRILLED: 20 feet

LOGGED BY: B. Chaky

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
0						
1		Hand cleared	ND	1R-22.1-ENV-9/3		0.0 to 6.0' - FILL: Gray clay and brown silt; little fine, sub-rounded gravel, fine to medium sand and root material. Moist, loose, reworked clay, cobbles.
2						
3						
4						
5						
6						
7		43	0.8	1R-22.1-ENV-9/6		6.0 to 8.0' - FILL: Gray clay; little silt; trace fine, rounded gravel; trace fine sand. Wet at 6.0', loose, three-inch peat layer at 3.5'.
8			0.6			
9			0.5			
10			0.3			
11		49	0.2			8.0 to 10.0' - FILL: Gray, fine to medium clay; little sub-rounded to rounded gravel, trace silt. Wet, medium-dense.
12			ND			
13			0.0			
14			2.5			
15			11.6			
16			9.3			
17		49	6.9			10.0 to 10.5' - FILL: Gray, fine to medium sand; little fine, sub-rounded gravel; trace silt. Wet, loose.
18			15.1			
19			2.3			
20			0.4			
21						10.5 to 15' - FILL: Black clay, little silt. Wet, loose, petroleum-like odor.



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57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

SOIL BORING LOG

BORING NUMBER

1R-22.1-ENV-9

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
16		55	ND		SW	15.0 to 20.0' - Gray, fine to medium SAND; some fine, sub-rounded to rounded gravel, trace silt. Wet, loose, black clay in tip of Macro-Core, little shell material.
17						
18						
19						
20						
						End of boring at 20'.
						Note: Borehole backfilled with soil cuttings and restored to grade.



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57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

SOIL BORING LOG

BORING NUMBER

1R-22.1-HDD-1

PROJECT NAME: Spectra NJ-NY Expansion

LOCATION: Staten Island, New York

PROJECT NO.: 168217

CONTRACTOR: Warren George, Inc.

DATE DRILLED: 10/27/10

SAMPLER TYPE/DIA.: Stainless steel spoon/2"

DEPTH TO WATER: 5.0 feet

DRILLER: O. Sanchez

BORING METHOD: Mud rotary / Tri cone roller bit

TOTAL DEPTH DRILLED: 21 feet

LOGGED BY: C. Nichol

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
0						Unpaved
1			ND	No Samples Collected		0.0 to 4.0' - FILL: Reddish-brown, fine to medium sand; trace silt, trace roots. Loose. Increasing silt composition towards 3'. Wood pieces from 2.5 to 3.0'.
			ND			
2			ND			
			ND			
3			ND			
			6.3			
4		Hand cleared	1.5		CL	
			0.9			
5			2			
			2.8			
6			22.3			
			8.9			
7			33.3	CL		
8	Weight of Hammer	18	3.8	CL	7.0 to 9.0' - Black SILT; some clay.	
			4.3			
9			2.9			
			1.1		9.0 to 11' - Continuous drilling; no spoons collected.	
10						
11			ND	ML		
12					11 to 13' - (lithology from ends of shelly tube) Dark gray, SILT; trace fine sand, trace shells. Shelby tube collected from 11 to 13'.	
13						
14	Weight of Hammer	24	48.6	OL		
			82			
15			143.1		51.1	13 to 15' - Gray, PEAT; and organic silt. Organic odor, no visible signs of contamination



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57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

SOIL BORING LOG

BORING NUMBER

1R-22.1-HDD-1

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
16	Weight of Hammer	14	63.6			OL 15 to 17' - Gray, PEAT; and organic silt. Organic odor, no visible signs of contamination
17			84.2			
18			32.4			
19						OL 17 to 19' - Continuous drilling; no spoons collected.
20	Weight of Hammer	24	516			OL 19 to 21' - Gray, PEAT; and organic silt. Strong organic odor, no visible signs of contamination
21			873			
			431			OL 19 to 21' - Gray, PEAT; and organic silt. Strong organic odor, no visible signs of contamination
						End of boring lithology @ 21' Borehole extended to 99'
						Note: Borehole grouted in accordance with N.J.A.C. 7:9D-3.1



Environmental Corporation

57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

SOIL BORING LOG

BORING NUMBER

1R-22.1-HDD-2

PROJECT NAME: Spectra NJ-NY Expansion

LOCATION: Staten Island, New York

PROJECT NO.: 168217

CONTRACTOR: Warren George, Inc.

DATE DRILLED: 10/22/10

SAMPLER TYPE/DIA.: Hand Auger/ Stainless steel spoon/2"

DEPTH TO WATER: 1.5 feet

DRILLER: O. Sanchez

BORING METHOD: Mud rotary / Tri cone roller bit

TOTAL DEPTH DRILLED: 22 feet

LOGGED BY: C. Nichol

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
0						
1			ND	No Samples Collected		0.0 to 2.25' - ASPHALT; Intermittent layers of sand. Water in borehole @ 1.5'.
2						
3			ND			
4		Hand cleared	0.7			2.25 to 4.5' - FILL: Reddish -brown to black, medium to coarse sand; little silt. Wet, loose, petroleum-like odor. Piece of wood from 4 to 4.5'.
5			86.6			
6			30			
7			10.6			4.5 to 5.0' - FILL: Dark brown to black, coarse to fine sand; and fine to coarse gravel. Wet.
8			315			
9			119			5.0 to 6.5' - FILL: Black, medium to coarse sand; little fine gravel. Petroleum-like odor, separate phase product/sheen on water bailed from borehole.
10			219			
11			230			
12			237		SP	6.5 to 7.0' - Reddish brown, coarse to fine SAND; little fine to coarse gravel. Wet, sheen, petroleum-like odor.
13		6			SP	7.0 to 9.0' - Gray, fine to medium SAND; little fine gravel. Wet.
14			ND			
15						9.0 to 16' - Continuous drilling. No spoons collected.



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57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

SOIL BORING LOG

BORING NUMBER

1R-22.1-HDD-3

PROJECT NAME: Spectra NJ-NY Expansion

LOCATION: Staten Island, New York

PROJECT NO.: 168217

CONTRACTOR: Warren George, Inc.

DATE DRILLED: 07/27/11

SAMPLER TYPE/DIA.: Stainless Steel Split Spoon/1 3/8"

DEPTH TO WATER: 10 feet

DRILLER: T. Gregory

BORING METHOD: Mud Rotary/
Tri-cone roller bit

TOTAL DEPTH DRILLED: 47.5 feet

LOGGED BY: B. Chaky

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
0						
1				No samples collected.		0.0 to 10.0' - Continuous drilling; no spoons collected.
2						
3						
4						
5						
6						
7						
8						
9						
10						
11	WOH	17	25.4	PT		10 to 12' - Dark Brown PEAT; little silt, little clay, trace root material. Wet @ approximately 10', loose.
	WOH		33.8			
	WOH		1253			
12	WOH					
13						12 to 15' - Continuous drilling, no spoons collected.
14						
15						



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SOIL BORING LOG

BORING NUMBER

1R-22.1-HDD-3

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
16	PUSH	24	ND			15' to 17' - Dark Brown PEAT; little silt, little clay, trace root material. Wet, loose.
	PUSH					
	PUSH					
17	PUSH					17.0 to 20.0' - Continuous drilling; no spoons collected.
18						
19						
20						
21	14	14	ND		SW	20.0 to 22.0' - Gray brown, medium to fine SAND; some coarse to fine gravel, little silt. Wet, loose, sub-rounded.
	22					
	23					
22	22					22.0 to 25.0' - Continuous drilling; no spoons collected.
23						
24						
25						
26	11	15	ND		SM	25.0 to 27.0' - Red brown, medium to fine SAND; some medium to fine gravel, little silt. Moist, dense, angular to sub-angular.
	15					
	25					
27	31					27.0 to 30.0' - Continuous drilling; no spoons collected.
28						
29						
30						
31	26	18	ND		GP	30.0 to 32.0' - Red brown, coarse to fine GRAVEL; some clay, little medium to fine sand. Moist, dense, angular.
	68					
	90					
32	46					32.0 to 35.0' - Continuous drilling; no spoons collected.
33						
34						
35						



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SOIL BORING LOG

**BORING NUMBER
1R-22.1-HDD-3**

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
36	44	15	ND		SM	35.0 to 37.0' - Red brown, fine SAND; some silt, little medium to fine gravel. Moist, dense, angular. Some decomposed rock at bottom 2".
	80					
	36					
37	50+					37.0 to 40.5' - Continuous drilling; no spoons collected.
38						
39						
40						
41		17	ND			40.5 to 42.5' - Red brown, fine grained SHALE. Highly fractured, highly weathered, 1/2" to 8" joint spacing, 0 to 90 degree fractures. RQD=0
42						
43		34	ND			42.5 to 47.5' - Red brown, fine grained SHALE. Highly fractured, highly weathered, 1" to 4" joint spacing, 0 to 70 degree fractures. RQD=9%
44						
45						
46						
47						

End of boring @ 47.5 Feet

**Environmental Corporation**

57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

SOIL BORING LOG**BORING NUMBER****1R-22.1-HDD-4****PROJECT NAME:** Spectra NJ-NY Expansion**LOCATION:** Staten Island, New York**PROJECT NO.:** 168217**CONTRACTOR:** Warren George Inc.**SAMPLER TYPE/DIA.:** Hand Auger/
Stainless steel spoon/2"
BORING METHOD: Mud Rotary/ Tricone
Roller Bit**DEPTH TO WATER:** 4 feet
TOTAL DEPTH DRILLED: 117 feet**DATE DRILLED:** 2/24/2012 to
2/27/2012**DRILLER:** J. Ware**LOGGED BY:** W. Lindemuth

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
0						
1		Hand Cleared	ND		ML	0.0 to 4.0' - Brown SILT and little fine to coarse gravel. Wet @ 3'. 4.0 to 7.0' - Dark brown/black CLAY and SILT, wet at 4.0'.
2						
3						
4						
5						
6						
7	4	18	ND		CL	7.0 to 7.5' - Black CLAY and fine to coarse GRAVEL. PT 7.5 to 9.0' - Gray/black organic PEAT.
8	3					
9	1					
10	2	24	4.3 12.1 20.7 5.4		OL	9.0 to 11' - Gray CLAY and PEAT; slight sulfur-like odor.
11	WH					
12	2					
13	1					
14	2					
15						11 to 15' - Continuous drilling - no spoons collected.



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57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

SOIL BORING LOG

BORING NUMBER

1R-22.1-HDD-4

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
16	WH	23	4.5		OH	15 to 16.5' - Gray CLAY.
	WH		8.1			
	WH		24.3			
17	WH		18.1		PT	16.5 to 17' - Brown PEAT. 17 to 20' - Continuous drilling - no spoons collected.
18						
19						
20						
21	4	17	0.9		SM	20 to 22' - Gray fine SAND, some organics (vegetation).
	5		0.8			
	7		0.5			
	10		0.4			
22						22 to 25' - Continuous drilling - no spoons collected.
23						
24						
25						
26	12	13	ND		SW	25 to 27' - Brown, fine SAND and fine to coarse GRAVEL.
	10					
	14					
	19					
27						27 to 30' - Continuous drilling - no spoons collected.
28						
29						
30						
31	14	11	ND		SW	30 to 32' - Brown, fine to coarse SAND and fine GRAVEL.
	16					
	12					
32	7					32 to 35' - Continuous drilling - no spoons collected.
33						
34						
35						



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SOIL BORING LOG

BORING NUMBER

1R-22.1-HDD-4

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
36	7	7	ND		SW	35 to 37' - Brown, fine to coarse SAND and fine GRAVEL.
	10					
	9					
37	7					37 to 40' - Continuous drilling - no spoons collected.
38						
39						
40						
41	WH	13	ND		OH	40 to 42' - Red/brown CLAY and SILT; trace coarse sand.
	8					
	13					
42	27					42 to 45' - Continuous drilling - no spoons collected
43						
44						
45						
46	42-100/4"	8	ND		OH	45 to 47' - Red/brown CLAY and SILT; some fine to coarse sand, little fine gravel, dense.
	42-100/4"					
	42-100/4"					
	42-100/4"					
47						47 to 48.7' - Continuous drilling - no spoons collected.
48						
49		18	ND			48.7 to 117' - Red/brown shale - bedrock.
50						
51						
52						
53						
54		29	ND			
55						



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SOIL BORING LOG

BORING NUMBER

1R-22.1-HDD-4

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
56						48.7 to 117' - Red/brown shale - bedrock.
57						
58		60	ND			
59						
60						
61						
62						
63		60	ND			
64						
65						
66						
67						
68		60	ND			
69						
70						
71						
72						
73		60	ND			
74						
75						

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
76						48.7 to 117' - Red/brown shale - bedrock.
77						
78		114	ND			
79						
80						
81						
82						
83						
84						
85						
86						
87						
88		120	ND			
89						
90						
91						
92						
93						
94						
95						



TRC Environmental Corporation

57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

SOIL BORING LOG

BORING NUMBER

1R-22.1-HDD-4

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
96						48.7 to 117' - Red/brown shale - bedrock.
97						
98		116.5	ND			
99						
100						
101						
102						
103						
104						
105						
106						
107						
108		120	ND			
109						
110						
111						
112						
113						
114						
115						



TRC Environmental Corporation

57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

SOIL BORING LOG

BORING NUMBER
1R-22.1-HDD-4

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
116						48.7 to 117' - Red/brown shale - bedrock.
117						End of TRC observation of boring at 117'



Environmental Corporation

57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

TEMPORARY WELL AND SOIL BORING LOG

WELL NUMBER

1R-22.1H-ENV-1W

PROJECT NAME: Spectra NJ-NY Expansion

LOCATION: Staten Island, New York

PROJECT NO.: 168217

CONTRACTOR: Land Air Water Environmental Services

START DATE: 07/05/11

FINISH DATE: 07/06/11

DRILLER: K. McGourty

LOGGED BY: B. Chaky

SAMPLER TYPE/DIA.: Hand Auger/ Macrocore/2"

TYPE OF WELL: Temporary

DEPTH TO BEDROCK: Not Encountered

DRILLING METHOD: Hollow Stem Auger

TOTAL DEPTH DRILLED: 20 feet

BIT TYPE: Auger Bit

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	WELL DIAGRAM	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS			
0										
1		Hand Cleared	ND	1R-22.1H-1W/2		SM	0 - 3.0' - FILL: Brown, medium to fine sand, medium gravel, little silt, trace roots, clay pipe material, shells. Wet @ 1'.			
2										
3										
4		36	ND ND ND 0.2 9.2 16.3	1R-22.1H-1W/6		CL	3.0 to 6.0' - Gray brown, medium to fine SAND, some clay, little silt. Wet.			
5										
6										
7										
8										
9										
10		48	ND ND 2.1 5.4 7.3 52.1 24.6 19.8			SM	6.0 to 10' - Gray brown CLAY, trace silt, trace roots. Moist, slight odor.			
11										
12										
13										
14										
15						OL	11 to 15' - Dark gray CLAY, trace roots, trace shells. Moist.			

CASING TYPE/DIAMETER (IN.) INNER: <u>PVC/3</u> OUTER: <u>N/A</u>	STATIC WATER LEVEL: <u>3.12 (07/06/11)</u> feet below surface DEPTH WATER ENCOUNTERED: <u>1</u> feet below surface
SCREENED OR OPEN INTERVAL: <u>0 - 20</u> (FEET BELOW SURFACE)	MEASURING POINT ELEVATION: <u>NA</u> ft.msl GROUND SURFACE ELEVATION: <u>NA</u> ft.msl



Environmental Corporation

57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

TEMPORARY WELL AND SOIL BORING LOG

WELL NUMBER

1R-22.1H-ENV-1W

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	WELL DIAGRAM	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
16		24	15.4			SM	15 to 20' - Dark gray, medium to fine SAND, little silt. Wet, slight odor.
17			21.6				
18			27.1				
19			35.2				
20							
							End of boring at 20'
							<p><u>Well Construction Details</u></p> <p>0 to 20 ft. below surface - 3" diameter 0.010 slot PVC screen</p> <p>0 to 20 ft. below surface - No. 01 sand</p>



Environmental Corporation

57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

SOIL BORING LOG

BORING NUMBER

NYC-2-PIP-1

PROJECT NAME: Spectra NJ-NY Expansion

LOCATION: New York, New York

PROJECT NO.: 168217

CONTRACTOR: Warren George, Inc.

DATE DRILLED: 11/2/11-11/8/11

SAMPLER TYPE/DIA.: Split Spoon

DEPTH TO WATER: 5.0 feet

DRILLER: C. Moreira

BORING METHOD: Mud Rotary / Tri-cone Roller Bit

TOTAL DEPTH DRILLED: 205 feet

LOGGED BY: B. Bermingham

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
0						
1				No Samples Collected		0.0 to 1.5' - Asphalt (0.25' thick), underlain by belgian block, underlain by concrete.
2						
3		12	ND			1.5 to 8.0' - FILL: Brown, medium to coarse sand and silt; little fine gravel, some red brick, trace concrete. Trace asphalt at 5.0'. Dry no odor, no staining.
4						
5		10.2	ND			
6						Wet at 5.0'.
7						
8						
9		24	ND			8.0 to 9.0' - FILL: Gray silt and fine to medium sand; trace fine gravel. Wet, no odor, no staining.
10						9.0 to 10' - Continuous drilling, no spoons collected.
11	12	6	ND			10 to 12' - FILL: Fine gravel and concrete; trace coarse sand. Wet, no odor, no staining.
	4					
12	5					
13						12 to 15' - Continuous drilling, no spoons collected.
14						
15						



Environmental Corporation

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SOIL BORING LOG

BORING NUMBER

NYC-2-PIP-1

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
16	24	6	ND			15 to 20' - FILL: Fine gravel; trace wood. Wet, no odor, no staining. Lithology from 17 to 20' was based on mud rotary soil cuttings.
	7					
	2					
17	2					
18						
19						
20						
21	27	6	ND			20 to 25' - FILL: Fine to medium gravel; little coarse sand, trace wood. Wet, no odor, no staining. Lithology from 22 to 25' was based on mud rotary soil cuttings.
	20					
	55					
22	22					
23						
24						
25						
26	15	6	ND			25 to 30' - FILL: Wood with fine gravel, trace medium to coarse sand. Wet, no odor, no staining. Lithology from 27 to 30' was based on mud rotary soil cuttings.
	10					
	15					
27	57					
28						
29						
30						
31	100/5"	3	ND			30 to 40' - FILL: Wood timber; trace gray, medium to coarse sand. Wet, no odor, no staining. Refusal at 30 to 30.5'. Lithology from 30 to 40' was based on mud rotary soil cuttings.
32						
33						
34						
35						



Environmental Corporation

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SOIL BORING LOG

BORING NUMBER

NYC-2-PIP-1

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
36	24	3	ND			
	12					
	12					
37	100/12"					Refusal at 36.5 to 37.5'.
38						
39						
40						
41	6	24	ND			OH 40 to 50' - Gray SILT and CLAY; trace shells and fine to medium sand. Less silt and sand towards 45'. Wet, medium stiff, no odor, no staining. Lithologies from 42 to 45' and from 47 to 50' were based on mud rotary soil cuttings.
	12					
	10					
42	10					
43						
44						
45						
46	WOH	15	ND			
	WOH					
	WOH					
47	3					
48						
49						
50						
51		Piston Tube Collected				50 to 55' - Fixed Piston tube collected, no lithology taken.
52						
53						
54						
55						



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57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

SOIL BORING LOG

BORING NUMBER

NYC-2-PIP-1

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
56	WOH	15.6	ND		OH	55 to 65' - Gray CLAY; trace silt. Wet, medium stiff, no odor, no staining. Lithologies from 57 to 60' and from 62 to 65' were based on mud rotary soil cuttings.
	WOH					
	WOH					
57	WOH					
58						
59						
60						
61	WOH	13.2	ND			
	WOH					
	WOH					
62	WOH					
63						
64						
65						
66	WOH	Piston Tube Collected				65 to 70' - Fixed Piston tube collected, no lithology taken.
	WOH					
	WOH					
67	WOH					
68						
69						
70						
71	WOH	13.2	ND		OH	70 to 80' - Gray CLAY; trace silt. Wet, medium stiff, no odor, no staining. Lithologies from 72 to 75' and 77 to 80' were based on mud rotary soil cuttings.
	WOH					
	WOH					
72	WOH					
73						
74						
75						



DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
76	WOH	10.2	ND			
	WOH					
	WOH					
77	WOH					
78						
79						
80						
81	WOH	6	ND			OH 80 to 85' - Gray CLAY; trace silt. Wet, medium soft, no odor, no staining. Lithology from 82 to 85' was based on mud rotary soil cuttings.
	WOH					
	WOH					
82	WOH					
83						
84						
85						
86	WOH	Piston Tube Collected				85 to 90' - Fixed Piston tube collected, no lithology taken.
	WOH					
	WOH					
87	WOH					
88						
89						
90						
91	10	15	ND			OH 90 to 105' - Gray CLAY; trace silt, trace shells. Wet, medium soft, no odor, no staining. Lithologies from 92 to 95', 97 to 100' and 102 to 105' were based on mud rotary soil cuttings.
	8					
	WOH					
92	WOH					
93						
94						
95						



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57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

SOIL BORING LOG

BORING NUMBER

NYC-2-PIP-1

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
96	2	24	ND			
	1					
1						
3						
97						
98						
99						
100						
101	WOH	10.2	ND			
	WOH					
	WOH					
	WOH					
102						
103						
104						
105						
106	WOH	22.2	ND			
	WOH					
	WOH					
	WOH					
107						
108						
109						
110						
111	WOH	Piston Tube Collected				
	WOH					
	WOH					
	WOH					
112						
113						
114						
115						

OH 105 to 110' - Gray SILT and CLAY; trace peat. Wet, medium soft, no odor, no staining. Lithology from 107 to 110' was based on mud rotary soil cuttings.

110 to 115' - Fixed Piston tube collected, no lithology taken.



Environmental Corporation

57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

SOIL BORING LOG

BORING NUMBER

NYC-2-PIP-1

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
116	WOH	12	ND		OH	115 to 140' - Gray SILT and CLAY; trace peat. Wet, medium soft, no odor, no staining. Lithologies from 117 to 120', 122 to 125', 127 to 130', 132 to 135', and 137 to 140' were based on mud rotary soil cuttings.
	WOH					
	WOH					
117	WOH					
118						
119						
120						
121	WOH	3.5	ND			
	WOH					
	WOH					
122	WOH					
123						
124						
125						
126	WOH	9	ND			
	WOH					
	WOH					
127	WOH					
128						
129						
130						
131	WOH	3.6	ND			
	WOH					
	WOH					
132	WOH					
133						
134						
135						



Environmental Corporation

57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

SOIL BORING LOG

BORING NUMBER

NYC-2-PIP-1

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
136	WOH	9	ND			
	WOH					
	WOH					
137	WOH					
138						
139						
140						
141	WOH	9	ND		SM	140 to 145'- Fine to coarse SAND and SILT. Wet, no odor, no staining. Lithology from 142 to 145' was based on mud rotary soil cuttings.
	WOH					
	WOH					
142	WOH					
143						
144						
145						
146	WOH	9	ND		SM	145 to 160' - Gray, fine to coarse SAND; trace silt. Wet, no odor, no staining. Lithologies from 147 to 150', 152 to 155' and 157 to 160' were based on mud rotary soil cuttings.
	WOH					
	WOH					
147	WOH					
148						
149						
150						
151	WOH	24	ND			
	WOH					
	WOH					
152	WOH					
153						
154						
155						



Environmental Corporation

57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

SOIL BORING LOG

BORING NUMBER

NYC-2-PIP-1

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
156	24	15	ND			
	20					
	22					
157	21					
158						
159						
160						
161	34	6	ND		SW	160 to 165'- Medium to coarse SAND and fine GRAVEL. Wet, no odor, no staining. Lithology from 161 to 165' was based on mud rotary soil cuttings.
	30					
	100/3"					
162						Refusal at 161 to 161.5'.
163						
164						
165						
166	26	0.96	ND		SW	165 to 180'- Gray, fine to coarse SAND and fine GRAVEL; trace silt. Wet, no odor, no staining. Lithologies from 167 to 170', 172 to 175' and 177 to 180' were based on mud rotary soil cuttings.
	16					
	20					
	67					
167						
168						
169						
170						
171	WOH	3.6	ND			
	WOH					
	WOH					
	WOH					
172						
173						
174						
175						



Environmental Corporation

57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

SOIL BORING LOG

BORING NUMBER

NYC-2-PIP-1

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
176	22	3	ND			
	22					
	19					
177	12					
178						
179						
180						
181	23	15	ND		SM	180 to 190' - Brownish-red, fine to coarse SAND and SILT; some fine gravel. Wet, no odor, no staining. Lithologies from 182 to 185' and 187 to 190' were based on mud rotary soil cuttings.
	30					
	50					
182	4					
183						
184						
185						
186	16	6	ND			
	19					
	28					
187	24					
188						
189						
190						
191	27	9	ND		SM	190 to 205' - Reddish-brown, fine to coarse SAND; some silt, trace gravel. Wet, no odor, no staining. Lithologies from 191 to 195, 197 to 200' and 202 to 205' were based on mud rotary soil cuttings.
	32					
	100/12"					
192						Refusal at 191 to 192'.
193						
194						
195						



Environmental Corporation

57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

SOIL BORING LOG

BORING NUMBER

NYC-2-PIP-1

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
196	23	9	ND			
	32					
	39					
197	100/3"					Refusal at 196.5 to 197'. End of boring at 205 feet. Note: Borehole grouted in accordance with N.J.A.C. 7:9D-3.1
198						
199						
200						
201	22	12	ND			
	17					
	18					
202	26					
203						
204						
205						



Environmental Corporation

57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

SOIL BORING LOG

BORING NUMBER

NYC-2-PIP-2

PROJECT NAME: Spectra NJ-NY Expansion

LOCATION: New York, New York

PROJECT NO.: 168217

CONTRACTOR: Warren George, Inc.

DATE DRILLED: 10/27/11

DRILLER: C. Moreira

LOGGED BY: B. Bermingham

SAMPLER TYPE/DIA.: Hand Auger / Split Spoon

DEPTH TO WATER: 10 feet

BORING METHOD: Mud Rotary / Tri-cone Roller Bit

TOTAL DEPTH DRILLED: 155 feet

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS	
0							
1				No Samples Collected		0.0 to 1.0' - Asphalt.	
2						1.0 to 8.0' - FILL: Gray, fine to medium sand; some silt, trace gravel and concrete. Moist at 5'.	
3							
4							
5		Hand Cleared	ND				
6							
7							
8							8.0 to 9.0' - FILL: Granite stone.
9							9.0 to 10' - FILL: Large pieces of reinforced concrete, red brick, and wood timbers.
10							10 to 12' - FILL: Gray, medium to coarse sand and fine gravel; trace red brick. Wet at 10'.
11	7	6	ND				
12	3						
13	10						12 to 15' - Continuous drilling, no spoons collected.
14							
15							



Environmental Corporation

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SOIL BORING LOG

BORING NUMBER

NYC-2-PIP-2

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
16	5	6	ND		SM	15 to 17' - Gray SILT and medium to coarse SAND; trace fine gravel. Wet.
	3					
	3					
17	3					17 to 20' - Continuous drilling, no spoons collected.
18						
19						
20						
21	4	12	ND		SM	20 to 22' - Gray SILT and medium to coarse SAND; trace fine gravel. Wet.
	2					
	2					
22	8					22 to 25' - Continuous drilling, no spoons collected.
23						
24						
25						
26	2	24	ND		CL	25 to 27' - Gray, medium soft CLAY and SILT; trace fine gravel. Wet.
	1					
	1					
27	1					27 to 30' - Continuous drilling, no spoons collected.
28						
29						
30						
31	1	12	ND		CL	30 to 32' - Gray, medium soft CLAY and SILT; trace fine gravel. Wet.
	4					
	3					
32	2					32 to 35' - Continuous drilling, no spoons collected.
33						
34						
35						



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SOIL BORING LOG

BORING NUMBER

NYC-2-PIP-2

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
36	2 1 1	24	ND		CH	35 to 37' - Gray,medium soft CLAY; trace silt. Wet.
37	1					37 to 40' - Continuous drilling, no spoons collected.
38						
39						
40						
41	WOR WOR WOR	6	ND		CH	40 to 42' - Gray,medium soft CLAY; trace silt. Wet.
42	WOR					42 to 45' - Continuous drilling, no spoons collected.
43						
44						
45						
46	WOR WOR WOR	23			CH	45 to 47' - Gray,medium soft CLAY; trace silt. Wet.
47	WOR					47 to 50' - Continuous drilling, no spoons collected.
48						
49						
50						
51	WOR WOR WOR	6	ND			50 to 52' - Gray,medium soft CLAY; trace silt. Wet.
52	WOR					52 to 55' - Continuous drilling, no spoons collected.
53						
54						
55						



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57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

SOIL BORING LOG

BORING NUMBER

NYC-2-PIP-2

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
56	WOR	12	ND		CH	55 to 57' - Gray,medium soft CLAY; trace silt. Wet.
	WOR					
	WOR					
57	WOR					57 to 60' - Continuous drilling, no spoons collected.
58						
59						
60						CH 60 to 62' - Gray,medium soft CLAY; trace silt. Wet.
61	WOR	15	ND			
	WOR					
	WOR					
62	WOR					62 to 65' - Continuous drilling, no spoons collected.
63						
64						
65						CH 65 to 67' - Gray,medium soft CLAY; trace silt. Wet.
66	WOR	12	ND			
	WOR					
	WOR					
67	WOR					67 to 70' - Continuous drilling, no spoons collected.
68						
69						
70						CH 70 to 72' - Gray,medium soft CLAY; trace silt, trace shells. Wet.
71	WOR	24	ND			
	WOR					
	WOR					
72	WOR					72 to 75 - Continuous drilling, no spoons collected.
73						
74						
75						



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57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

SOIL BORING LOG

BORING NUMBER

NYC-2-PIP-2

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
76	WOR	21	ND		CH	75 to 77' - Gray,medium soft CLAY; trace silt, trace shells. Wet.
	WOR					
	WOR					
77	WOR					77 to 80' - Continuous drilling, no spoons collected.
78						
79						
80						CH 80 to 82' - Gray,medium soft CLAY; trace silt, trace shells. Wet.
81	WOR	24	ND			
	WOR					
	WOR					
82	WOR					82 to 85' - Continuous drilling, no spoons collected.
83						
84						
85						CH 85 to 87' - Gray,medium soft CLAY; trace silt, trace shells. Wet.
86	WOR	24	ND			
	WOR					
	WOR					
87	WOR					87 to 90' - Continuous drilling, no spoons collected.
88						
89						
90						CH 90 to 92' - Gray, medium soft CLAY; trace silt. Wet.
91	WOR	22	ND			
	WOR					
	WOR					
92	WOR					92 to 95' - Continuous drilling, no spoons collected.
93						
94						
95						



Environmental Corporation

57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

SOIL BORING LOG

BORING NUMBER

NYC-2-PIP-2

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
96	WOR	9	ND		CH	95 to 97' - Gray, medium soft CLAY; trace silt. Wet.
	WOR					
97	WOR					
	WOR					
98						97 to 100' - Continuous drilling, no spoons collected.
99						
100						
101	WOR	22	ND		CH	100 to 102' - Gray, medium soft CLAY; trace silt. Wet.
	WOR					
102	WOR					
	WOR					
103						102 to 105' - Continuous drilling, no spoons collected.
104						
105						
106	WOR	13	ND		CH	105 to 107' - Gray, medium soft CLAY; trace silt. Wet.
	WOR					
107	WOR					
	WOR					
108						107 to 110' - Continuous drilling, no spoons collected.
109						
110						
111	WOR	9	ND		CH	110 to 112' - Gray, medium soft CLAY; trace silt. Wet.
	11					
	4					
112	6					
113						112 to 115' - Continuous drilling, no spoons collected.
114						
115						



Environmental Corporation

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SOIL BORING LOG

BORING NUMBER

NYC-2-PIP-2

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
116	WOR	18	ND		OH	115 to 117' - Gray, medium soft CLAY; trace silt, trace wood, trace peat. Wet.
	WOR					
	WOR					
117	WOR					117 to 120' - Continuous drilling, no spoons collected.
118						
119						
120						
121	WOR	15	ND		OH	120 to 122' - Gray, medium soft CLAY; trace silt, trace wood, trace peat. Wet.
	WOR					
	WOR					
122	WOR					122 to 125' - Continuous drilling, no spoons collected.
123						
124						
125						
126	WOR	18	ND		OH	125 to 127' - Gray, medium soft CLAY; trace silt, trace wood, trace peat. Wet.
	WOR					
	WOR					
127	WOR					127 to 130' - Continuous drilling, no spoons collected.
128						
129						
130						
131	WOR	9	ND		OH	130 to 132' - Gray, medium soft CLAY; trace silt, trace wood, trace peat. Wet.
	WOR					
	WOR					
132	WOR					132 to 135' - Continuous drilling, no spoons collected.
133						
134						
135						



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SOIL BORING LOG

BORING NUMBER

NYC-2-PIP-2

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
136	WOR	9	ND		CH	135 to 137' - Gray, medium soft CLAY; trace silt. Wet.
	WOR					
	WOR					
137	WOR					
138						137 to 140' - Continuous drilling, no spoons collected.
139						
140						
141	WOR	9	ND		CH	140 to 142' - Gray, medium soft CLAY; trace silt. Wet.
	WOR					
	WOR					
142	WOR					
143						142 to 145' - Continuous drilling, no spoons collected.
144						
145						
146	17	24	ND		CH	145 to 147' - Gray, medium soft CLAY; trace silt. Wet.
	20					
	18					
147	18					
148						147 to 150' - Continuous drilling, no spoons collected.
149						
150						
151	2	24	ND		CL	150 to 152' - Gray, soft CLAY and SILT. Wet.
	1					
	WOR					
152	WOR					
153						152 to 155' - Continuous drilling, no spoons collected.
154						Note: Boring hole grouted, topped with cement and asphalt to grade
155						Bedrock encountered at 155'



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SOIL BORING LOG

BORING NUMBER

NYC-2-PIP-3

PROJECT NAME: Spectra NJ-NY Expansion **LOCATION:** New York, New York

PROJECT NO.: 168217 **CONTRACTOR:** Warren George, Inc.

DATE DRILLED: 10/25/11

SAMPLER TYPE/DIA.: Split Spoon **DEPTH TO WATER:** 7.0 feet

DRILLER: C. Moreira

BORING METHOD: Mud Rotary / Tri-cone Roller Bit **TOTAL DEPTH DRILLED:** 80 feet

LOGGED BY: B. Bermingham

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
0						
1				No Samples Collected		0.0 to 3.0' - Asphalt (0.25' thick), underlain by belgian block, underlain by concrete rubble.
2		--	ND			
3				No Samples Collected		3.0 to 5.0' - FILL: Red brick; some brown, fine to medium sand; trace silt, trace fine gravel. Moist.
4	16	12	ND			
5	7					
6	7	12	ND	No Samples Collected		5.0 to 9.0' - FILL: Brown silt and fine to coarse sand; trace gravel, some red brick, little black ash, trace concrete.
7	20					
8	10					
9	20	12	ND	No Samples Collected		Wet at 7 feet.
10	18					
11	12	12	ND	No Samples Collected		9.0 to 11' - Gray SILT and soft CLAY; trace fine to medium sand. Wet.
12	14					
13	16					
14	10	6	ND	No Samples Collected		11 to 20' - Continuous drilling, no spoons collected.
15	8					
	7					
	6					
	5					



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SOIL BORING LOG

BORING NUMBER

NYC-2-PIP-3

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
16						
17						
18						
19						
20						
21	3	12	ND		SM	20 to 22' - Dark brown, fine to medium SAND and SILT; little fine gravel. Wet.
21	2					
21	2					
22	2					
23						22 to 25' - Continuous drilling, no spoons collected.
24						
25						
26						
27	6	12	ND		SM	25 to 27' - Dark brown, fine to medium SAND and SILT; little fine gravel. Wet.
26	6					
26	6					
27	7					
28						27 to 30' - Continuous drilling, no spoons collected.
29						
30						
31						
32	5	12	ND		SM	30 to 32' - Dark brown, fine to medium SAND and SILT; little fine gravel. Wet.
31	2					
31	2					
32	3					
33						32 to 35' - Continuous drilling, no spoons collected.
34						
35						



DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
36	4	0.25	ND		SM	35 to 37' - Dark brown, fine to medium SAND and SILT; little fine gravel. Wet.
	3					
	5					
37	4					37 to 40' - Continuous drilling, no spoons collected.
38						
39						
40						
41	2	21	ND		CL	40 to 42' - Medium gray CLAY; trace silt. Wet.
	2					
	3					
42	2					42 to 45' - Continuous drilling, no spoons collected.
43						
44						
45						
46						45 to 50' - MRCE piston sample collected, no lithology recorded.
47						
48						
49						
50						
51	2	22	ND		CL	50 to 52' - Gray CLAY; trace silt, trace fine gravel. Wet
	1					
	2					
52	1					52 to 55' - Continuous drilling, no spoons collected.
53						
54						
55						



DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
56	WOR	18	ND		CH	55 to 57' - Gray, medium soft CLAY; trace silt. Wet.
	WOR					
	WOR					
57	WOR					
58						57 to 60' - Continuous drilling, no spoons collected.
59						
60						
61	WOR	12	ND		CH	
	WOR					
	WOR					
62	WOR					
63						62 to 65' - Continuous drilling, no spoons collected.
64						
65						
66	WOR	24	ND		CH	
	WOR					
	WOR					
67	WOR					
68						67 to 70' - Continuous drilling, no spoons collected.
69						
70						
71	WOR	24	ND		CH	
	WOR					
	WOR					
72	WOR					
73						72 to 75 - Continuous drilling, no spoons collected.
74						
75						



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SOIL BORING LOG

BORING NUMBER

NYC-2-PIP-3

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
76	WOR	24	ND		CH	75 to 77' - Gray, medium soft CLAY; trace silt, trace shells. Wet. 77 to 80' - Continuous drilling, no spoons collected. Note: Borehole grouted, topped with cement and asphalt to grade.
	WOR					
77	WOR					
	WOR					
78						
79						
80						
						End of Boring at 80'



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SOIL BORING LOG

BORING NUMBER

NYC-2-PIP-4

PROJECT NAME: Spectra NJ-NY Expansion

LOCATION: New York Sanitation Pier, New York City, New York

PROJECT NO.: 168217

CONTRACTOR: Warren George, Inc.

DATE DRILLED: 10/21/11

SAMPLER TYPE/DIA.: Stainless Steel Split Spoon/2"

DEPTH TO WATER: 2.0 feet

DRILLER: C. Moreria

BORING METHOD: Mud Rotary / Tri-cone roller bit

TOTAL DEPTH DRILLED: 77 feet

LOGGED BY: K. Rillen

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
0						
1						0.0 to 0.5' - Asphalt layer.
2						0.5 to 1.0' - Belgian block layer.
3						1.0 to 1.5' - Void space with 4" concrete layer on the bottom.
4						1.5 to 8.0' - FILL: Dark to light brown, fine to coarse sand and silt, some sub-rounded to sub-angular, fine gravel and gray clay, wet @ 2.0'
5						
6						
7						
8						
9						8.0 to 10' - FILL: Light brown and gray, fine sand and silt; some round gravel, pieces of gray, silty clay. Wet.
10						
11						10 to 12' - FILL: Gray brown silt; some fine sand. Wet. Red crushed brick @ 11.5'.
12						
13						12 to 15' - Continuous drilling; no spoons collected.
14						
15						



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SOIL BORING LOG

BORING NUMBER

NYC-2-PIP-4

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
16		18	ND			15 to 17' - FILL: Dark gray silt and fine sand. Wet. Some small red brick pieces throughout.
17						17 to 20' - Continuous drilling; no spoons collected.
18						
19						
20						20 to 22' - FILL: Dark gray, fine sand and silt; little rounded gravel. Small pieces of brick and some small shells.
21		16	ND			
22						22 to 25' - Continuous drilling; no spoons collected.
23						
24						
25						25 to 27' - FILL: Dark brown, fine sand and silt. Some organics @ 26'. Brick piece @ 27'.
26		20	ND			
27						27 to 30' - Continuous drilling; no spoons collected.
28						
29						
30						CL 30 to 32' - Dark gray CLAY. Moist, firm.
31		24	ND			
32						32 to 35' - Continuous drilling; no spoons collected.
33						
34						
35						CL 35 to 37' - Dark gray CLAY. Moist, firm.
36		24	ND			
37						



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SOIL BORING LOG

BORING NUMBER

NYC-2-PIP-4

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	DESCRIPTION AND COMMENTS
38						37 to 40' - Continuous drilling; no spoons collected.
39						
40						
41		24	ND		CL	40 to 42' - Dark gray CLAY. Moist, firm.
42						42 to 45' - Continuous drilling; no spoons collected.
43						
44						
45					CL	45 to 47' - Dark gray CLAY. Moist, firm.
46		24	ND			47 to 50' - Continuous drilling; no spoons collected.
47						
48						
49						50 to 52' - Very fine SAND and SILT. Soft, wet.
50					SM	
51		20	ND			
52						52 to 55' - Continuous drilling; no spoons collected.
53						
54						
55					ML	55 to 57' - Dark gray SILT; little clay, trace fine sand. Dense.
56		24	ND			57 to 60' - Continuous drilling; no spoons collected.
57						
58						
59						



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SOIL BORING LOG

BORING NUMBER

NYC-2-PIP-4

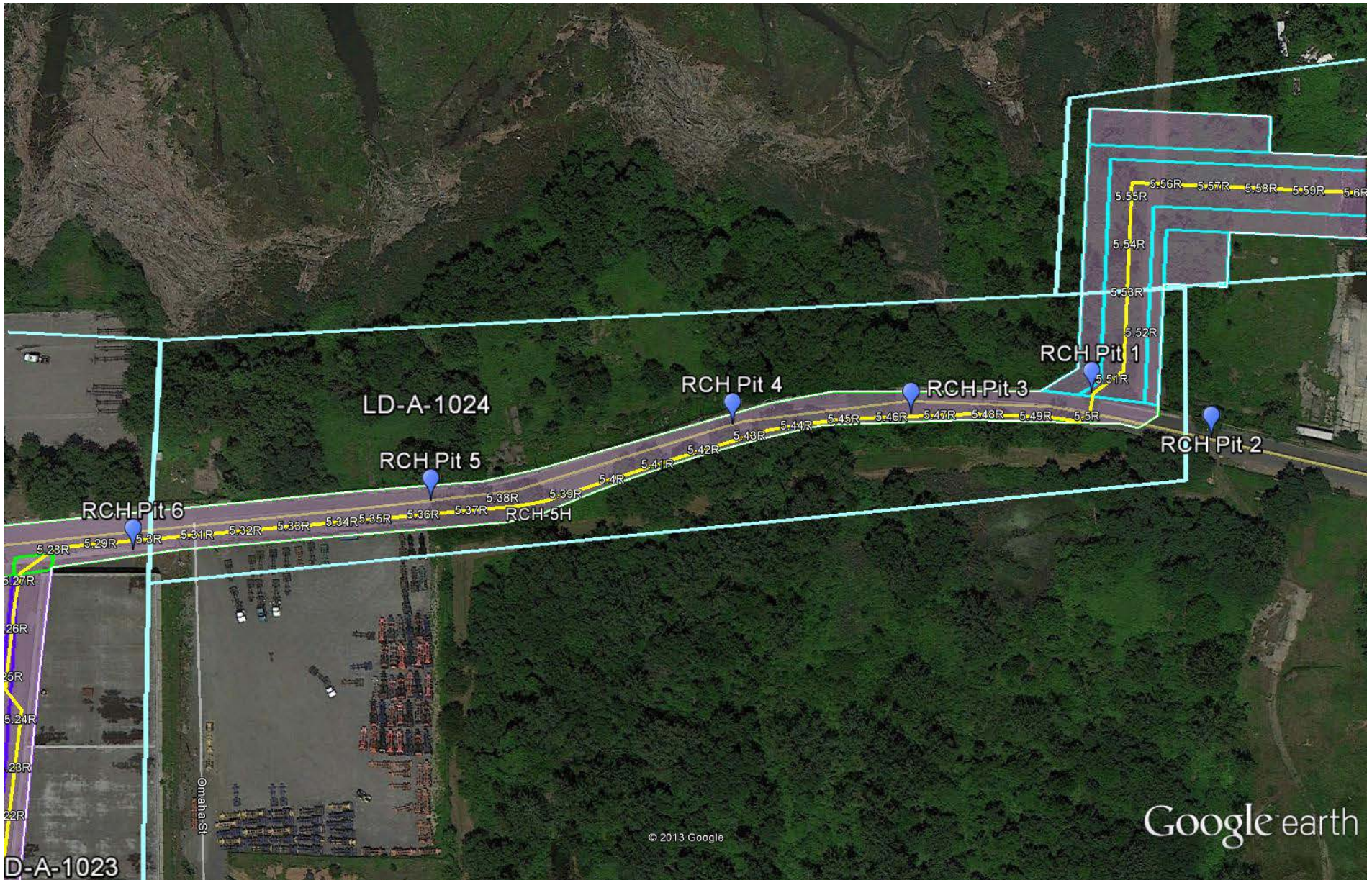
DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
60						
61		24	ND		ML	60 to 61' - Dark gray SILT; little clay, trace fine sand. Wet, soft.
62					CL	61 to 62' - Dark gray CLAY, some silt. Wet, soft.
63						62 to 65' - Continuous drilling; no spoons collected.
64						
65					CL	65 to 67' - Dark gray CLAY, some silt. Wet, soft.
66		24	ND			
67						67 to 70' - Continuous drilling; no spoons collected.
68						
69						
70					CL	70 to 72' - Dark gray CLAY; little silt. Trace shells.
71		24	ND			
72						72 to 75' - Continuous drilling; no spoons collected.
73						
74						
75					CL	75 to 77' - Dark gray CLAY; little silt.
76		24	ND			
77						End of boring @ 77 feet
						Note: Borehole grouted in accordance with N.J.A.C. 7:9D-3.1.

**Environmental Corporation**

57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

SOIL BORING LOG**BORING NUMBER****NYC-4H-ENV-5W****PROJECT NAME:** Spectra NJ-NY Expansion**LOCATION:** Manhattan, New York**PROJECT NO.:** 168217**CONTRACTOR:** Henkels & McCoy**DATE DRILLED:** 08/16/12**SAMPLER TYPE/DIA.:** Hand Auger**DEPTH TO WATER:** Not Encountered**DRILLER:** P. Hallen**BORING METHOD:** Hand Auger**TOTAL DEPTH DRILLED:** 6.5 feet**LOGGED BY:** L. Melanson

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
0						
1						0.0 to 0.5' - Asphalt
2						0.5 to 4.0' - FILL: Dark brown, medium to coarse sand; little silt, little fine to coarse sub-angular gravel, trace pieces of red brick, plastic, concrete, miscellaneous trash. Cobble layer 6" thick at 3'. Dry, medium-dense.
3						
4		Hand cleared	ND			
5				NYC-4H-ENV-5W/4		4.0 to 6.5' - FILL: Concrete chunks, brick, cobbles.
6						
						Refusal @ 6.5'
						Note: Borehole backfilled with soil cuttings and restored to grade. HUD-4H-ENV-5W-WC/4 and HUD-4H-ENV-5W-WC/6 collected for TPHC analysis





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SOIL BORING LOG

BORING NUMBER

RCH-1-ENV-1

PROJECT NAME: Spectra NJ-NY Expansion

LOCATION: Staten Island, New York

PROJECT NO.: 168217

CONTRACTOR: Land Air Water Environmental Services

DATE DRILLED: 01/02/13

SAMPLER TYPE/DIA.: Macrocore/2"

DEPTH TO WATER: 2'

DRILLER: J. Lamprecht

BORING METHOD: Geoprobe- Direct Push

TOTAL DEPTH DRILLED: 10 feet

LOGGED BY: B. Chaky

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
0						
1				RCH-1-ENV-1/1		0 to 6.0' - Orange brown, medium to fine SAND; trace fine gravel and silt. Moist, loose, roots.
2						Wet at 2'.
3						
4		Hand cleared	ND			
5						
6				RCH-1-ENV-1/6		6.0 to 8.0' - Orange brown SAND; some gray clay, little silt. Wet, loose.
7				RCH-1-ENV-1 WC		
8						
9						
10						End of boring @ 10'
11						
12						
13						
14						
15						

**Environmental Corporation**

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TEMPORARY WELL AND SOIL BORING LOG

WELL NUMBER

RCH-1-ENV-2W

PROJECT NAME: Spectra NJ-NY Expansion

LOCATION: Staten Island, New York

PROJECT NO.: 168217

CONTRACTOR: Land Air Water Environmental Services

SAMPLER TYPE/DIA.: Hand Auger/ Macrocore/2"

TYPE OF WELL: Temporary

DEPTH TO BEDROCK: Not Encountered

DRILLING METHOD: Hollow Stem Auger

TOTAL DEPTH DRILLED: 15 feet

BIT TYPE: Auger Bit

START DATE: 01/02/13

FINISH DATE: 01/03/13

DRILLER: J. Lamprecht

LOGGED BY: B. Chaky / C. Nichol

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	WELL DIAGRAM	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
0							
1				RCH-1-ENV-2W/1			0 to 2.0' - FILL: Dark brown, medium to fine sand, little medium to fine gravel, little silt, trace roots. Moist, loose.
2							
3		Hand cleared	ND				2.0 to 7.5' - Orange brown, medium to fine SAND, little medium to fine gravel, little silt. Moist, loose. Wet at 3'.
4							
5							
6							
7				RCH-1-ENV-2W/2			
8		34	ND				7.5 to 10' - Gray brown to red brown CLAY, some medium to fine sand, little fine gravel. Wet, soft.
9				RCH-1-ENV-2W-WC			
10							
11							10 to 15' - Red brown CLAY, little medium to fine gravel, little sand. Wet, medium stiff.
12							
13							
14							
15							

CASING TYPE/DIAMETER (IN.) INNER: <u>PVC/2</u> OUTER: <u>N/A</u>	STATIC WATER LEVEL: <u>2</u> feet below surface DEPTH WATER ENCOUNTERED: <u>3</u> feet below surface
SCREENED OR OPEN INTERVAL: <u>5 - 15 feet</u> (FEET BELOW SURFACE)	MEASURING POINT ELEVATION: <u>NA</u> ft.msl GROUND SURFACE ELEVATION: <u>NA</u> ft.msl



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**TEMPORARY WELL AND
SOIL BORING LOG**

**WELL NUMBER
RCH-1-ENV-2W**

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	WELL DIAGRAM	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
16							<p>End of boring @ 15'</p> <p><u>Well Construction Details</u></p> <p>Ground surface to 15.0 ft. below surface - 2" diameter 0.010 slot PVC screen</p> <p>0 to 15.0 ft. below surface - No. 01 sand</p>
17							
18							
19							
20							



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SOIL BORING LOG

BORING NUMBER

RCH-1-ENV-4

PROJECT NAME: Spectra NJ-NY Expansion

LOCATION: Staten Island, New York

PROJECT NO.: 168217

CONTRACTOR: Zebra Environmental

DATE DRILLED: 12/09/10

SAMPLER TYPE/DIA.: Macrocore/2"

DEPTH TO WATER: 5.3'

DRILLER: B. Lombardo

BORING METHOD: Geoprobe- Direct Push

TOTAL DEPTH DRILLED: 10 feet

LOGGED BY: C. Nichol

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS	
0							
1		42	ND	SI-002A		0 to 0.7' - FILL: Fine to coarse gravel; some coarse sand and asphalt fragments.	
2							0.7 to 3.4' - FILL: Dark brown, medium to coarse sand.
3						SI-002B	3.4 to 4' - FILL: Dark brown, fine gravel and coarse sand; some silt, concrete, and asphalt fragments.
4							
5		60	ND	GM		5 to 5.3' - Dark brown, fine GRAVEL; and coarse sand, some silt, concrete, and asphalt fragments.	
6							SP
7							
8							
9							
10						End of boring @ 10'	
11							
12							
13							
14							
15							



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SOIL BORING LOG

BORING NUMBER

RCH-1-HDD-1

PROJECT NAME: Spectra NJ-NY Expansion

LOCATION: Staten Island, New York

PROJECT NO.: 168217

CONTRACTOR: Warren George, Inc.

DATE DRILLED: 10/15/10

SAMPLER TYPE/DIA.: Stainless steel spoon/2"

DEPTH TO WATER: 2.5 feet

DRILLER: O. Sanchez

BORING METHOD: Mud rotary / Tri cone roller bit

TOTAL DEPTH DRILLED: 22 feet

LOGGED BY: T. Ward

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
0				No Samples Collected	SW	0.0 to 1.0' - Reddish-brown, medium SAND; gravel surface.
1		Hand cleared	ND		SW	1.0 to 2.0' - Reddish-brown to brown, medium SAND; trace gravel, trace silt.
2				SW	2.0 to 3.0' - Reddish-brown to brown, fine to coarse SAND and gravel; trace silt. Wet @ 2.5'	
3				SP	3.0 to 4.0' - Brown, fine to medium SAND; trace gravel. Wet to very moist.	
4				SP	4.0 to 7.0' - Brown, fine to medium SAND; trace silt. Moist to very moist.	
5						
6						
7						
8			ND		SP	7.0 to 12.0' - Brown, fine to coarse SAND; trace silt. Very moist.
9						
10						
11			ND			
12						12.0 to 15.0' - Continuous drilling. No spoons collected.
13						
14						
15						



DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
16			ND		SM	15.0 to 22.0' - Reddish -brown, fine to coarse SAND; some silt, trace clay. Very moist. Continuous drilling from 17 to 20 feet; no spoons collected.
17						
18						
19						
20						
21			ND			
22						
						End of boring @ 22'



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57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

SOIL BORING LOG

BORING NUMBER

RCH-2-ARC-4

PROJECT NAME: Spectra NJ-NY Expansion

LOCATION: Staten Island, New York

PROJECT NO.: 168217

CONTRACTOR: Land Air Water Environmental Services

DATE DRILLED: 08/08/11

SAMPLER TYPE/DIA.: Hand Auger

DEPTH TO WATER: 2.0 feet

DRILLER: J. Lamprecht

BORING METHOD: Hand Auger

TOTAL DEPTH DRILLED: 20 feet

LOGGED BY: B. Chaky

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
0						
1		Hand Cleared	ND	No Samples Collected		0 to 1.0' - FILL: Gray brown, medium to fine sand; some organic material/roots, little silt, trace ceramic pieces. Dry, loose.
2						
3						
4						
5						
						4.0 to 5.0' - FILL: Dark gray, medium to fine, angular gravel; little coarse to fine sand, trace silt, trace cinders, trace ceramic pieces. Wet, dense.
						End of boring lithology @ 5'
						Archeological boring advanced to 20 feet; no lithology recorded.



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SOIL BORING LOG

BORING NUMBER

RCH-2-ENV-1

PROJECT NAME: Spectra NJ-NY Expansion

LOCATION: Staten Island, New York

PROJECT NO.: 168217

CONTRACTOR: Land Air Water Environmental Services

DATE DRILLED: 8/8/2011 - 8/9/2011

SAMPLER TYPE/DIA.: Hand Auger/Macrocore/2"

DEPTH TO WATER: 0.5 feet

DRILLER: J. Lamprecht

BORING METHOD: Direct Push

TOTAL DEPTH DRILLED: 15 feet

LOGGED BY: B. Chaky

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
0						
1					OL	0 to 4.0' - Dark brown, high plasticity, organic SILT; some medium to fine sand. Loose, organic material/roots. Wet at 0.5 feet.
2						
3		Hand Cleared	ND			
4				RCH2-1/4	SP	4.0 to 6.0' - Gray to orange brown, medium to fine SAND; little silt. Wet, loose, trace root material.
5						
6						
7				RCH2-1/7	SP	6.0 to 15' - Orange-brown to grayish brown, medium to fine SAND; little clay, trace silt. Wet, loose. Trace rounded gravel at 10'.
8		48	ND			
9						
10						
11						
12						
13		45	ND			
14						
15						End of boring @ 15'

380 PROPERTY, STATEN ISLAND, NEW YORK
SPECTRA ENERGY NJ-NY EXPANSION PROJECT
SUMMARY OF RESULTS OF ANALYSIS OF SOIL SAMPLES FOR VOLATILE ORGANIC COMPOUNDS

					Sample ID	RCH-2-ENV-1/4
					Lab Sample ID	JA83045-5
					Sampling Date	8/8/2011
					Matrix	Soil
VOLATILE ORGANIC COMPOUNDS (VOCs) (mg/kg)	Unrestricted Use SCO	Industrial SCO	Protection of Ecological Resources	Protection of Groundwater SCO	Result	
1,1,1-Trichloroethane (TCA)	0.68	1,000	NC	0.68	ND (0.00064)	
1,1,2,2-Tetrachloroethane	NC	NC	NC	0.6	ND (0.00047)	
1,1,2-Trichloroethane	NC	NC	NC	NC	ND (0.0011)	
1,1-Dichloroethane	0.27	480	NC	0.27	ND (0.00058)	
1,1-Dichloroethene	0.33	1,000	NC	0.33	ND (0.0016)	
1,2,3-Trichlorobenzene	NC	NC	20	NC	ND (0.0012)	
1,2,4-Trichlorobenzene	NC	NC	20	3.4	ND (0.00090)	
1,2,4-Trimethylbenzene	4	380	NC	4	NA	
1,2-Dibromo-3-Chloropropane	NC	NC	NC	NC	ND (0.0040)	
1,2-Dibromoethane	NC	NC	NC	NC	ND (0.00063)	
1,2-Dichlorobenzene	1	1,000	NC	1	ND (0.00073)	
1,2-Dichloroethane	0.02	60	10	0.02	ND (0.00048)	
1,2-Dichloropropane	NC	NC	NC	NC	ND (0.00071)	
1,3,5-Trimethylbenzene	8	380	NC	8	NA	
1,3-Dichlorobenzene	2	560	NC	2	ND (0.00051)	
1,4-Dichlorobenzene	2	250	20	2	ND (0.00045)	
1,4-Dioxane	0.1	250	1	0.1	ND (0.15)	
2-Butanone (MEK)	0.12	1,000	100	0.12	ND (0.011)	
2-Hexanone	NC	NC	NC	NC	ND (0.0066)	
4-Methyl-2-pentanone	NC	NC	NC	1	ND (0.0070)	
Acetone	0.05	1,000	2.2	0.05	0.0482	
Benzene	0.06	89	70	0.06	ND (0.00035)	
Bromochloromethane	NC	NC	NC	NC	ND (0.0014)	
Bromodichloromethane	NC	NC	NC	NC	ND (0.00059)	
Bromoform	NC	NC	NC	NC	ND (0.0020)	
Bromomethane	NC	NC	NC	NC	ND (0.0010)	
Carbon disulfide	NC	NC	NC	2.7	0.0011	J
Carbon tetrachloride	0.76	44	NC	0.76	ND (0.00092)	
Chlorobenzene	1	1,000	40	1	ND (0.00085)	
Chloroethane	NC	NC	NC	1.9	ND (0.0011)	
Chloroform	0.37	700	12	0.37	ND (0.0013)	
Chloromethane	NC	NC	NC	NC	ND (0.0017)	
cis-1,2-Dichloroethene	0.25	1,000	NC	0.25	ND (0.00085)	
cis-1,3-Dichloropropene	NC	NC	NC	NC	ND (0.00040)	
Cyclohexane	NC	NC	NC	NC	ND (0.0010)	
Dibromochloromethane	NC	NC	10	NC	ND (0.00045)	
Dichlorodifluoromethane	NC	NC	NC	NC	ND (0.00085)	
Ethylbenzene	1	780	NC	1	ND (0.00039)	
Freon TF ⁽²⁾	NC	NC	NC	6	ND (0.0019)	
Isopropylbenzene	NC	NC	NC	2.3	ND (0.00036)	
m&p-Xylene	0.26 ⁽¹⁾	1,000 ⁽¹⁾	0.26	1.6 ⁽¹⁾	ND (0.00083)	
Methyl acetate	NC	NC	NC	NC	ND (0.0059)	
Methylcyclohexane	NC	NC	NC	NC	ND (0.00065)	
Methylene Chloride	0.05	1,000	12	0.05	ND (0.00061)	
Methyl tert-butyl ether (MTBE)	0.93	1,000	NC	0.93	ND (0.00047)	
n-Butylbenzene	12	1,000	NC	12	NA	
n-Propylbenzene	3.9	1,000	NC	4	NA	
o-Xylene	0.26 ⁽¹⁾	1,000 ⁽¹⁾	0.26	1.6 ⁽¹⁾	ND (0.00049)	
p-Isopropyltoluene	NC	NC	NC	NC	NA	
sec-Butylbenzene	11	1,000	NC	11	NA	
Styrene	NC	NC	300	NC	ND (0.00049)	
tert-Butylbenzene	5.9	1,000	NC	6	NA	
Tetrachloroethene (PCE)	1.3	300	2	1.3	ND (0.00051)	
Toluene	0.7	1,000	36	0.7	ND (0.0010)	
trans-1,2-Dichloroethene	0.19	1,000	NC	0.19	ND (0.0011)	
trans-1,3-Dichloropropene	NC	NC	NC	NC	ND (0.00089)	
Trichloroethene (TCE)	0.47	400	2	0.47	ND (0.00065)	
Trichlorofluoromethane	NC	NC	NC	NC	ND (0.0013)	
Vinyl chloride	0.02	27	NC	0.02	ND (0.0012)	
Xylene (total)	0.26	1,000	0.26	1.6	ND (0.00049)	
Total VOCs	NC	NC	NC	NC	0.05	

Notes:

mg/kg - milligrams per kilogram

⁽¹⁾ - The SCO for m/p xylene and o-xylene applies to Total Xylenes.

⁽²⁾ - Also known as 1,1,2-trichloro-1,2,2-trifluoroethane and 1,1,2-trichlorotrifluoroethane.

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

NC - No Criterion

NA - Not Analyzed

ND (0.00064) - Not Detected (Method Detection Limit)

SCO - Soil Cleanup Objective

* - Recovery or RPD exceeds control limits

380 PROPERTY, STATEN ISLAND, NEW YORK
SPECTRA ENERGY NJ-NY EXPANSION PROJECT
SUMMARY OF RESULTS OF ANALYSIS OF SOIL SAMPLES FOR SEMIVOLATILE ORGANIC COMPOUNDS

					Sample ID	RCH-2-ENV-1/4
					Lab Sample ID	JA83045-5
					Sampling Date	8/8/2011
					Matrix	Soil
SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)	Unrestricted Use SCO	Industrial SCO	Protection of Ecological Resources	Protection of Groundwater SCO	Result	
1,2,4,5-Tetrachlorobenzene	NC	NC	NC	NC	ND (0.021)	
2,2'-oxybis[1-chloropropane]	NC	NC	NC	NC	NA	
2,3,4,6-Tetrachlorophenol	NC	NC	NC	NC	ND (0.071)	
2,4,5-Trichlorophenol	NC	NC	4	0.1	ND (0.080)	
2,4,6-Trichlorophenol	NC	NC	10	NC	ND (0.065)	
2,4-Dichlorophenol	NC	NC	20	0.4	ND (0.11)	
2,4-Dimethylphenol	NC	NC	NC	NC	ND (0.12)	
2,4-Dinitrophenol	NC	NC	20	0.2	ND (0.084)	
2,4-Dinitrotoluene	NC	NC	NC	NC	ND (0.030)	
2,6-Dinitrotoluene	NC	NC	NC	1	ND (0.026)	
2-Chloronaphthalene	NC	NC	NC	NC	ND (0.021)	
2-Chlorophenol	NC	NC	0.8	NC	ND (0.070)	
2-Methylnaphthalene	NC	NC	NC	36.4	ND (0.038)	
2-Methylphenol (o-cresol)	0.33	1,000	NC	0.33	ND (0.079)	
2-Nitroaniline	NC	NC	NC	0.4	ND (0.030)	
2-Nitrophenol	NC	NC	7	0.3	ND (0.073)	
3 & 4 Methylphenol (m&p-cresol)	NC	NC	NC	NC	ND (0.088)	
3,3'-Dichlorobenzidine	NC	NC	NC	NC	ND (0.018)	
3-Nitroaniline	NC	NC	NC	0.5	ND (0.028)	
4,6-Dinitro-2-methylphenol	NC	NC	NC	NC	ND (0.084)	
4-Bromophenyl phenyl ether	NC	NC	NC	NC	ND (0.025)	
4-Chloro-3-methylphenol	NC	NC	NC	NC	ND (0.069)	
4-Chloroaniline	NC	NC	NC	0.22	ND (0.022)	
4-Chlorophenyl phenyl ether	NC	NC	NC	NC	ND (0.021)	
4-Methylphenol	NC	NC	NC	NC	NA	
4-Nitroaniline	NC	NC	NC	NC	ND (0.027)	
4-Nitrophenol	NC	NC	7	0.3	ND (0.12)	
Acenaphthene	20	1,000	20	98	ND (0.020)	
Acenaphthylene	100	1,000	NC	107	ND (0.022)	
Acetophenone	NC	NC	NC	NC	ND (0.012)	
Anthracene	100	1,000	NC	1,000	ND (0.024)	
Atrazine	NC	NC	NC	NC	ND (0.014)	
Benzaldehyde	NC	NC	NC	NC	ND (0.016)	
Benzo[a]anthracene	1	11	NC	1	ND (0.022)	
Benzo[a]pyrene	1	1	2.6	22	ND (0.021)	
Benzo[b]fluoranthene	1	11	NC	2	ND (0.023)	
Benzo[g,h,i]perylene	100	1,000	NC	1,000	ND (0.026)	
Benzo[k]fluoranthene	1	110	NC	2	ND (0.026)	
Bis(2-chloroethoxy)methane	NC	NC	NC	NC	ND (0.028)	
Bis(2-chloroethyl)ether	NC	NC	NC	NC	ND (0.021)	
Bis(2-ethylhexyl) phthalate	NC	NC	239	435	ND (0.061)	
Butyl benzyl phthalate	NC	NC	NC	122	ND (0.040)	
Caprolactam	NC	NC	NC	NC	ND (0.022)	
Carbazole	NC	NC	NC	NC	ND (0.032)	
Chrysene	1	110	NC	1	ND (0.023)	
Dibenz(a,h)anthracene	0.33	1.1	NC	1,000	ND (0.023)	
Dibenzofuran	7	1,000	NC	210	ND (0.020)	
Diethyl phthalate	NC	NC	100	7	ND (0.023)	
Dimethyl phthalate	NC	NC	200	27	ND (0.024)	
Di-n-butyl phthalate	NC	NC	0.014	8.1	ND (0.015)	
Di-n-octyl phthalate	NC	NC	NC	120	ND (0.034)	
Diphenyl (1,1'-Biphenyl)	NC	NC	60	NC	ND (0.0080)	
Fluoranthene	100	1,000	NC	1,000	ND (0.030)	
Fluorene	30	1,000	30	386	ND (0.023)	
Hexachlorobenzene	0.33	12	NC	3	ND (0.022)	
Hexachlorobutadiene	NC	NC	NC	NC	ND (0.019)	
Hexachlorocyclopentadiene	NC	NC	10	NC	ND (0.070)	
Hexachloroethane	NC	NC	NC	NC	ND (0.019)	
Indeno[1,2,3-cd]pyrene	0.5	11	NC	8.2	ND (0.024)	
Isophorone	NC	NC	NC	4	ND (0.019)	
Naphthalene	12	1,000	NC	12	ND (0.019)	
Nitrobenzene	NC	140	40	0.17	ND (0.020)	
N-Nitrosodi-n-propylamine	NC	NC	NC	NC	ND (0.017)	
N-Nitrosodiphenylamine	NC	NC	20	NC	ND (0.041)	
Pentachlorophenol	1	55	0.8	1	ND (0.12)	
Phenanthrene	100	1,000	NC	1,000	ND (0.031)	
Phenol	0.33	1,000	30	0.33	ND (0.072)	
Pyrene	100	1,000	NC	1,000	ND (0.026)	
Total SVOCs	NC	NC	NC	NC	ND	

Notes:

mg/kg - milligrams per kilogram

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate

NC - No Criterion

NA - Not Analyzed

ND () - Not Detected (Method Detection Limit)

SCO - Soil Cleanup Objective

* - Recovery or RPD exceeds control limits

380 PROPERTY, STATEN ISLAND, NEW YORK
SPECTRA ENERGY NJ-NY EXPANSION PROJECT
SUMMARY OF RESULTS OF ANALYSIS OF SOIL SAMPLES FOR METALS AND CYANIDE

					Sample ID	RCH-2-ENV-1/4
					Lab Sample ID	JA83045-5
					Sampling Date	8/8/2011
					Matrix	Soil
METALS AND CYANIDE	Unrestricted Use SCO	Industrial SCO	Protection of Ecological Resources	Protection of Groundwater SCO	Result	
Aluminum	NC	NC	10,000	NC	7740	
Antimony	NC	NC	12	NC	<4.9	
Arsenic	13	16	13	16	<4.9	
Barium	350	10,000	433	820	<49	
Beryllium	7.2	2,700	10	47	<0.49	
Cadmium	2.5	60	4	7.5	<1.2	
Calcium	NC	NC	10,000	NC	2870	
Chromium (Total)	1 ⁽¹⁾	800 ⁽¹⁾	NC	19 ⁽¹⁾	11.7	
Chromium (Hexavalent)	1 ⁽¹⁾	800 ⁽¹⁾	1	19 ⁽¹⁾	<0.98	
Cobalt	NC	NC	20	NC	<12	
Copper	50	10,000	50	1,720	17.1	
Cyanide (Total)	27	10,000	NC	40	NA	
Iron	NC	NC	NC	NC	11000	
Lead	63	3,900	63	450	17.9	
Magnesium	NC	NC	NC	NC	<1200	
Manganese	1,600	10,000	1,600	2,000	107	
Mercury (Total)	0.18	5.7	0.18	0.73	<0.075	
Nickel	30	10,000	30	130	10.6	
Potassium	NC	NC	NC	NC	<2400	
Selenium	3.9	6,800	3.9	4	<4.9	
Silver	2	6,800	2	8.3	<1.2	
Sodium	NC	NC	NC	NC	<2400	
Thallium	NC	NC	5	NC	<2.4	
Vanadium	NC	NC	39	NC	14.5	
Zinc	109	10,000	109	2,480	67.5	

Notes:

mg/kg - milligrams per kilogram

⁽¹⁾ - Hexavalent chromium SCO

NC - No Criterion

NA - Not analyzed

< - Less than the Method Detection Limit

SCO - Soil Cleanup Objective

380 PROPERTY, STATEN ISLAND, NEW YORK
 SPECTRA ENERGY NJ-NY EXPANSION PROJECT
 SUMMARY OF RESULTS OF ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS

					Sample ID	RCH-2-ENV-1/4
					Lab Sample ID	JA83045-5
					Sampling Date	8/8/2011
					Matrix	Soil
Equivalent Carbon Range	Unrestricted Use SCO	Industrial SCO	Protection of Ecological Resources	Protection of Groundwater SCO		
TPH-GRO (C6-C10)	NC	NC	NC	NC	ND (7.0)	
TPH-DRO (C10-C44)	NC	NC	NC	NC	164	

Notes:

NC - No Criterion

ND (7.0) - Not Detected (Method Detection Limit)

SCO - Soil Cleanup Objective

GRO - Gasoline Range Organics

DRO - Diesel Range Organics

380 PROPERTY, STATEN ISLAND, NEW YORK
 SPECTRA ENERGY NJ-NY EXPANSION PROJECT
 SUMMARY OF RESULTS OF ANALYSIS OF SOIL SAMPLES FOR POLYCHLORINATED BIPHENYLS

					Sample ID	RCH-2-ENV-1/4
					Lab Sample ID	JA83045-5
					Sampling Date	8/8/2011
					Matrix	Soil
POLYCHLORINATED BIPHENYLS (PCBs)	Unrestricted Use SCO	Industrial SCO	Protection of Ecological Resources	Protection of Groundwater SCO	Result	
Aroclor 1016	NC	NC	NC	NC	ND (0.019)	
Aroclor 1221	NC	NC	NC	NC	ND (0.043)	
Aroclor 1232	NC	NC	NC	NC	ND (0.036)	
Aroclor 1242	NC	NC	NC	NC	ND (0.023)	
Aroclor 1248	NC	NC	NC	NC	ND (0.022)	
Aroclor 1254	NC	NC	NC	NC	ND (0.034)	
Aroclor 1260	NC	NC	NC	NC	ND (0.024)	
Aroclor 1262	NC	NC	NC	NC	ND (0.021)	
Aroclor 1268	NC	NC	NC	NC	ND (0.023)	
Total PCBs	0.1	25	1	3.2	ND	

Notes:

mg/kg - milligrams per kilogram
 NC - No Criterion
 ND () - Not Detected (Method Detection Limit)
 SCO - Soil Cleanup Objective

380 PROPERTY, STATEN ISLAND, NEW YORK
SPECTRA ENERGY NJ-NY EXPANSION PROJECT
SUMMARY OF RESULTS OF ANALYSIS OF SOIL SAMPLES FOR PESTICIDES AND HERBICIDES

					Sample ID	RCH-2-ENV-1/4
					Lab Sample ID	JA83045-5
					Sampling Date	8/8/2011
					Matrix	Soil
PESTICIDES	Unrestricted Use SCO	Industrial SCO	Protection of Ecological Resources	Protection of Groundwater SCO	Result	
4,4'-DDD	0.0033	0.18	0.0033	14	0.0044	
4,4'-DDE	0.0033	120	0.0033	17	0.0025	
4,4'-DDT	0.0033	94	0.0033	136	ND (0.0011)	
Aldrin	0.005	1.4	0.14	0.19	ND (0.00072)	
alpha-BHC	0.02	6.8	0.04	0.02	ND (0.0011)	
alpha-Chlordane	0.094	47	1.3	2.9	ND (0.00093)	
beta-BHC	0.036	14	0.6	0.09	ND (0.0010)	
Chlordane	NC	NC	NC	NC	NA	
gamma-Chlordane	NC	NC	NC	14	ND (0.00073)	
delta-BHC	0.04	1,000	0.04	0.25	ND (0.00084)	
Dieldrin	0.005	2.8	0.006	0.1	ND (0.0011)	
Endosulfan I	2.4	920	NC	102	ND (0.00069)	
Endosulfan II	2.4	920	NC	102	ND (0.00095)	
Endosulfan sulfate	2.4	920	NC	1,000	ND (0.0013)	
Endrin	0.014	410	0.014	0.060	ND (0.00073)	
Endrin aldehyde	NC	NC	NC	NC	ND (0.0014)	
Endrin ketone	NC	NC	NC	NC	ND (0.00093)	
gamma-BHC (Lindane)	0.1	23	6	0.1	ND (0.00065)	
Heptachlor	0.042	29	0.14	0.38	ND (0.00088)	
Heptachlor epoxide	NC	NC	NC	0.02	ND (0.00071)	
Methoxychlor	NC	NC	1.2	900	ND (0.0010)	
Toxaphene	NC	NC	NC	NC	ND (0.018)	
2,4-D	NC	NC	NC	0.5	ND (0.010)	
2,4,5-TP (Silvex)	3.8	1,000	NC	3.8	ND (0.0012)	
2,4,5-T	NC	NC	NC	1.9	ND (0.0031)	
Dalapon	NC	NC	NC	NC	ND (0.0024)	
Dicamba	NC	NC	NC	NC	ND (0.0014)	
Dichloroprop	NC	NC	NC	NC	ND (0.0082)	
Dinoseb	NC	NC	NC	NC	ND (0.0066)	
MCPA	NC	NC	NC	NC	ND (1.1)	
MCPP	NC	NC	NC	NC	ND (0.57)	
Pentachlorophenol	0.8	55	0.8	0.8	ND (0.0024)	
2,4-DB	NC	NC	NC	NC	ND (0.024)	

Notes:

mg/kg - milligrams per kilogram

NC - No Criterion

NA - Not Analyzed

ND () - Not Detected (Method Detection Limit)

Shading indicates result above SCO. Color representing least stringent SCO exceeded is shown unless otherwise noted.

SCO - Soil Cleanup Objective

380 PROPERTY, STATEN ISLAND, NEW YORK
 SPECTRA ENERGY NJ-NY EXPANSION PROJECT
 SUMMARY OF RESULTS OF ANALYSIS OF SOIL SAMPLES FOR GENERAL CHEMISTRY

					Sample ID	RCH-2-ENV-1/4
					Lab Sample ID	JA83045-5
					Sampling Date	8/8/2011
					Matrix	Soil
Redox Potential Vs H2	NC	NC	NC	NC		351
Solids, Percent	NC	NC	NC	NC		41
pH	NC	NC	NC	NC		6.39

Notes:

mg/kg - milligrams per kilogram
 NC - No Criterion
 SCO - Soil Cleanup Objective



Environmental Corporation

57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

SOIL BORING LOG

BORING NUMBER

RCH-2-ENV-2

PROJECT NAME: Spectra NJ-NY Expansion

LOCATION: Staten Island, New York

PROJECT NO.: 168217

CONTRACTOR: Land Air Water Environmental Services

DATE DRILLED: 08/08/11

SAMPLER TYPE/DIA.: Hand Auger/Macrocore/2"

DEPTH TO WATER: 0.5 feet

DRILLER: J. Lamprecht

BORING METHOD: Direct Push

TOTAL DEPTH DRILLED: 15 feet

LOGGED BY: B. Chaky

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS	
0							
1		Hand Cleared	ND	RCH-2-2/3	OL	0 to 2.0' - Dark brown, organic SILT; some organic material/roots, little medium to fine sand. Wet at 0.5 ft bg, loose.	
2							
3							SM
4					SP	3.0 to 8.5' - Grayish-brown, medium to fine SAND; little silt. Wet, loose.	
5							
6				RCH-2-2/6			
7							
8		45	ND				
9					SP	8.5 to 10' - Orange brown, medium to fine SAND; little clay, trace silt. Wet, loose.	
10							
11					SP	10 to 15' - Grayish-brown, medium to fine SAND; little silt. Wet, loose.	
12							
13		52	ND				
14							
15						End of boring @ 15'	



Environmental Corporation

57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

TEMPORARY WELL AND SOIL BORING LOG

WELL NUMBER

RCH-2-ENV-3W

PROJECT NAME: Spectra NJ-NY Expansion

LOCATION: Staten Island, New York

PROJECT NO.: 168217

CONTRACTOR: Land Air Water Environmental Services

SAMPLER TYPE/DIA.: Hand Auger/ Macrocore/2"

TYPE OF WELL: Temporary

DEPTH TO BEDROCK: Not Encountered

DRILLING METHOD: Hollow Stem Auger

TOTAL DEPTH DRILLED: 20 feet

BIT TYPE: Auger Bit

START DATE: 08/08/11

FINISH DATE: 08/08/11

DRILLER: J. Lamprecht

LOGGED BY: B. Chaky / C. Nichol

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	WELL DIAGRAM	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
0							Top of casing 18" above surface.
1		Hand cleared	ND	RCH2-3W/1.5		OH	0 to 1.0' - FILL: Grayish-brown silt; and fibrous organic material/roots, trace fine sand. Trace brick/concrete pieces from 0 to 1.0'. Wet @ 0.5'.
2			67.2				1.0 to 4.0' - Grayish-brown SILT; and fibrous organic material/roots, trace fine sand. Loose, high plasticity, strong organic-like odor.
3			100.1				
4			12.3				
5			14.7				4.0 to 6.0' - Dark gray SILT; some fibrous organic material/roots. Wet, loose, high plasticity, slight organic-like odor.
6			5.3				
7		36	1.2	RCH2-3W/6		OH	6.0 to 9.0' - Dark gray, organic SILT; little fibrous organic material/roots. Wet, loose, organic-like odor.
8			15.3				
9			12.4				
10			0.2				
11			ND				9.0 to 14.5' - Dark gray, organic SILT; trace fibrous organic material/roots. Wet, loose, organic-like odor.
12			22.9				
13			21.7				
14			49				
15		40	11.9				14.5 to 15' - Dark gray, organic SILT; little fine sand, trace organic material
16			16.4				
17			0.7				
18			14.4				

CASING TYPE/DIAMETER (IN.) INNER: <u>PVC/3</u> OUTER: <u>N/A</u>	STATIC WATER LEVEL: <u>4.00 (8/8/11)</u> feet below surface DEPTH WATER ENCOUNTERED: <u>0.5</u> feet below surface
SCREENED OR OPEN INTERVAL: <u>0 - 15 feet</u> (FEET BELOW SURFACE)	MEASURING POINT ELEVATION: <u>NA</u> ft.msl GROUND SURFACE ELEVATION: <u>NA</u> ft.msl



Environmental Corporation

57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

TEMPORARY WELL AND SOIL BORING LOG

WELL NUMBER

RCH-2-ENV-3W

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	WELL DIAGRAM	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
16		60	ND			SW	15 to 17.5' - Gray, medium to coarse SAND; trace silt. Wet, loose, slight organic-like odor.
17						SM	17.5 to 20' - Reddish-brown, fine SAND and SILT. Wet, dense.
18							
19							
20							End of boring @ 20'
							<p><u>Well Construction Details</u></p> <p>1.5 ft above surface to 13.5 ft. below surface - 3" diameter 0.010 slot PVC screen</p> <p>0 to 13.5 ft. below surface - No. 01 sand</p> <p>Next day well measurements:</p> <p>Total depth of well: 13.68 ft below surface</p>



Environmental Corporation

57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

SOIL BORING LOG

BORING NUMBER

RCH-3-ENV-1

PROJECT NAME: Spectra NJ-NY Expansion

LOCATION: Staten Island, New York

PROJECT NO.: 168217

CONTRACTOR: Land Air Water Environmental Services

DATE DRILLED: 09/05/12

SAMPLER TYPE/DIA.: Hand Auger / Macrocore/2"

DEPTH TO WATER: 4 feet


DRILLER: J. Lamprecht

BORING METHOD: Hand Auger/Direct Push

TOTAL DEPTH DRILLED: 20 feet

LOGGED BY: D. Avudzega

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
0						
1						0.0 to 2.0' - Asphalt roadway and gravel sub-base.
2						
3		Hand Cleared	ND	RCH-3-ENV-1/3		2.0 to 10.5' - FILL: Dark brown, medium to coarse sand; some sub-angular gravel, processed wood, glass. Loose, wet at 4 feet, no staining or odors.
4						Wet at 4'
5						
6						
7						
8		24	ND	RCH-3-ENV-1/7		
9						
10						
11						OH 10.5 to 15' - Yellowish brown CLAY; some organics (roots). Fibrous, wet, no staining, slight hydrogen sulfide-like odors.
12						
13		30	ND			
14						
15						

 Environmental Corporation 57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006					SOIL BORING LOG		BORING NUMBER RCH-3-ENV-1	
DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS		
16		60	ND		PT	15 to 16' - Yellowish orange PEAT. Fibrous, wet.		
17					OH	16 to 17' - Greenish gray CLAY; little medium to coarse sand, trace organics (roots). Soft, wet, no staining or odors.		
18					SP	17 to 20' - Greenish gray, fine to medium SAND. Loose, wet, no staining or odors.		
19								
20						End of boring @ 20'. Note: Borehole backfilled with bentonite chips and soil cuttings to restore to grade. RCH-3-ENV-1-WC/2, 4, 6 and 8 collected for TPHC analysis. RCH-3-ENV-1-WC composited for waste characterization analyses.		



Environmental Corporation

57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

TEMPORARY WELL AND SOIL BORING LOG

WELL NUMBER

RCH-3-ENV-2W

PROJECT NAME: Spectra NJ-NY Expansion

LOCATION: Staten Island, New York

PROJECT NO.: 168217

CONTRACTOR: Land Air Water Environmental Services

START DATE: 09/04/12

FINISH DATE: 09/05/12

DRILLER: J. Lamprecht

LOGGED BY: B. Chaky

SAMPLER TYPE/DIA.: Hand Auger/ Macrocore/2"

TYPE OF WELL: Temporary

DEPTH TO BEDROCK: Not Encountered

DRILLING METHOD: Hollow Stem Auger

TOTAL DEPTH DRILLED: 20 feet

BIT TYPE: Auger Bit

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	WELL DIAGRAM	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS	
0								
1		Hand cleared	6.1	RCH-3-ENV-2W/3			0.0 to 0.5' - Asphalt.	
2	17.5						0.5 to 3.0' - FILL: Dark gray brown, fine to coarse sand and fine to medium sub-angular gravel; trace silt, brick, cinders, ash, ceramics, glass, metal, coal. Loose, dry.	
3	18.1							
4	19.3							
5	13.1							
6	13.2			RCH-3-ENV-2W/5				
7		12	ND					
8								
9								
10		12	ND					
11								
12								
13								
14								
15								

CASING TYPE/DIAMETER (IN.)
 INNER: PVC/3 OUTER: N/A

STATIC WATER LEVEL: 12.64 feet below surface
 DEPTH WATER ENCOUNTERED: 15 feet below surface

SCREENED OR OPEN INTERVAL: 10 - 20 feet
 (FEET BELOW SURFACE)

MEASURING POINT ELEVATION: NA ft.msl
 GROUND SURFACE ELEVATION: NA ft.msl



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57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

TEMPORARY WELL AND SOIL BORING LOG

**WELL NUMBER
RCH-3-ENV-2W**

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	WELL DIAGRAM	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
16							
17							
18		14	ND				
19							
20							
							End of boring @ 20'
							<p><u>Well Construction Details</u></p> <p>10 ft to 20 ft. below surface - 3" diameter 0.010 slot PVC screen</p> <p>1.0 to 20 ft. below surface - No. 1 well gravel</p> <p>Total depth of well: 20 ft below surface</p> <p>NOTE:</p> <p>Borehole backfilled with bentonite chips and soil cuttings to restore to grade.</p> <p>RCH-3-ENV-2W-WC/4 and 8 collected for TPHC analysis.</p> <p>RCH-3-ENV-2W-WC composited for waste characterization analyses.</p>

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57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

SOIL BORING LOG**BORING NUMBER****RCH-3-ENV-4****PROJECT NAME:** Spectra NJ-NY Expansion**LOCATION:** Staten Island, New York**PROJECT NO.:** 168217**CONTRACTOR:** Land Air Water Environmental Services**DATE DRILLED:** 09/04/12**SAMPLER TYPE/DIA.:** Hand Auger / Macrocore/2"**DEPTH TO WATER:** 10 feet**DRILLER:** J. Lamprecht**BORING METHOD:** Hand Auger/Direct Push**TOTAL DEPTH DRILLED:** 20 feet**LOGGED BY:** B. Chaky

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
0						
1		Hand Cleared	ND	RCH-3-ENV-4/1		0.0 to 0.5' - Asphalt.
2						0.5 to 2.0' - FILL: Gray brown, fine to medium sand; fine to medium sub-angular gravel, trace silt, concrete, carbon rod. Loose, moist.
3						2.0 to 17' - FILL: Gray brown, fine to coarse sand; fine to medium sub-angular gravel, trace silt, brick, cinders, ash, glass, concrete. Loose, moist, wet at 10 feet..
4		15	ND	RCH-3-ENV-4/6		
5						
6						
7		20	ND			
8						
9						
10						Wet at 10'
11						
12						
13						
14						
15						

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SOIL BORING LOG**BORING NUMBER****RCH-3-ENV-4**

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS		
16		26	ND					
17								
18							PT	17 to 20 '- PEAT. Loose, wet.
19								
20								
						<p>End of boring @ 20'.</p> <p>Note: Borehole backfilled with bentonite chips and soil cuttings to restore to grade.</p> <p>RCH-3-ENV-4-WC/2, 4, 6 and 8 collected for TPHC analysis.</p> <p>RCH-3-ENV-4-WC composited for waste characterization analyses.</p>		



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57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

SOIL BORING LOG

BORING NUMBER

RCH-4-ENV-19

PROJECT NAME: Spectra NJ-NY Expansion

LOCATION: Staten Island, New York

PROJECT NO.: 168217

CONTRACTOR: Land Air Water Environmental Services

DATE DRILLED: 04/11/12

SAMPLER TYPE/DIA.: Hand Auger / Macrocore/2"

DEPTH TO WATER: 6.0 feet

DRILLER: J. Lamprecht

BORING METHOD: Direct Push

TOTAL DEPTH DRILLED: 20 feet

LOGGED BY: B. Chaky

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS	
0							
1		Hand Cleared	ND	RCH-4-ENV-19-WC/2		0.0 to 2.0' - FILL: Brown, fine to coarse sand and silt, some fine to coarse gravel, little asphalt, wood, metal and red brick; dry. 2.0 to 6.0' - FILL: Black, fine to coarse sand and silt, some fine to coarse gravel, little red brick, wood and glass; moist.	
2							
3							
4							
5							
6		46	ND	RCH-4-ENV-19-WC/6	SM	6.0 to 8.0' - Black to brown, fine to coarse SAND and SILT, some fine to coarse gravel, trace organics; wet at 6.0'. 8.0 to 10' - Black to gray CLAY, trace organics; moist. 10 to 15' - Light brown to gray, fine to coarse SAND, little clay; wet.	
7							
8							
9				RCH-4-ENV-19-WC/8	OH		
10							
11		15	ND		SC		
12							
13							
14							
15							



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SOIL BORING LOG

BORING NUMBER

RCH-4-ENV-19

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
16					SW	15 to 20' - Gray, fine SAND; wet.
17						
18		48	ND			
19						
20						
						End of boring at 20' Note: Borehole backfilled with grout and restored to grade.



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57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

TEMPORARY WELL AND SOIL BORING LOG

WELL NUMBER

RCH-4-ENV-20W

PROJECT NAME: Spectra NJ-NY Expansion

LOCATION: Staten Island, New York

PROJECT NO.: 168217

CONTRACTOR: Land Air Water Environmental Services

START DATE: 04/10/12

FINISH DATE: 04/10/12

DRILLER: E. Santiago

LOGGED BY: B. Chaky

SAMPLER TYPE/DIA.: Hand Auger/Macrocore/2"

TYPE OF WELL: Temporary

DEPTH TO BEDROCK: Not Encountered

DRILLING METHOD: Hollow Stem Auger

TOTAL DEPTH DRILLED: 20 feet

BIT TYPE: Auger Bit

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	WELL DIAGRAM	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
0							Top of casing .25' below surface.
1		Hand Cleared	ND	RCH-4-ENV-20W/2			0.0 to 1.0' - FILL: Gray brown, medium to fine sand, little medium to fine, sub-angular to sub-rounded gravel and silt; dry, medium-dense.
2	RCH-4-ENV-20W-WC/2			1.0 to 2.0' - FILL: Orange brown, medium to fine sand, little coarse to fine, angular to sub-angular gravel, silt and slag; medium-dense to loose.			
3				2.0 to 6.5' - FILL: Gray brown, medium to fine sand, some medium to fine, angular to sub-rounded gravel, little silt and cobbles; medium-dense to loose, moist.			
4	RCH-4-ENV-20W-WC/4			Wet at 5.0'.			
5		42	ND	RCH-4-ENV-20W-WC/6			6.5 to 9.0' - FILL: Red brown, medium to fine sand, some silt, little fine, sub-rounded gravel, trace clay; moist to wet, medium-dense to dense.
7				OH			9.0 to 10' - Dark gray to black PEAT and CLAY, trace silt; wet, loose.
8	RCH-4-ENV-20W-WC/8						CL
9							
10		60	ND				
11							
12							
13							
14							
15							

CASING TYPE/DIAMETER (IN.)

INNER: PVC/3 OUTER: N/A

STATIC WATER LEVEL: 3.6 (4/11/12) feet below surface

DEPTH WATER ENCOUNTERED: 5 feet below surface

SCREENED OR OPEN INTERVAL: 0.25 to 14.76 (FEET BELOW SURFACE)

MEASURING POINT ELEVATION: NA ft.msl

GROUND SURFACE ELEVATION: NA ft.msl



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TEMPORARY WELL AND SOIL BORING LOG

**WELL NUMBER
RCH-4-ENV-20W**

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	WELL DIAGRAM	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
16		60	ND				15 to 20' - Brown to gray brown, medium to fine SAND, trace silt; wet, medium dense.
17							
18							
19							
20							
							End of boring at 20'
							<p align="center"><u>Well Construction Details</u></p> 0.25 to 14.76 ft. below surface - 3" diameter 0.010 slot PVC screen 0.5 to 14.76 ft. below surface - No. 01 sand. Total depth of well = 14.76 feet bg as measured on 4/11/12 Note: Borehole back filled with bentonite chips, sand, soil cuttings and restored to grade.



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SOIL BORING LOG

BORING NUMBER

RCH-4-ENV-21.1

PROJECT NAME: Spectra NJ-NY Expansion

LOCATION: Staten Island, New York

PROJECT NO.: 168217

CONTRACTOR: Land Air Water Environmental Services

SAMPLER TYPE/DIA.: Hand Auger / Split Spoon/2"

DEPTH TO WATER: 6.0 feet

BORING METHOD: Mud rotary / Tri cone roller bit

TOTAL DEPTH DRILLED: 27 feet

DATE DRILLED: 04/16/12

DRILLER: J. Lamprecht

LOGGED BY: B. Chaky

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
0						
1		Hand Cleared	ND	RCH-4-ENV-21.1- WC/2 RCH-4-ENV-21.1/3 RCH-4-ENV-21.1/4 RCH-4-ENV-21.1- WC/4		0.0 to 4.0' - FILL: Gray brown, medium to fine sand, some coarse to fine, angular to rounded gravel, little silt, cobbles, concrete, brick, asphalt, metal, processed wood, glass, and plastic, trace clay; moist at 3.0'; dense to medium-dense.
2			0.6			
3			ND			
4			10.8			
5			123			
6			43.6			
7	1 W.O.H.	6	2.3	RCH-4-ENV-21.1- WC/8	PT	6.0 to 8.0' - Brown PEAT, little clay, trace silt; loose; wet at 6.0'.
8	1 W.O.H.					
9	1 W.O.H.	24	ND	RCH-4-ENV-21.1- WC/8	SM	8.0 to 10' - Brown, medium to fine SAND, little silt, trace clay and root material; loose.
10	1 4					
11	4 6	10	ND	RCH-4-ENV-21.1- WC/8	SM	10 to 12' - Brown, medium to fine SAND, trace silt; medium dense.
12	9 11					
13						
14						12 to 15' - Continuous drilling - no spoons collected.
15						

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SOIL BORING LOG

**BORING NUMBER
RCH-4-ENV-21.1**

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
16	6	14	ND		SM	15 to 17' - Gray, medium to fine SAND, trace silt; medium-dense. 17 to 20' - Continuous drilling - no spoons collected.
	5					
17	10					
	14					
18						
19						
20						
21	9	14	ND		SM	20 to 22' - Dark gray brown, medium to fine SAND, trace silt; dense. 22 to 25' - Continuous drilling - no spoons collected.
	12					
	20					
22						
23						
24						
25						
26	9	20	ND		SC	25 to 27' - Red brown, fine SAND and SILT; dense.
	14					
27	14					
	16					
						End of boring at 27'
						Note: Borehole grouted in accordance with N.J.A.C. 7:9D-3.1. Waste class composite sample RCH-4-ENV-21.1-WC was collected from this boring.





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57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

SOIL BORING LOG

BORING NUMBER

RCH-4-ENV-22

PROJECT NAME: Spectra NJ-NY Expansion

LOCATION: Staten Island, New York

PROJECT NO.: 168217

CONTRACTOR: Land Air Water Environmental Services

SAMPLER TYPE/DIA.: Hand Auger / Macrocore/2"

DEPTH TO WATER: 8.0 feet

BORING METHOD: Direct Push

TOTAL DEPTH DRILLED: 25 feet

DATE DRILLED: 04/06/12

DRILLER: J. Lamprecht

LOGGED BY: B. Chaky

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
0						
1		Hand Cleared	ND	RCH-4-ENV-22-WC/2		0.0 to 4.0' - FILL: Red brown, fine to coarse sand, concrete and red brick, some fine to coarse gravel; dry. 4.0 to 8.0' - FILL: Gray brown, fine to coarse sand, red brick, concrete, wood and glass, little fine to coarse gravel; moist.
2						
3						
4						
5						
6						
7						
8						
9		26	ND	RCH-4-ENV-22-WC/8	SW	8.0 to 10' - Brown gray, fine to coarse SAND; wet at 8.0'.
10		50	ND		SC	10 to 19' - Brown gray, fine to coarse SAND, some clay.
11						
12						
13						
14						
15						



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57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

SOIL BORING LOG

BORING NUMBER

RCH-4-ENV-22

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
16		60	ND			
17						
18						
19						
20						SC 19 to 20' - Gray, fine to coarse SAND, some clay, trace vegetation; wet
21		60	ND			SW 20 to 24' - Red brown, fine to coarse SAND and GRAVEL; wet.
22						
23						
24						
25						SW 24 to 25' - Red brown, fine SAND; wet.
						End of boring at 25'
						Note: Borehole backfilled with grout and restored to grade.



Environmental Corporation

57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

SOIL BORING LOG

BORING NUMBER

RCH-4-ENV-23

PROJECT NAME: Spectra NJ-NY Expansion

LOCATION: Staten Island, New York

PROJECT NO.: 168217

CONTRACTOR: Land Air Water Environmental Services

DATE DRILLED: 04/06/12

SAMPLER TYPE/DIA.: Hand Auger / Macrocore/2"

DEPTH TO WATER: 4.0 feet

DRILLER: J. Lamprecht

BORING METHOD: Direct Push

TOTAL DEPTH DRILLED: 20 feet

LOGGED BY: B. Chaky

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
0						
1		Hand Cleared	ND	RCH-4-ENV-23/1		0.0 to 1.0' - FILL: Gray to dark brown, medium to fine sand, some coarse to fine, sub-angular to sub-rounded gravel, little silt, roots, concrete and rip-rap; dry, medium-dense. 1.0 to 3.0' - FILL: Dark brown to orange brown, medium to fine sand, little coarse to fine, sub-angular to sub-rounded gravel, some brick and concrete, little silt; medium-dense to loose. 3.0 to 8.0' - FILL: Orange brown, medium to fine sand, trace medium to fine, sub-angular to rounded gravel, some brick and concrete, little silt; medium-dense to loose. Wet at 4.0'.
2				RCH-4-ENV-23-WC/2		
3						
4				RCH-4-ENV-23-WC/4		
5						
6				RCH-4-ENV-23/5		
7				RCH-4-ENV-23-WC/6		
8						
9		8	ND	RCH-4-ENV-23-WC/8	SW	8.0 to 15' - Brown, medium to fine SAND, trace fine, rounded gravel and silt; medium-dense to loose.
10						
11						
12						
13		2	ND			
14						
15						



Environmental Corporation

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SOIL BORING LOG

BORING NUMBER

RCH-4-ENV-23

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
16		54	ND		SM	15 to 20' - Orange brown, medium to fine SAND, little silt, trace fine, rounded gravel; medium-dense.
17						
18						
19						
20						
						End of boring at 20'
						Note: Borehole backfilled with grout and restored to grade.



Environmental Corporation

57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

SOIL BORING LOG

BORING NUMBER

RCH-4-ENV-24

PROJECT NAME: Spectra NJ-NY Expansion

LOCATION: Staten Island, New York

PROJECT NO.: 168217

CONTRACTOR: Land Air Water Environmental Services

SAMPLER TYPE/DIA.: Hand Auger / Macrocore/2"

DEPTH TO WATER: 4.0 feet

BORING METHOD: Direct Push

TOTAL DEPTH DRILLED: 20 feet

DATE DRILLED: 04/10/12

DRILLER: E.Santiago

LOGGED BY: B. Chaky

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS	
0							
1		Hand Cleared	ND	RCH-4-ENV-24/1	SW	0.0 to 1.0' - FILL: Brown, coarse to fine sand, little coarse to fine, gravel, trace coal; dry, medium-dense.	
2				RCH-4-ENV-24-WC/2		1.0 to 4.0' - Brown, coarse to fine SAND, little coarse to fine, gravel; moist.	
3							
4							
5				RCH-4-ENV-24-WC/4	SM	4.0 to 8.0' - Brown to gray, coarse to fine SAND, trace clay; wet at 4.0'.	
6							
7		57	ND	RCH-4-ENV-24-WC/6			
8				RCH-4-ENV-24/7			
9				RCH-4-ENV-24-WC/8	SW	8.0 to 20' - Brown, fine to coarse SAND; wet.	
10							
11		55	ND				
12							
13							
14							
15							



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57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

SOIL BORING LOG

BORING NUMBER

RCH-4-ENV-24

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
16		46	ND		SW	8.0 to 20' - Brown, fine to coarse SAND; wet.
17						
18						
19						
20						
						End of boring at 20'
						Note: Borehole backfilled with grout and restored to grade.



Environmental Corporation

57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

TEMPORARY WELL AND SOIL BORING LOG

WELL NUMBER

RCH-4-ENV-25W

PROJECT NAME: Spectra NJ-NY Expansion

LOCATION: Staten Island, New York

PROJECT NO.: 168217

CONTRACTOR: Land Air Water Environmental Services

START DATE: 04/09/12

FINISH DATE: 04/10/12

DRILLER: E. Santiago

LOGGED BY: W. Lindemuth

SAMPLER TYPE/DIA.: Hand Auger/Macrocore/2"

TYPE OF WELL: Temporary

DEPTH TO BEDROCK: Not Encountered

DRILLING METHOD: Hollow Stem Auger

TOTAL DEPTH DRILLED: 20 feet

BIT TYPE: Auger Bit

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	WELL DIAGRAM	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
0							Top of casing 0.50' below surface.
1		Hand Cleared	ND	RCH-4-ENV-25W- /2 & RCH-4-ENV- 25W-WC/2		SM	0.0 to 1.0' - Brown SILT and fine to coarse SAND, little fine to coarse gravel, trace organics (roots); dry.
2	SW					1.0 to 4.0' - Brownish gray, fine to coarse SAND, little fine to coarse gravel; moist.	
3							
4							
5		42	ND	RCH-4-ENV-25W- WC/4		SW	4.0 to 6.0' - Brown, fine to coarse SAND, little fine to coarse gravel; wet at 4.0'.
6							
7							
8							
9		60	ND	RCH-4-ENV-25W- WC/6		SP	6.0 to 10' - Brown, fine to coarse SAND; wet.
10							
11							
12							
13		60	ND	RCH-4-ENV-25W- WC/8		SP	10 to 15' - Gray/brown, fine to coarse SAND; wet.
14							
15							

CASING TYPE/DIAMETER (IN.)

INNER: PVC/3 OUTER: N/A

STATIC WATER LEVEL: 2.72 (4/10/12) feet below surface

DEPTH WATER ENCOUNTERED: 4 feet below surface

SCREENED OR OPEN INTERVAL: 0.50 to 15.50 ft. bg (FEET BELOW SURFACE)

MEASURING POINT ELEVATION: NA ft.msl

GROUND SURFACE ELEVATION: NA ft.msl



Environmental Corporation

57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

TEMPORARY WELL AND SOIL BORING LOG

WELL NUMBER RCH-4-ENV-25W

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	WELL DIAGRAM	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
16		56	ND			SP	15 to 20' - Red/Brown, fine to coarse SAND; wet.
17							
18							
19							
20							
							<p>End of boring at 20'</p> <p><u>Well Construction Details</u></p> <p>0.50 to 15.50 ft. below surface - 3" diameter 0.010 slot PVC screen</p> <p>0.75 to 15.50 ft. below surface - No. 01 sand.</p> <p>Total Depth of well = 14.58 feet bg as measured on 4/10/12</p> <p>Notes:</p> <p>Borehole backfilled with bentonite chips, sand, soil cuttings to restore to grade.</p> <p>Composite sample RCH-4-ENV-25W-WC was collected from this boring.</p>



Environmental Corporation

57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

SOIL BORING LOG

BORING NUMBER

RCH-4-ENV-26

PROJECT NAME: Spectra NJ-NY Expansion

LOCATION: Staten Island, New York

PROJECT NO.: 168217

CONTRACTOR: Land Air Water Environmental Services

SAMPLER TYPE/DIA.: Hand Auger / Macrocore/2"

DEPTH TO WATER: 4.0 feet

BORING METHOD: Direct Push

TOTAL DEPTH DRILLED: 20 feet

DATE DRILLED: 04/09/12

DRILLER: K.McGourty

LOGGED BY: J.Lenhart

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS		
0								
1		Hand Cleared	ND	RCH-4-ENV-26/1		0.0 to 2.0' - FILL: Gray brown, medium to fine sand, some medium to fine, angular to sub-angular gravel, trace silt, concrete, brick, road base gravel and glass; moist, medium-dense.		
2				RCH-4-ENV-26-WC/2		2.0 to 4.0' - FILL: Brown to dark brown, fine to medium sand, little fine to medium, sub-angular to sub-rounded gravel and concrete, trace silt; moist, medium-dense to loose.		
3								
4						RCH-4-ENV-26-WC/4		4.0 to 10' - FILL: Gray brown, medium to fine sand, trace fine rounded gravel and silt; wet at 4.0', loose.
5								
6						RCH-4-ENV-26-WC/6		
7						RCH-4-ENV-26/6		
8								
9		24	ND	RCH-4-ENV-26-WC/8				
10								
11		38	ND		SM	10 to 15' - Red/brown, medium to fine SAND, little silt, trace fine, sub-rounded gravel; medium-dense, wet.		
12								
13								
14								
15								



Environmental Corporation

57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

SOIL BORING LOG

BORING NUMBER

RCH-4-ENV-26

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
16 17 18 19 20		50	ND		SM	15 to 20' - Brown, medium to fine SAND, trace silt; wet, dense.
						End of boring at 20' Note: Borehole backfilled with soil cuttings and restored to grade.



Environmental Corporation

57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

SOIL BORING LOG

BORING NUMBER

RCH-4-ENV-27

PROJECT NAME: Spectra NJ-NY Expansion

LOCATION: Staten Island, New York

PROJECT NO.: 168217

CONTRACTOR: Land Air Water Environmental Services

DATE DRILLED: 04/05/12

SAMPLER TYPE/DIA.: Hand Auger / Macrocore/2"

DEPTH TO WATER: 4.0 feet

DRILLER: K.McGourty

BORING METHOD: Direct Push

TOTAL DEPTH DRILLED: 20 feet

LOGGED BY: J.Lenhart

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
0						
1				RCH-4-ENV-27/1		0.0 to 2.0' - FILL: Brown, coarse to fine sand, some silt, little coarse to fine gravel, trace cinders and slag; moist.
2				RCH-4-ENV-27-WC/2	SP	2.0 to 4.0' - Brown, fine to coarse SAND, some fine to coarse gravel, trace silt; moist
3						
4		Hand Cleared	ND	RCH-4-ENV-27-WC/4	SW	4.0 to 9.0' - Light brown, fine to coarse SAND; wet at 4.0'.
5						
6				RCH-4-ENV-27-WC/6		
7				RCH-4-ENV-27/6		
8						
9		26	ND	RCH-4-ENV-27-WC/8	ML	9.0 to 14' - Red brown, SILT and CLAY; wet.
10						
11						
12						
13		51	ND			Note: Borehole backfilled with soil cuttings and restored to grade.
14						
15					SW	14 to 15' - Red brown, fine to coarse SAND; wet. End of boring at 15'.



Environmental Corporation

57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

SOIL BORING LOG

BORING NUMBER

RCH-4-ENV-28

PROJECT NAME: Spectra NJ-NY Expansion

LOCATION: Staten Island, New York

PROJECT NO.: 168217

CONTRACTOR: Land Air Water Environmental Services

SAMPLER TYPE/DIA.: Hand Auger / Macrocore/2"

DEPTH TO WATER: 3.0 feet

BORING METHOD: Direct Push

TOTAL DEPTH DRILLED: 20 feet

DATE DRILLED: 04/04/12

DRILLER: E. Santiago

LOGGED BY: B. Chaky

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
0						
1		Hand Cleared	ND	RCH-4-ENV-28-WC/2		0.0 to 2.0' - FILL: Asphalt (4" thick); gravel base (4"); dark brown, medium to fine sand, some medium to fine angular to sub-angular gravel, little silt; moist, medium-dense. 2.0 to 9.0' - FILL: Orange brown, medium to fine sand, little clay, trace medium to fine, rounded gravel, trace silt; medium-dense to loose. Wet at 3.0'.
2				RCH-4-ENV-28/2		
3				RCH-4-ENV-28-WC/4		
4				RCH-4-ENV-28-WC/6		
5				RCH-4-ENV-28/7		
6				RCH-4-ENV-28-WC/8		
7						
8						
9		24	ND		CL	9.0 to 16' - Red brown CLAY, little medium to fine, angular to rounded gravel, trace medium to fine sand; medium-dense to dense.
10						
11		58	ND			
12						
13						
14						
15						



Environmental Corporation

57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

SOIL BORING LOG

BORING NUMBER

RCH-4-ENV-28

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
16		56	ND		SM	16 to 20' - Brown, medium to fine SAND, trace silt; medium-dense to dense.
17						
18						
19						
20						
						End of boring at 20'
						Note: Borehole backfilled with grout and restored to grade.



Environmental Corporation

57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

TEMPORARY WELL AND SOIL BORING LOG

WELL NUMBER

RCH-4-ENV-29W

PROJECT NAME: Spectra NJ-NY Expansion

LOCATION: Staten Island, New York

PROJECT NO.: 168217

CONTRACTOR: Land Air Water Environmental Services

SAMPLER TYPE/DIA.: Hand Auger/Macrocore/2"

TYPE OF WELL: Temporary

DEPTH TO BEDROCK: Not Encountered

DRILLING METHOD: Hollow Stem Auger

TOTAL DEPTH DRILLED: 20 feet

BIT TYPE: Auger Bit

START DATE: 04/04/12

FINISH DATE: 04/04/12

DRILLER: E. Santiago

LOGGED BY: W. Lindemuth

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	WELL DIAGRAM	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS	
0							Top of casing .80' below surface.	
1				RCH-4-ENV-29W/1			0.0 to 0.5' - FILL: Black asphalt and fine to coarse, gravel; dry. 0.5 to 3.0' - FILL: Brown, fine to coarse sand and silt, some fine to coarse gravel, trace concrete and wood; moist.	
2				RCH-4-ENV-29W-WC/2				
3							SM	3.0 to 8.0' - Light brown/gray, fine to coarse SAND, little silt; moist.
4		Hand Cleared	ND	RCH-4-ENV-29W-WC/4				Wet @ 4.0'
5								
6				RCH-4-ENV-29W-WC/6				
7				RCH-4-ENV-29W/7				
8								
9		33	ND	RCH-4-ENV-29W-WC/8			ML	8.0 to 10' - Red/brown CLAY, little fine to medium gravel; moist, medium-stiff.
10								
11							ML	10 to 20' - Red/brown CLAY, trace fine to medium gravel; stiff, wet.
12								
13		57	ND					
14								
15								

CASING TYPE/DIAMETER (IN.)

INNER: PVC/3 OUTER: N/A

STATIC WATER LEVEL: 1.74 (4/5/12) feet below surface

DEPTH WATER ENCOUNTERED: 4 feet below surface

SCREENED OR OPEN INTERVAL: 0.8 to 14.71 (FEET BELOW SURFACE)

MEASURING POINT ELEVATION: NA ft.msl

GROUND SURFACE ELEVATION: NA ft.msl



Environmental Corporation

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TEMPORARY WELL AND SOIL BORING LOG

WELL NUMBER RCH-4-ENV-29W

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	WELL DIAGRAM	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
16		60	ND				10 to 20' - Red/brown CLAY, trace fine to medium gravel; stiff, wet.
17							
18							
19							
20							
							<p>End of boring at 20'</p> <p><u>Well Construction Details</u></p> <p>0.8 to 14.71 ft. below surface - 3" diameter 0.010 slot PVC screen</p> <p>1.25 to 14.71 ft. below surface - No. 01 sand.</p> <p>Total Depth of well = 14.71 feet bg as measured on 4/5/12</p> <p>Note: Borehole backfilled with bentonite chips, sand, soil cuttings to restore to grade.</p>



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57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

SOIL BORING LOG

BORING NUMBER

RCH-4-ENV-30

PROJECT NAME: Spectra NJ-NY Expansion

LOCATION: Staten Island, New York

PROJECT NO.: 168217

CONTRACTOR: Land Air Water Environmental Services

SAMPLER TYPE/DIA.: Hand Auger / Macrocore/2"

DEPTH TO WATER: 4.0 feet

BORING METHOD: Direct Push

TOTAL DEPTH DRILLED: 20 feet

DATE DRILLED: 04/05/12

DRILLER: K.McGourty

LOGGED BY: J.Lenhart

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
0						
1		Hand Cleared	ND	RCH-4-ENV-30/1	SW	0.0 to 1.0' - Asphalt and coarse to fine gravel; dry 1.0 to 4.0' - Red brown, coarse to fine SAND and CLAY, some coarse to fine gravel, little cobbles; moist. 4.0 to 8.0' - Red brown CLAY and coarse to fine GRAVEL; Wet at 4.0'. 8.0 to 10' - Brown red SILT, little clay, trace coarse to fine gravel; wet. 10 to 20' - Red brown SILT and CLAY, little fine gravel; wet.
2				RCH-4-ENV-30-WC/2		
3						
4				RCH-4-ENV-30-WC/4	CL	
5				RCH-4-ENV-30/5		
6				RCH-4-ENV-30-WC/6		
7						
8						
9		26	ND	RCH-4-ENV-30-WC/8	ML	
10					ML	
11		60	ND			
12						
13						
14						
15						



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SOIL BORING LOG

BORING NUMBER

RCH-4-ENV-30

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
16		47	ND			10 to 20' - Red brown SILT and CLAY, little fine gravel; wet.
17						
18						
19						
20						
						End of boring at 20'
						Note: Borehole backfilled with soil cuttings and restored to grade.



Environmental Corporation

57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

SOIL BORING LOG

BORING NUMBER

RCH-4-ENV-31

PROJECT NAME: Spectra NJ-NY
Expansion

LOCATION: Staten Island, New York

PROJECT NO.: 168217

CONTRACTOR: Land Air Water Environmental
Services

DATE DRILLED: 04/03/12

SAMPLER TYPE/DIA.: Hand Auger /
Macrocore/2"
BORING METHOD: Direct Push

DEPTH TO WATER: 4.0 feet

DRILLER: E. Santiago

TOTAL DEPTH DRILLED: 20 feet

LOGGED BY: B. Chaky

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
0						
1		Hand Cleared	ND	RCH-4-ENV-31/1		0.0 to 1.0' - FILL: Asphalt (3" thick); Gray brown, coarse to fine sand, some medium to fine, sub-angular to sub-rounded gravel, little silt; moist, medium-dense.
2				RCH-4-ENV-31-WC/2		1.0 to 3.0' - FILL: Red brown, medium to fine, sand, some clay, little medium to fine, sub-angular to rounded, gravel, little silt; moist, medium-dense.
3				RCH-4-ENV-31-WC/4		3.0 to 6.0' - FILL: Gray, medium to fine, angular to sub-angular gravel, little medium to fine sand, clay and concrete; medium-dense.
4						Wet at 4.0'
5						
6		48	ND	RCH-4-ENV-31-WC/6	CL	6.0 to 15' - Red brown CLAY, some medium to fine, sub-angular to rounded gravel, little medium to fine, sand; dense.
7				RCH-4-ENV-31/7		
8				RCH-4-ENV-31-WC/8		
9						
10		60	ND			
11						
12						
13						
14						
15						Note: Borehole backfilled with soil cuttings and restored to grade. End of boring at 15'

**Environmental Corporation**

57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

SOIL BORING LOG**BORING NUMBER****RCH-4-ENV-32****PROJECT NAME:** Spectra NJ-NY Expansion**LOCATION:** Staten Island, New York**PROJECT NO.:** 168217**CONTRACTOR:** Land Air Water Environmental Services**DATE DRILLED:** 04/03/12**SAMPLER TYPE/DIA.:** Hand Auger / Macrocore/2"**DEPTH TO WATER:** 15 feet**DRILLER:** E. Santiago**BORING METHOD:** Direct Push**TOTAL DEPTH DRILLED:** 20 feet**LOGGED BY:** B. Chaky

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
0						
1				RCH-4-ENV-32/1		0.0 to 1.0' - FILL: Asphalt (1" thick); Gray brown, medium to fine sand and medium to fine, angular to sub-angular gravel, trace silt and clay; moist, medium-dense. 1.0 to 2.0' - FILL: Dark brown, medium to fine sand, some medium to fine, sub-angular to rounded gravel, little silt, trace clay; moist, medium-dense. 2.0 to 4.0' - FILL: Orange brown, medium to fine sand, little medium to fine, sub-rounded to rounded gravel, little silt and clay; moist, loose.
2			RCH-4-ENV-32-WC/2			
3						
4		Hand Cleared	ND	RCH-4-ENV-32-WC/4	CL	
5						4.0 to 20' - Red brown CLAY, some medium to fine, rounded to sub-rounded gravel, little medium to fine sand; moist, medium-dense to dense.
6				RCH-4-ENV-32/6		
7				RCH-4-ENV-32-WC/6		
8						
9		24	ND	RCH-4-ENV-32-WC/8		
10						
11						
12						
13		56	ND			
14						
15						Wet at 15'



Environmental Corporation

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SOIL BORING LOG

BORING NUMBER

RCH-4-ENV-32

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
16		58	ND		CL	4.0 to 20' - Red brown CLAY, some medium to fine, rounded to sub-rounded gravel, little medium to fine sand; moist, medium-dense to dense.
17						
18						
19						
20						
						End of boring at 20'
						Note: Borehole backfilled with grout, bentonite chips, black dyed concrete and restored to grade.



Environmental Corporation

57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

TEMPORARY WELL AND SOIL BORING LOG

WELL NUMBER

RCH-4-ENV-33W

PROJECT NAME: Spectra NJ-NY Expansion

LOCATION: Staten Island, New York

PROJECT NO.: 168217

CONTRACTOR: Land Air Water Environmental Services

START DATE: 04/02/12

FINISH DATE: 04/02/12

DRILLER: E. Santiago

LOGGED BY: B. Chaky

SAMPLER TYPE/DIA.: Hand Auger/Macrocore/2"

TYPE OF WELL: Temporary

DEPTH TO BEDROCK: Not Encountered

DRILLING METHOD: Hollow Stem Auger

TOTAL DEPTH DRILLED: 20 feet

BIT TYPE: Auger Bit

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	WELL DIAGRAM	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS	
0							Top of casing .75' below surface.	
1		Hand Cleared	ND	RCH-4-ENV-33W-WC/2		SP	0.0 to 0.5' - FILL: Asphalt and fine to coarse gravel; dry.	
2				RCH-4-ENV-33W/3		0.5 to 6.0' - Light brown, fine to coarse SAND, little fine to coarse, gravel; dry to 4.0'; moist at 4.0'.		
3				RCH-4-ENV-33W-WC/4				
4				RCH-4-ENV-33W-WC/6				
5				RCH-4-ENV-33W/7				
6				RCH-4-ENV-33W-WC/8				
7						CL	6.0 to 20' - Brown/red CLAY, some fine to coarse sand, little fine to coarse gravel; Wet at 6.0'; stiff from 8 to 10', medium soft from 10 to 20'.	
8								
9		24	ND					
10		49	ND					
11								
12								
13								
14								
15								

CASING TYPE/DIAMETER (IN.)

INNER: PVC/3 OUTER: N/A

STATIC WATER LEVEL: 5.24 (4/3/12) feet below surface

DEPTH WATER ENCOUNTERED: 6 feet below surface

SCREENED OR OPEN INTERVAL: 0.75 to 14.98 (FEET BELOW SURFACE)

MEASURING POINT ELEVATION: NA ft.msl

GROUND SURFACE ELEVATION: NA ft.msl



Environmental Corporation

57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

TEMPORARY WELL AND SOIL BORING LOG

**WELL NUMBER
RCH-4-ENV-33W**

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	WELL DIAGRAM	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
16		57	ND			CL	6.0 to 20' - Brown/red CLAY, some fine to coarse sand, little fine to coarse gravel; Wet at 6.0'; stiff from 8 to 10', medium soft from 10 to 20'.
17							
18							
19							
20							
							End of boring at 20'
							<p align="center"><u>Well Construction Details</u></p> 0.75 to 14.98 ft. below surface - 3" diameter 0.010 slot PVC screen 0.75 to 14.98 ft. below surface - No. 01 sand. Total depth of well = 14.98 feet bg as measured on 4/3/12 Note: Borehole back filled with bentonite chips, sand, soil cuttings and restored to grade.



Environmental Corporation

57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

SOIL BORING LOG

BORING NUMBER

RCH-4-ENV-34

PROJECT NAME: Spectra NJ-NY Expansion

LOCATION: Staten Island, New York

PROJECT NO.: 168217

CONTRACTOR: Land Air Water Environmental Services

SAMPLER TYPE/DIA.: Hand Auger / Macrocore/2"

DEPTH TO WATER: 6.0 feet

BORING METHOD: Direct Push

TOTAL DEPTH DRILLED: 20 feet

DATE DRILLED: 04/02/12

DRILLER: E. Santiago

LOGGED BY: B. Chaky

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
0						
1		Hand Cleared	ND	RCH-4-ENV-34/2		0.0 to 1.0' - FILL: Asphalt (1" thick); Gray to brown, coarse to fine sand and medium to fine, angular to sub-angular gravel, little silt, trace clay; moist, medium-dense. 1.0 to 4.0' - FILL: Red brown to brown, medium to fine, sand some coarse to fine, sub-angular to sub-rounded gravel, little silt, cobbles and clay; moist, medium-dense. 4.0 to 7.0' - FILL: Black medium to fine sand, little medium to fine, sub-rounded gravel, little silt, slag, coal, processed wood, cinders; moist, medium-dense.
2				RCH-4-ENV-34-WC/2		
3				RCH-4-ENV-34-WC/4		
4				RCH-4-ENV-34/5		
5				RCH-4-ENV-34-WC/6		
6						Wet at 6.0'.
7		42	ND	RCH-4-ENV-34-WC/8	CL	7.0 to 20' - Red brown CLAY, little medium to fine, sub-angular to sub-rounded gravel and sand; moist, dense.
8						
9						
10		54	ND			
11						
12						
13						
14						
15						



Environmental Corporation

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SOIL BORING LOG

BORING NUMBER

RCH-4-ENV-34

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
16		56	ND			7.0 to 20' - Red brown CLAY, little medium to fine, sub-angular to sub-rounded gravel and sand; moist, dense.
17						
18						
19						
20						
						End of boring at 20'
						Note: Borehole backfilled with grout, bentonite chips, black dyed concrete and restored to grade.

**Environmental Corporation**

57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

SOIL BORING LOG**BORING NUMBER****RCH-4H-ENV-10****PROJECT NAME:** Spectra NJ-NY Expansion**LOCATION:** Staten Island, New York**PROJECT NO.:** 168217**CONTRACTOR:** Land Air Water Environmental Services**SAMPLER TYPE/DIA.:** Hand Auger / Macrocore/2"**DEPTH TO WATER:** 4.0 feet**BORING METHOD:** Direct Push**TOTAL DEPTH DRILLED:** 15 feet**DATE DRILLED:** 11/01/11**DRILLER:** J. Lamprecht**LOGGED BY:** W. Lindemuth

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
0						0.0 to 1.0' - Asphalt roadway and gravel road base. Dry.
1					SC	1.0 to 3.0' - Light brown, fine to medium SAND; little clay, trace fine gravel. Moist.
2						
3					CL	3.0 to 15' - Red brown, CLAY; some fine to medium sand, trace fine gravel.
4		Hand Cleared	ND	RCH-4H-ENV-10/3.5		Wet at 4.0'.
5						
6						
7						
8				RCH-4H-ENV-10/7		
9		21	ND			
10						
11						
12						
13		46	ND			
14						Note: Borehole backfilled with grout, bentonite chips, black dyed concrete and restored to grade.
15						End of boring at 15'



Environmental Corporation

57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

TEMPORARY WELL AND SOIL BORING LOG

WELL NUMBER

RCH-4H-ENV-2W

PROJECT NAME: Spectra NJ-NY Expansion

LOCATION: Staten Island, New York

PROJECT NO.: 168217

CONTRACTOR: Land Air Water Environmental Services

SAMPLER TYPE/DIA.: Hand Auger/Macrocore/2"

TYPE OF WELL: Temporary

DEPTH TO BEDROCK: Not Encountered

DRILLING METHOD: Hollow Stem Auger

TOTAL DEPTH DRILLED: 21 feet

BIT TYPE: Auger Bit

START DATE: 09/15/11

FINISH DATE: 09/15/11

DRILLER: K. McGourty

LOGGED BY: B. Chaky

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	WELL DIAGRAM	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
0							Top of casing 13" below surface.
1		Hand Cleared	ND	RCH-4H-2W/1		SP	0.0 to 1.0' - Asphalt layer (9" thick).
2				1.0 to 5.0' - FILL: Dark brown to brown, fine to medium sand; little fine to medium, sub-angular to sub-rounded gravel, trace silt. Moist, medium dense. Wet @ 3'.			
3							
4							
5				RCH-4H-2W/4			5.0 to 17' - Brown, fine to medium SAND; trace silt. Wet, medium dense.
6		7	ND				
7							
8							
9							
10		26	ND				
11							
12							
13							
14							
15							

CASING TYPE/DIAMETER (IN.)

INNER: PVC/3 OUTER: N/A

STATIC WATER LEVEL: 2.30 (9/16/11) feet below surface

DEPTH WATER ENCOUNTERED: 3 feet below surface

SCREENED OR OPEN INTERVAL: 6.0 to 21.0 (FEET BELOW SURFACE)

MEASURING POINT ELEVATION: NA ft.msl

GROUND SURFACE ELEVATION: NA ft.msl



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TEMPORARY WELL AND SOIL BORING LOG

WELL NUMBER RCH-4H-ENV-2W

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	WELL DIAGRAM	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
16							
17							
18		40	ND			SP	17 to 17.5' - Gray, fine SAND; little silt. Moist, medium dense.
19						SP	17.5 to 21' - Red brown, fine to medium SAND; trace silt. Wet, dense.
20							
21							
							End of boring at 21'
							<u>Well Construction Details</u> 1.0 to 6.0 ft. below surface - 3" diameter PVC riser. 6.0 to 21.0 ft. below surface - 3" diameter 0.010 slot PVC screen 1.0 to 21.0 ft. below surface - No. 01 sand. Total Depth of well = 21.08 feet bg as measured on 9/16/11



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SOIL BORING LOG

BORING NUMBER

RCH-4H-ENV-3

PROJECT NAME: Spectra NJ-NY Expansion

LOCATION: Staten Island, New York

PROJECT NO.: 168217

CONTRACTOR: Land Air Water Environmental Services

DATE DRILLED: 10/20/11

SAMPLER TYPE/DIA.: Hand Auger / Macrocore/2"
BORING METHOD: Direct Push

DEPTH TO WATER: 3.0 feet

DRILLER: J. Lamprecht

TOTAL DEPTH DRILLED: 15 feet

LOGGED BY: B. Chaky

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
0						
1			ND			0.0 to 2.0' - Asphalt/concrete (10" thick). Gravel road base (14" thick). 2.0 to 9.0' - Orange brown, fine to medium SAND; trace sub-angular, fine to coarse gravel, trace silt. Loose. Wet at 3.0'. SW
2			ND			
3			0.1	RCH-4H-ENV-3/2.5		
4		Hand Cleared	0.2			
5			0.1			
6			ND			
7			ND			
8			ND	RCH-4H-ENV-3/6.5		
9		24	ND			9.0 to 15' - Light brown, fine to medium SAND; trace silt. Wet, loose. Light gray sandy clay lens at 9.0'. SP Note: Borehole backfilled with grout, bentonite chips, black dyed concrete and restored to grade. End of boring at 15'
10			ND			
11			ND			
12			ND			
13		48	ND			
14			ND			
15			ND			



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SOIL BORING LOG

BORING NUMBER

RCH-4H-ENV-4

PROJECT NAME: Spectra NJ-NY Expansion

LOCATION: Staten Island, New York

PROJECT NO.: 168217

CONTRACTOR: Land Air Water Environmental Services

SAMPLER TYPE/DIA.: Hand Auger / Macrocore/2"
BORING METHOD: Direct Push

DEPTH TO WATER: 5.0 feet

TOTAL DEPTH DRILLED: 15 feet

DATE DRILLED: 10/21/11

DRILLER: J. Lamprecht

LOGGED BY: J. Lenhart

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
0						
1						0.0 to 2.0' - Asphalt layer (7" thick), concrete with gravel base and some fine to medium sand (13" thick).
2						
3					SP	2.0 to 4.0' - Orange brown, fine to medium SAND; trace silt, trace fine to coarse, sub-angular gravel. Moist, loose.
4		Hand Cleared	ND	RCH-4H-ENV-4/3.5		
5						
6					SP	5.0 to 8.0' - Dark to light brown, fine to medium SAND; some silt, little clay, trace fine to medium, sub-rounded gravel. Wet, loose. Water at 5.0'
7						
8				RCH-4H-ENV-4/7.5		
9					SP	8.0 to 15' - Orange brown, fine to medium SAND; trace silt. Wet, loose. Color changes to light brown from 12 to 15'.
10		48	ND			
11						
12						
13						
14		36	ND			Note: Borehole backfilled with grout, bentonite chips, black dyed concrete and restored to grade.
15						End of boring at 15'



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SOIL BORING LOG

BORING NUMBER

RCH-4H-ENV-6

PROJECT NAME: Spectra NJ-NY Expansion

LOCATION: Staten Island, New York

PROJECT NO.: 168217

CONTRACTOR: Land Air Water Environmental Services

SAMPLER TYPE/DIA.: Hand Auger / Macrocore/2"
BORING METHOD: Direct Push

DEPTH TO WATER: 4.0 feet

TOTAL DEPTH DRILLED: 15 feet

DATE DRILLED: 10/27/11

DRILLER: J. Lamprecht

LOGGED BY: W.Lindemuth

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
0						
1						0.0 to 2.0' - Asphalt layer (12" thick), sub-base - black fine to coarse gravel and fine to coarse sand (12" thick).
2					SW	2.0 to 4.0' - Brown fine to medium SAND; some fine to coarse gravel. Moist.
3						
4		Hand Cleared	ND	RCH-4H-ENV-6/3.5	ML	4.0 to 5.0' - Light brown SILT; some clay. Wet at 4.0'.
5					SW	5.0 to 10' - Light brown, fine to medium SAND; little silt. Wet.
6						
7						
8				RCH-4H-ENV-6/7.5		
9		12	ND			
10					CL	10 to 15' - Red/brown CLAY; some silt, little fine gravel. Wet, dense.
11						
12		38	ND			
13						
14						Note: Borehole backfilled with grout, bentonite chips, black dyed concrete and restored to grade.
15						End of boring at 15'



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SOIL BORING LOG

BORING NUMBER

RCH-4H-ENV-7

PROJECT NAME: Spectra NJ-NY Expansion

LOCATION: Staten Island, New York

PROJECT NO.: 168217

CONTRACTOR: Land Air Water Environmental Services

SAMPLER TYPE/DIA.: Hand Auger / Macrocore/2"

DEPTH TO WATER: 4.0 feet

BORING METHOD: Direct Push

TOTAL DEPTH DRILLED: 15 feet

DATE DRILLED: 10/28/11

DRILLER: J. Lamprecht

LOGGED BY: W.Lindemuth

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
0						0.0 to 1.0' - Asphalt and fine to coarse gravel road base.
1		Hand Cleared	ND	RCH-4H-ENV-7/3.5	SW	1.0 to 4.0' - Brown, fine to medium SAND; little fine to coarse gravel. Moist.
2						
3						
4						
5		22	ND	RCH-4H-ENV-7/6.5	SW	4.0 to 7.0' - Brown, fine to medium SAND; little clay. Wet at 4'.
6						
7						
8		34	ND	RCH-4H-ENV-7/6.5	SC	7 to 10' - Red/brown, fine to medium SAND and CLAY. Wet.
9						
10						
11						
12		34	ND	RCH-4H-ENV-7/6.5	CL	10 to 15' - Red/brown CLAY; little fine to medium sand, trace organics (vegetation). Wet, dense.
13						
14						
15						

Note: Borehole backfilled with grout, bentonite chips, black dyed concrete and restored to grade.

End of boring at 15'



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SOIL BORING LOG

BORING NUMBER

RCH-4H-ENV-8W

PROJECT NAME: Spectra NJ-NY Expansion

LOCATION: Staten Island, New York

PROJECT NO.: 168217

CONTRACTOR: Land Air Water Environmental Services

DATE DRILLED: 10/24/11

DRILLER: J. Lamprecht

LOGGED BY: J. Lenhart

SAMPLER TYPE/DIA.: Hand Auger / Macrocore/2"

DEPTH TO WATER: Not Encountered

BORING METHOD: Direct Push

TOTAL DEPTH DRILLED: 20 feet

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS	
0							
1		Hand Cleared	ND	RCH-4H-ENV-8W/3.5	ML	0 to 1.0' - Asphalt layer (5" thick), Concrete mixed with gravel, some fine brown sand (7" thick).	
2						1.0 to 2.0' - FILL: Brown, fine sand; some fine to coarse, sub-angular gravel, little reddish-brown silt. Dry, medium dense.	
3						2.0 to 3.0' - FILL: Reddish-brown silt; some brown, fine to medium sand, little fine to medium, sub-angular gravel. Dry, stiff.	
4						3.0 to 20' - Reddish-brown SILT; some clay, trace fine, sub-angular gravel. Dry, stiff.	
5							
6							
7				RCH-4H-ENV-8W/7.0			
8							
9		24	ND				
10							
11							
12		50	ND				
13							
14							
15							



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SOIL BORING LOG

BORING NUMBER

RCH-4H-ENV-8W

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
16		60	ND		ML	3.0 to 20' - Reddish-brown SILT; some clay, trace fine, sub-angular gravel. Dry, stiff.
17						
18						
19						
20						
						End of boring @ 20'
						Note: Borehole backfilled with grout, bentonite chips, black dyed cement and restored to grade.
						Note: Temporary well not installed due to no water encountered during hand auger or macrocore sampling.

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SOIL BORING LOG**BORING NUMBER****RCH-4H-ENV-9****PROJECT NAME:** Spectra NJ-NY Expansion**LOCATION:** Staten Island, New York**PROJECT NO.:** 168217**CONTRACTOR:** Land Air Water Environmental Services**SAMPLER TYPE/DIA.:** Hand Auger / Macrocore/2"**DEPTH TO WATER:** 4.0 feet**BORING METHOD:** Direct Push**TOTAL DEPTH DRILLED:** 15 feet**DATE DRILLED:** 10/31/11**DRILLER:** J. Lamprecht**LOGGED BY:** W. Lindemuth

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
0						0.0 to 1.0' - Asphalt roadway and gravel road base. Dry.
1					SP	1.0 to 4.0' - Brown, fine to medium SAND; little silt. Moist.
2						
3						
4		Hand Cleared	ND	RCH-4H-ENV-9/3.5		CL 4.0 to 15' - Red brown CLAY; fine to coarse gravel. Wet at 4.0'.
5						
6						
7						
8				RCH-4H-ENV-9/7		
9		30	ND			
10						
11						
12						
13		50	ND			
14						Note: Borehole backfilled with grout, bentonite chips, black dyed concrete and restored to grade.
15						End of boring at 15'



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SOIL BORING LOG

BORING NUMBER

RCH-4-PIP-3

PROJECT NAME: Spectra NJ-NY Expansion

LOCATION: Staten Island, New York

PROJECT NO.: 168217

CONTRACTOR: Land Air Water Environmental Services

SAMPLER TYPE/DIA.: Hand Auger/Stainless Steel Split Spoon/2"

DEPTH TO WATER: 6.0 feet

BORING METHOD: Hand Auger/Tri-cone roller bit

TOTAL DEPTH DRILLED: 27 feet

DATE DRILLED: 4/18/2012 to 4/19/2012

DRILLER: J. Lamprecht

LOGGED BY: B. Chaky

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
0						
1		Hand Cleared	2.3	No Samples Collected		0.0 to 2.0' - FILL: Orange-brown, fine to medium sand; some fine to coarse, angular to sub-rounded gravel, trace silt, concrete pieces. Dry, medium-dense.
2			0.8			
3			ND			
4			ND			
5			ND			
6			ND			
7	6	6	ND			6.0 to 8.0' - FILL: Brown, fine sand; some fine to medium, sub-angular to sub-rounded gravel, trace silt. Wet at 6.0', medium-dense.
	7					
	5					
8	5	14	ND		PT	8.0 to 11'- Brown PEAT; some clay, little silt. Wet, loose.
	2					
9	2					
	1					
10	1	16	ND		SP	11 to 12' - Gray, fine to medium SAND; trace silt. Wet, medium-dense.
	W.O.H.					
11	W.O.H.					
	5					12 to 15' - Continuous drilling - no spoons collected.
12	5					
13						
14						
15						

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SOIL BORING LOG

BORING NUMBER

RCH-4-PIP-3

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
16	3 2 7	14	ND		SP	15 to 17' - Gray, fine to medium SAND; trace silt. Wet, medium-dense.
17	6					17 to 20' - Continuous drilling - no spoons collected.
18						
19						
20						
22	11	16	ND		SP	20 to 22' - Brown, fine SAND; trace silt. Wet, medium-dense.
23						22 to 25' - Continuous drilling - no spoons collected.
24						
25						
26	9 13 12	18	ND		SP	25 to 27' - Brown, fine SAND; little silt. Wet, dense.
27	10					
						End of boring at 27'
						Notes: Borehole grouted in accordance with N.J.A.C. 7:9D-3.1.





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SOIL BORING LOG

BORING NUMBER

RCH-4-PIP-4

PROJECT NAME: Spectra NJ-NY Expansion

LOCATION: Staten Island, New York

PROJECT NO.: 168217

CONTRACTOR: Land Air Water Environmental Services

DATE DRILLED: 4/12/2012 to 4/13/2012
DRILLER: J. Lamprecht
LOGGED BY: B. Chaky

SAMPLER TYPE/DIA.: Hand Auger/Stainless Steel Split Spoon/2"

DEPTH TO WATER: 6.0 feet

BORING METHOD: Hand Auger/Tri-cone roller bit

TOTAL DEPTH DRILLED: 27 feet

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
0						
1				No Samples Collected		0.0 to 2.0' - FILL: Gray brown, medium to fine sand; some coarse to fine, angular to sub-rounded gravel, brick, concrete, plastic and slag, little silt; dry, dense.
2						
3		Hand Cleared	ND			2.0 to 6.0' - FILL: Dark gray to black, coarse to fine sand, some sub-angular to sub-rounded gravel, little clay, trace silt, cobbles, plastic, rubber, brick and concrete.
4						
5						
6	4					
7	3	6	ND			6.0 to 8.0' - FILL: Brown, medium to fine sand, some medium to fine, sub-angular to sub-rounded gravel, little silt and slag; medium-dense; Wet at 6.0'.
8	3					
9	1	16	ND		PT	8.0 to 12'- Dark gray PEAT, some clay, trace silt; wet, loose.
10	1					
11	W.O.H					
12	2	20	ND			
13						12 to 15' - Continuous drilling - no spoons collected.
14						
15						


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SOIL BORING LOG

BORING NUMBER

RCH-4-PIP-4

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
16	5 6 4	14	ND		SP	15 to 17' - Gray, medium to fine SAND, trace fine rounded gravel and silt; medium-dense.
17	11					17 to 20' - Continuous drilling - no spoons collected.
18						
19						
20						
						
22	13	16	ND		SP	20 to 22' - Brown, medium to fine SAND , trace fine, rounded gravel and silt
23						22 to 25' - Continuous drilling - no spoons collected.
24						
25						
26	9 10 15	17	ND		SM	25 to 27' - Brown, fine SAND, some silt; medium-dense.
27	16					
						End of boring at 27'
						Notes: Borehole grouted in accordance with N.J.A.C. 7:9D-3.1.



Environmental Corporation

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SOIL BORING LOG

BORING NUMBER

RCH-5H-ENV-2

PROJECT NAME: Spectra NJ-NY Expansion

LOCATION: Staten Island, New York

PROJECT NO.: 168217

CONTRACTOR: Land Air Water Environmental Services

DATE DRILLED: 10/26/11

SAMPLER TYPE/DIA.: Hand Auger/
Macrocore/2"

DEPTH TO WATER: 3 feet

DRILLER: J. Lamprecht

BORING METHOD: Geoprobe/Hand Auger

TOTAL DEPTH DRILLED: 15 feet

LOGGED BY: W.Lindemuth

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
0						0.0 to 1.0' - Asphalt (5") underlain by concrete
1						1.0 to 2.0' - FILL: Brown silt and fine to coarse sand; some fine to coarse gravel. Dry.
2						2.0 to 8.0' - FILL: Black/brown fine to coarse sand and silt; some fine to coarse gravel, trace wood and coal fragments at 4.0'. Wet at 3.0'.
3				RCH-5H-ENV-2/2.5-3		
4		Hand Cleared	ND			
5						
6						
7						
8				RCH-5H-ENV-2/7.5-8		
9		4	ND			8.0 to 10' - FILL: Brown/red, fine sand and clay. Wet.
10					CL	10 to 15' - Red-brown CLAY and SILT; little fine gravel. Wet
11						
12						
13		23	ND			Note: Borehole backfilled with soil cuttings and restored to grade
14						
15						End of Boring at 15'



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TEMPORARY WELL AND SOIL BORING LOG

WELL NUMBER

RCH-5H-ENV-3W

PROJECT NAME: Spectra NJ-NY Expansion

LOCATION: Staten Island, New York

PROJECT NO.: 168217

CONTRACTOR: Land Air Water Environmental Services

SAMPLER TYPE/DIA.: Hand Auger/Macrocore/2"

TYPE OF WELL: Temporary

DEPTH TO BEDROCK: Not Encountered

DRILLING METHOD: Hollow Stem Auger

TOTAL DEPTH DRILLED: 20.5 feet

BIT TYPE: Auger Bit

START DATE: 09/19/11

FINISH DATE: 09/19/11

DRILLER: E. Santiago

LOGGED BY: J. Lenhart

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	WELL DIAGRAM	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
0							Top of casing 5" below surface.
1			ND				0.0 to 1.0' - Asphalt layer (5" thick) to a concrete layer containing coarse gravel (8" thick).
2			0.3			SW	1.0 to 3.0' - Reddish brown, fine to medium SAND; little reddish brown clay, trace silt, trace fine to medium, sub-angular gravel. Moist, loose, clay is soft.
3			0.2	RCH-5H-ENV-3W/2			
4			0.4				
5			0.3				
6			0.2				
7		Hand Cleared	0.3				
8			0.3				
9			0.3				
10			0.2				
11			0.7				
12			1.1				
13			0.8				
14			1.6			ML	7.0 to 15' - Reddish-brown SILT; little clay, trace fine sand, trace fine to medium, sub-angular gravel. Medium dense to very stiff from 10 to 15'. Wet @ 8.5'. Dark brown, fine to medium sand lens, wet and loose @ 8.5 to 9.5'.
15			0.4	RCH-5H-ENV-3W/8			
		24	ND				
			ND				
			ND				
			0.4				
			0.4				
			0.2				
			0.2				
		60	ND				
			ND				
			ND				
			ND				
			ND				
			ND				

CASING TYPE/DIAMETER (IN.)	STATIC WATER LEVEL: <u>6.89 (9/20/11)</u> feet below surface
INNER: <u>PVC/3</u> OUTER: <u>N/A</u>	DEPTH WATER ENCOUNTERED: <u>8.5</u> feet below surface
SCREENED OR OPEN INTERVAL: <u>5.5 to 20.5</u> (FEET BELOW SURFACE)	MEASURING POINT ELEVATION: <u>NA</u> ft.msl
	GROUND SURFACE ELEVATION: <u>NA</u> ft.msl



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TEMPORARY WELL AND SOIL BORING LOG

WELL NUMBER

RCH-5H-ENV-3W

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	WELL DIAGRAM	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
16		54	ND			SP	15 to 20' - Reddish brown, fine SAND; trace silt. Wet, medium dense.
17							
18							
19							
20							
							<p>End of boring at 20.5'</p> <p><u>Well Construction Details</u></p> <p>0.5 to 5.5 ft. below surface - 3" diameter PVC riser. 5.5 to 20.5 ft. below surface - 3" diameter 0.010 slot PVC screen 0.5 to 1.5 ft. below surface - No. 00 sand. 1.5 to 2.5 ft below surface - Bentonite chips. 2.5 to 20.5 ft. below surface - No. 01 sand.</p> <p>Total depth of Well = 18.13 feet bg as measured on 9/20/11</p>



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57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

SOIL BORING LOG

BORING NUMBER

RCH-5H-ENV-5

PROJECT NAME: Spectra NJ-NY Expansion

LOCATION: Staten Island, New York

PROJECT NO.: 168217

CONTRACTOR: Land Air Water Environmental Services

DATE DRILLED: 10/28/11

SAMPLER TYPE/DIA.: Hand Auger/
Macrocore/2"

DEPTH TO WATER: 2 feet

DRILLER: E. Santiago

BORING METHOD: Geoprobe/Hand Auger

TOTAL DEPTH DRILLED: 15 feet

LOGGED BY: L. Greenbaum

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
0						
1			ND			0.0 to 2.0' - Asphalt (5") underlain by cement (1'), underlain by sandy base (7").
2			0.5			2.0 to 3.0' - FILL: Dark brown clay and fine sand; trace shell fragments. Loose, plastic. Wet at 2'.
3			0.5			3.0 to 4.0' - FILL: Dark brown and black, fine sand, little silt. Wet, loose.
4		Hand Cleared	0.6	RCH-5H-ENV-5/4		4.0 to 7.0' - FILL: Brown, fine sand; some silt, trace wood chips (mulch), roots. Wet, loose, slight organic-like odor.
5			3.1			
6			2.0			
7			1.1			
8			1.0	RCH-5H-ENV-5/7		7.0 to 8.0' - FILL: Mottled red and green/gray, fine sand; and silt, trace red brick pieces, roots. Wet, loose, strong organic-like odor.
9		36	0.7			8.0 to 10' - Red-brown, fine to medium SAND; some silt, trace fine, sub-angular gravel, some brittle rock fragments. Wet, loose, slight organic-like odor.
10			0.7			
11			0.5			
12			0.4			10 to 15' - Red CLAY; some fine, angular gravel, little medium to coarse sand. Wet, dense, plastic.
13		48	ND			
14						
15						End of Boring at 15'



Environmental Corporation

57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

SOIL BORING LOG

BORING NUMBER

RCH-5H-ENV-7

PROJECT NAME: Spectra NJ-NY Expansion

LOCATION: Staten Island, New York

PROJECT NO.: 168217

CONTRACTOR: Land Air Water Environmental Services

DATE DRILLED: 10/31/11

SAMPLER TYPE/DIA.: Hand Auger / Macrocore/2"

DEPTH TO WATER: 5.0 feet

DRILLER: J. Lamprecht

BORING METHOD: Direct Push

TOTAL DEPTH DRILLED: 15 feet

LOGGED BY: D. Santana

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
0						
1		Hand Cleared	ND	RCH-5H-ENV-7/3		0.0 to 1.0' - FILL; Asphalt layer (6" thick), cement and fine to coarse gravel (4" thick), dark brown, fine to medium sand, some fine to coarse, subangular gravel. Loose, dry.
2	1.0 to 4.0' - FILL; Dark brown, fine to medium sand; some fine to coarse, subangular gravel, little dimensional wood fragments, trace silt. Loose, Dry.					
3						
4						
5						4.0 to 5.0' - FILL; Red brown, fine to medium sand; little dimensional wood fragments, trace silt and trace subangular gravel. Loose, moist. Wet at 5.0'.
6					SP	5.0 to 9.0' - Red brown, fine to medium SAND; little silt, trace clay and fine, subangular gravel. Loose at 5.0 to 7.0', medium dense 7.0 to 9.0', wet.
7						
8						
9		12	ND			
10						
11						
12						
13		47	ND			
14						
15						Note: Borehole backfilled with grout, bentonite chips, black dyed concrete and restored to grade. End of boring at 15'

**Environmental Corporation**

57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

SOIL BORING LOG**BORING NUMBER****RCH-5H-ENV-8****PROJECT NAME:** Spectra NJ-NY Expansion**LOCATION:** Staten Island, New York**PROJECT NO.:** 168217**CONTRACTOR:** Land Air Water Environmental Services**DATE DRILLED:** 09/19/12**SAMPLER TYPE/DIA.:** Hand Auger**DEPTH TO WATER:** 5 feet**DRILLER:** J. Lamprecht**BORING METHOD:** Hand Auger**TOTAL DEPTH DRILLED:** 8 feet**LOGGED BY:** D. Avudzega

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
0						
1		Hand Cleared	ND			0.0 to 0.5' - Asphalt
2						0.5 to 1.0' - Concrete
3						1.0 to 2.0' - FILL: Brown, medium to coarse sand; little sub-angular gravel, concrete. Loose, moist, no staining, no odor.
4						SW 2.0 to 5.0' - Red-brown, fine to medium SAND. Loose, moist, no staining, no odor.
5						Wet at 5'
6						ML 5.0 to 8.0' - Red-brown SILT; little clay, trace sub-angular gravel. Medium-stiff, wet, no staining, no odor.
7						
8						
						End of boring at 8 feet. Note: Borehole backfilled with bentonite chips and soil cuttings to restore to grade. RCH-5H-ENV-8-WC/1 through 8 collected at every foot for TPHC analysis. RCH-5H-ENV-8-WC composited for waste characterization analyses.

TRC ENVIRONMENTAL CORP. 57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006		TEST PIT LOG		TEST PIT NUMBER RCH-6-ARC/MT-1
PROJECT NAME: Spectra NJ-NY Expansion		LOCATION: Staten Island, New York		DATE COMPLETED: 03/14/12
PROJECT NO.: 168217		CONTRACTOR: The Napp-Grecco Company		OPERATOR: J. Paiva LOGGED BY: B. Bermingham
DEPTH FROM SURFACE (FEET)	PID (ppm)	SAMPLE DESIGNATION AND DEPTH (feet)	LITHOLOGIC CLASSIFICATION AND COMMENTS	
1	ND	RCH-6-ARC/MT-1 WC	0 to 0.5' - Brown top soil; some roots. Dry; no odor; no staining.	
2			0.5 to 5.0' - Brown, medium to coarse, loose SAND; little brown silt, trace fine to coarse, sub-angular gravel. Moist; no odor; no staining.	
3				
4				
5			Ground water encountered at 4.5'.	
6			5.0 to 6.5' - Black SILT and medium to coarse, loose SAND; some down vegetation (tree), trace roots. Wet; no odor; no staining.	
7			6.5 to 8.0' - Reddish-brown SILT; some medium soft clay, trace medium to coarse, loose sand and fine, sub-angular gravel. A layer of gray, medium soft clay; trace silt and medium to coarse sand at uppermost 1". Wet; no odor; no staining.	
8			End of test pit at 8.0'	

TRC ENVIRONMENTAL CORP.

57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

TEST PIT LOG

TEST PIT NUMBER

RCH-6-ARC/MT-11PROJECT NAME: Spectra NJ-NY
Expansion

LOCATION: Staten Island, New York

DATE COMPLETED: 03/07/12

PROJECT NO.: 168217

CONTRACTOR: The Napp-Grecco Company

OPERATOR: B. Grecco

LOGGED BY: B. Bermingham

DEPTH FROM SURFACE (FEET)	PID (ppm)	SAMPLE DESIGNATION AND DEPTH (feet)	LITHOLOGIC CLASSIFICATION AND COMMENTS
1	ND	RCH-6-ARC/MT-11 WC	0.0 to 0.83' - Asphalt and concrete sub-base.
2			0.83 to 1.58' - FILL: Dark brown silt and medium to coarse, loose sand; little medium to fine, sub-angular gravel, trace concrete; no staining/odor.
3			1.58 to 1.83' - FILL: Brown, fine to coarse sand; trace silt and sub-angular gravel.
4			1.83 to 3.33' - FILL: Reddish brown silt and clay; trace sub-angular, fine gravel; no staining/odor; wet at 2.3'.
5			3.33 to 3.5' - Fill: Black coal ash, trace fine, sub-angular gravel; no staining/odor.
6			3.5 to 5.85' - FILL: Fine to coarse gravel and gray silt; some fine gray sand, trace concrete, red brick, and debris (glass bottles, scrap metal, glass, and ceramic plates).
			End of test pit at 5.85'

TRC ENVIRONMENTAL CORP.

57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

TEST PIT LOG

TEST PIT NUMBER

RCH-6-ARC/MT-12PROJECT NAME: Spectra NJ-NY
Expansion

LOCATION: Staten Island, New York

DATE COMPLETED: 03/06/12

PROJECT NO.: 168217

CONTRACTOR: The Napp-Grecco Company

OPERATOR: J. Murray

LOGGED BY: B. Bermingham

DEPTH FROM SURFACE (FEET)	PID (ppm)	SAMPLE DESIGNATION AND DEPTH (feet)	LITHOLOGIC CLASSIFICATION AND COMMENTS
1	ND	RCH-6-ARC/MT-12 WC	0.0 to 0.67' - Asphalt and concrete sub-base
2			0.67 to 1.25' - FILL: brownish-red silt and fine sand, some gravel; no staining/odor
3			1.25 to 3.0' - FILL: Black coal ash, brown silt, some fine sand, trace fine gravel, red brick, and debris (timbers, glass bottles, ceramic). Wet at 2.5'.
4			3.0 to 5.0' - FILL: Gray silt with coarse to medium subangular gravel; little medium to coarse, loose sand, trace red brick and timbers; no staining/odors.
5			
			End of test pit at 5.0'

TRC ENVIRONMENTAL CORP.

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TEST PIT LOG

TEST PIT NUMBER

RCH-6-ARC/MT-2PROJECT NAME: Spectra NJ-NY
Expansion

LOCATION: Staten Island, New York

DATE COMPLETED: 03/13/12

PROJECT NO.: 168217

CONTRACTOR: The Napp-Grecco Company

OPERATOR: J. Paiva

LOGGED BY: B. Bermingham

DEPTH FROM SURFACE (FEET)	PID (ppm)	SAMPLE DESIGNATION AND DEPTH (feet)	LITHOLOGIC CLASSIFICATION AND COMMENTS
1	ND	RCH-6-ARC/MT-2 WC	0 to 5.0' - FILL: Black coal ash and reddish-brown silt; some medium to coarse sand and fine to coarse, sub-angular gravel, trace roots, red brick, scrap metal and glass bottles. Moist; no odor; no staining.
2			Ground water encountered at 4.0'.
3			
4			
5			5.0 to 5.5' - Brown, fine to coarse SAND and SILT; trace fine gravel. Wet; no odor; no staining.
6			5.5 to 6.5' - PEAT. Wet; no odor; no staining.
7			6.5 to 8.5' - Reddish-brown SILT and fine SAND; trace soft clay. Wet; no odor; no staining.
8			
			End of test pit at 8.5'

TRC ENVIRONMENTAL CORP.

57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

TEST PIT LOG

TEST PIT NUMBER

RCH-6-ARC/MT-3PROJECT NAME: Spectra NJ-NY
Expansion

LOCATION: Staten Island, New York

DATE COMPLETED: 03/12/12

PROJECT NO.: 168217

CONTRACTOR: The Napp-Grecco Company

OPERATOR: J. Paiva

LOGGED BY: B. Bermingham

DEPTH FROM SURFACE (FEET)	PID (ppm)	SAMPLE DESIGNATION AND DEPTH (feet)	LITHOLOGIC CLASSIFICATION AND COMMENTS
1	ND	RCH-6-ARC/MT-3 WC	0 to 1.0' - FILL: Brownish-red silt and coarse sand; some roots, trace fine, sub-angular gravel and medium soft clay. Dry; no odor; no staining.
2	0.3		1.0 to 2.5' - FILL: Black coal ash and dark brown, coarse sand; little silt, trace red brick and wooden planks. Moist; strong odor; no staining.
3	0.1		2.5 to 5.0' - FILL: Light gray coal ash and dark brown silt; little medium to coarse, loose sand, trace red brick, concrete and miscellaneous debris (ceramics, plates, glass bottles, scrap metal, wood timbers, wooden planks). Wet; strong odor; no staining. Ground water encountered at 3.25'.
4	ND		
5	ND		5.0 to 6.0' - FILL: Dark brown, medium to coarse sand and silt; some black coal ash, little fine to coarse, sub-angular gravel, trace red brick, concrete and miscellaneous debris (same as above). Wet; strong odor; no staining.
6	1.2		
7	1.8		6.0 to 8.5' - Brown PEAT. Wet; no odor; no staining.
8	ND		
			End of test pit at 8.5'

TRC ENVIRONMENTAL CORP.

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TEST PIT LOG

TEST PIT NUMBER

RCH-6-ARC/MT-5PROJECT NAME: Spectra NJ-NY
Expansion

LOCATION: Staten Island, New York

DATE COMPLETED: 03/15/12

PROJECT NO.: 168217

CONTRACTOR: The Napp-Grecco Company

OPERATOR: J. Paiva

LOGGED BY: B. Bermingham

DEPTH FROM SURFACE (FEET)	PID (ppm)	SAMPLE DESIGNATION AND DEPTH (feet)	LITHOLOGIC CLASSIFICATION AND COMMENTS
1	ND	RCH-6-ARC/MT-5 WC	0 to 2.5' - FILL: Brown silt and medium to coarse, loose sand; some red brick, trace roots and fine to coarse, sub-angular gravel. Dry; no odor; no staining.
2			
3			2.5 to 4.0' - FILL: Black coal ash and medium to coarse, loose sand; some fine to coarse, sub-angular gravel, little silt, trace belgium blocks, red brick and glass bottles. Moist; wet at 3.75'; sheen on ground water; no odor; no staining on soil.
4			4.0 to 8.0' - FILL: Light gray, medium to coarse, loose sand and fine to coarse, sub-angular gravel; little black coal ash, trace silt, glass bottles, scrap metal and ceramics. Wet; no odor; no staining.
5			
6			
7			
8			End of test pit at 8.0'

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TEST PIT LOG

TEST PIT NUMBER

RCH-6-ARC/MT-7PROJECT NAME: Spectra NJ-NY
Expansion

LOCATION: Staten Island, New York

DATE COMPLETED: 03/09/12

PROJECT NO.: 168217

CONTRACTOR: The Napp-Grecco Company

OPERATOR: J. Paiva

LOGGED BY: B. Bermingham

DEPTH FROM SURFACE (FEET)	PID (ppm)	SAMPLE DESIGNATION AND DEPTH (feet)	LITHOLOGIC CLASSIFICATION AND COMMENTS
1	ND	RCH-6-ARC/MT-7 WC	0 to 0.5' - Asphalt and concrete pad.
2			0.5 to 3.0' - FILL: Brown silt and fine to coarse sand; little fine to coarse, sub-angular gravel, trace concrete, red brick and miscellaneous debris (aluminum scrap metal, glass bottles, electrical conduit, rebar, glass, plastic sheeting, wooden boards). Moist; no odor.
3			3.0 to 8.0' - FILL: Black coal ash; some fine to coarse, sub-angular gravel, little brown, medium to coarse sand, trace red brick, concrete and miscellaneous debris. Wet at 3.0'; slight odor; sheen observed on ground water from northwest corner.
4			
5			
6			
7			
8			
			End of test pit at 8.0'

TRC ENVIRONMENTAL CORP.

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TEST PIT LOG

TEST PIT NUMBER

RCH-6-ARC/MT-9PROJECT NAME: Spectra NJ-NY
Expansion

LOCATION: Staten Island, New York

DATE COMPLETED: 03/08/12

PROJECT NO.: 168217

CONTRACTOR: The Napp-Grecco Company

OPERATOR: J. Paiva

LOGGED BY: B. Bermingham

DEPTH FROM SURFACE (FEET)	PID (ppm)	SAMPLE DESIGNATION AND DEPTH (feet)	LITHOLOGIC CLASSIFICATION AND COMMENTS
1	ND	RCH-6-ARC/MT-9 WC	0 to 0.5' - Asphalt and gray, medium to fine sand and fine sub-angular gravel sub-base.
2			0.5 to 3.5' - FILL: Brownish-red silt and medium soft clay; trace sub-angular gravel and red brick
3	Wet at 2.9'		
4	0.7		3.5 to 8.0' - FILL: Gray, fine to coarse, sub-angular gravel; little coarse sand, trace debris (wood timbers, glass bottles, red brick, sea shells, concrete).
5			
6			
7			
8			
			End of test pit at 8.0'



Environmental Corporation

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SOIL BORING LOG

BORING NUMBER

RCH-6-ENV-1

PROJECT NAME: Spectra NJ-NY Expansion

LOCATION: Staten Island, New York

PROJECT NO.: 168217

CONTRACTOR: Land Air Water Environmental Services

DATE DRILLED: 07/20/11

SAMPLER TYPE/DIA.: Hand Auger/
Macrocore/2"
BORING METHOD: Direct Push

DEPTH TO WATER: 4.0 feet
TOTAL DEPTH DRILLED: 15 feet

DRILLER: K. McGourty

LOGGED BY: B. Chaky / P. Narea

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
0						
1		Hand Cleared	ND	RCH6ENV1/2		0 to 4.0' - FILL: Brown, coarse to fine sand; trace gravel, trace coal/ash/cinder fragments, trace brick pieces. Dry.
2			ND			
3			ND			
4			3			
5		48	ND	RCH6ENV1/7		4.0 to 5.0' - Black PEAT. Wet at 4.0 feet.
6			ND			
7			0.9			
8			0.8			
9		45	ND			5.0 to 10' - Red brown, fine SAND; little silt. Wet, dense.
10			ND			
11			0.5			
12			0.4			
13			ND			10 to 12' - Brown PEAT; little silt, trace roots. Wet, loose.
14			0.3			
15			0.5			
15			0.3			

End of Boring @ 15'



Environmental Corporation

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SOIL BORING LOG

BORING NUMBER

RCH-6-HDD-1

PROJECT NAME: Spectra NJ-NY Expansion

LOCATION: Staten Island, New York

PROJECT NO.: 168217

CONTRACTOR: Warren George, Inc.

DATE DRILLED: 11/05/10

SAMPLER TYPE/DIA.: Hand Auger/Stainless steel spoon/2"

DEPTH TO WATER: 1.5 feet

DRILLER: O. Sanchez

BORING METHOD: Mud Rotary / Tricone roller bit

TOTAL DEPTH DRILLED: 22 feet

LOGGED BY: C. Nichol

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
0						
1				No Samples Collected		0.0 to 1.0' - ASPHALT; and gravel sub-base.
2						1.0 to 2.0' - FILL: Dark gray, fine to coarse sand; some fine gravel, trace silt, trace shells. Wet @ 1.5'
3						2.0 to 7.0' - FILL: Dark gray, fine to coarse sand; and shells, some fine to coarse gravel, pieces of brick and pottery fragments.
4		Hand cleared	ND			
5						
6						
7						
8		0	ND			7.0 to 9.0' - No recovery.
9						
10						9.0 to 10.0' - Continuous drilling; no spoons collected.
11		12	57.4 34.3		PT	10.0 to 12.0' - PEAT. Strong organic odor, no visual signs of contamination.
12						
13						12.0 to 14.0' - Shelby tube.
14						
15						14.0 to 15.0' - Continuous drilling; no spoons collected.



Environmental Corporation

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SOIL BORING LOG

BORING NUMBER

RCH-6-HDD-1

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
16		18	523		OH	15.0 to 17.0' - Dark gray, organic SILT; and peat. Strong organic odor, no visual signs of contamination.
			157			
17			155			
18						17.0 to 20.0' - Continuous drilling; no spoons collected.
19						
20						
21						
21		24	ND		SP	20.0 to 22.0' - Reddish gray, medium to coarse SAND; trace silt.
22						<p>End of boring @ 22' Borehole extended to 100'</p> <p>Note: Borehole grouted in accordance with N.J.A.C. 7:9D-3.1</p>



Environmental Corporation

57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

SOIL BORING LOG

BORING NUMBER

RCH-MM-ARC-1

PROJECT NAME: Spectra NJ-NY Expansion

LOCATION: Staten Island, New York

PROJECT NO.: 168217

CONTRACTOR: Land Air Water Environmental Services

DATE DRILLED: 11/30/11

SAMPLER TYPE/DIA.: Hand Auger/Macrocore/2"

DEPTH TO WATER: 1.5 feet

DRILLER: J. Lamprecht

BORING METHOD: Direct Push

TOTAL DEPTH DRILLED: 20 feet

LOGGED BY: W. Lindemuth

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
0						
1				No Samples Collected	SW	0.0 to 6.0' - Brown to light brown, fine to coarse SAND; little silt. Moist with trace organic roots from 0.0 to 1.5'. Wet @ 1.5'.
2						
3		Hand Cleared	ND			
4						
5						
6					SW	6.0 to 11' - Brown, fine to coarse SAND. Wet.
7						
8		38	ND			
9						
10						
11					ML	11 to 14.5' - Red brown SILT; and clay. Wet.
12		45	ND			
13						
14						
15		36	ND		SP	14.5 to 20' - Brown, fine SAND. Wet.



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SOIL BORING LOG

BORING NUMBER

RCH-MM-ARC-1

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
16		36	ND		SP	14.5 to 20' - Brown, fine SAND. Wet.
17						
18						
19		24	ND			
20						
						End of boring at 20'
						Note: Borehole backfilled with soil cuttings and restored to grade.



Environmental Corporation

57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

SOIL BORING LOG

BORING NUMBER

RCH-MM-ARC-5

PROJECT NAME: Spectra NJ-NY Expansion

LOCATION: Staten Island, New York

PROJECT NO.: 168217

CONTRACTOR: Land Air Water Environmental Services

DATE DRILLED: 11/30/11

SAMPLER TYPE/DIA.: Hand Auger/Macrocore/2"

DEPTH TO WATER: 3.0 feet

DRILLER: J. Lamprecht

BORING METHOD: Direct Push

TOTAL DEPTH DRILLED: 20 feet

LOGGED BY: W. Lindemuth

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
0						
1		Hand Cleared	ND		SM	0.0 to 0.5' - Brown SILT; and fine to coarse gravel. Dry.
2					ML	0.5 to 3.0' - Brown SILT; some clay. Moist.
3						
4					CL	3.0 to 6.0' - Brown to light brown CLAY; and silt, some fine to coarse gravel. Wet.
5						
6						
7						Note: No lithology recorded from 6.0 to 20' due to macrocore samples remaining unopened for further investigation by archaeologist (GRA).
8						
9						
10						
11						
12						
13						
14						
15						



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SOIL BORING LOG

BORING NUMBER

RCH-MM-ARC-5

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
16						
17						
18						
19						
20						
						End of boring at 20'
						Note: Borehole backfilled with soil cuttings and restored to grade.



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SOIL BORING LOG

BORING NUMBER

RCH-MM-ARC-6

PROJECT NAME: Spectra NJ-NY Expansion

LOCATION: Staten Island, New York

PROJECT NO.: 168217

CONTRACTOR: Land Air Water Environmental Services

DATE DRILLED: 11/30/11

SAMPLER TYPE/DIA.: Hand Auger/Macrocore/2"

DEPTH TO WATER: 4.0 feet

DRILLER: J. Lamprecht

BORING METHOD: Direct Push

TOTAL DEPTH DRILLED: 20 feet

LOGGED BY: W. Lindemuth

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
0						
1		Hand Cleared	ND			0.0 to 3.0' - FILL: Brown, fine sand and silt, some fine to coarse gravel. Moist. Trace organic roots from 0.0 to 0.5'. Trace wood and plastic pieces from 0.5 to 3.0'.
2			ND			
3			ND			
4			ND			
5			1.8			
6			1.3			
7						3.0 to 6.0' - Red brown SILT and CLAY, some fine to coarse gravel. Moist. Wet @ 4.0'. Note: No lithology recorded from 6.0 to 20' due to macrocore samples remaining unopened for further investigation by archaeologist (GRA).
8						
9						
10						
11						
12						
13						
14						
15						



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SOIL BORING LOG

BORING NUMBER

RCH-MM-ARC-6

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
16						
17						
18						
19						
20						End of boring at 20'
						Note: Borehole backfilled with soil cuttings and restored to grade.



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SOIL BORING LOG

BORING NUMBER

RCH-MM-ARC-7

PROJECT NAME: Spectra NJ-NY Expansion

LOCATION: Staten Island, New York

PROJECT NO.: 168217

CONTRACTOR: Land Air Water Environmental Services

DATE DRILLED: 11/29/11

SAMPLER TYPE/DIA.: Hand Auger/Macrocore/2"

DEPTH TO WATER: Not encountered

DRILLER: J. Lamprecht

BORING METHOD: Direct Push

TOTAL DEPTH DRILLED: 20 feet

LOGGED BY: W. Lindemuth

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
0						
1		Hand Cleared	ND		ML	0.0 to 6.0 - Red brown SILT and CLAY, trace fine to coarse gravel. Moist. 0.0 to 0.5 Dry, organic roots.
2						
3						
4						
5						
6						
7						Note: No lithology recorded from 6.0 to 20' due to macrocore samples remaining unopened for further investigation by archaeologist (GRA).
8						
9						
10						
11						
12						
13						
14						
15						



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SOIL BORING LOG

BORING NUMBER

RCH-MM-ARC-7

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
16						
17						
18						
19						
20						
						End of boring at 20'
						Note: Borehole backfilled with soil cuttings and restored to grade.



Environmental Corporation

57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

SOIL BORING LOG

BORING NUMBER

RCH-MM-ARC-8

PROJECT NAME: Spectra NJ-NY Expansion

LOCATION: Staten Island, New York

PROJECT NO.: 168217

CONTRACTOR: Land Air Water Environmental Services

DATE DRILLED: 11/29/11

SAMPLER TYPE/DIA.: Hand Auger/Macrocore/2"

DEPTH TO WATER: 3.0 feet

DRILLER: J. Lamprecht

BORING METHOD: Direct Push

TOTAL DEPTH DRILLED: 20 feet

LOGGED BY: W. Lindemuth

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
0						
1		Hand Cleared	ND			SM 0.0 to 0.5 - Brown SILT; and fine sand. Dry, organic roots. SP 0.5 to 4.0' - Brown, fine SAND. Moist. Wet @ 3.0'.
2						
3						
4						
5						ML 4.0 to 6.0' - Red SILT and CLAY, little fine sand. Wet.
6						Note: No lithology recorded from 6.0 to 20' due to macrocore samples remaining unopened for further investigation by archaeologist (GRA).
7						
8						
9						
10						
11						
12						
13						
14						
15						



Environmental Corporation

57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

SOIL BORING LOG

BORING NUMBER

RCH-MM-ARC-8

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
16						
17						
18						
19						
20						End of boring at 20'
						Note: Borehole backfilled with soil cuttings and restored to grade.



Environmental Corporation

57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

TEMPORARY WELL AND SOIL BORING LOG

WELL NUMBER

RCH-MM-ENV-10W

PROJECT NAME: Spectra NJ-NY Expansion

LOCATION: Staten Island, New York

PROJECT NO.: 168217

CONTRACTOR: Land Air Water Environmental Services

SAMPLER TYPE/DIA.: Hand Auger/Macrocore/2"

TYPE OF WELL: Temporary

DEPTH TO BEDROCK: Not Encountered

DRILLING METHOD: Hollow Stem Auger

TOTAL DEPTH DRILLED: 20 feet

BIT TYPE: Auger Bit

START DATE: 11/29/11

FINISH DATE: 11/29/11

DRILLER: J. Lamprecht

LOGGED BY: B. Bermingham

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	WELL DIAGRAM	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
0							Top of casing to ground surface: -0.50 feet
1		Hand Cleared	2.2	RCH-MM-ENV-10W/0.5			0.0 to 2.0' - FILL: Brown sand; some silt, trace fine to coarse gravel, trace ceramic tile, trace glass, trace cobble. Loose, dry, Moist @ 1.0'.
2	1.8					2.0 to 5.0' - FILL: Brown sand; some silt, little reddish-brown soft clay, trace fine to medium gravel. Loose, moist.	
3	0.8						
4	0.5						
5	ND					Wet at 5.0'.	
6	ND			CL	5.0 to 6.0' - Reddish-brown CLAY; some silt, trace fine, subangular gravel. Medium soft, wet.		
7	ND	48	ND	RCH-MM-ENV-10W/7.5		SM	6.0 to 7.0' - Brown, fine to medium SAND; little silt. Loose, wet.
8	ND					CL	7.0 to 10' - Reddish-brown CLAY; some silt, trace fine, subangular gravel. Medium soft, wet.
9	ND						
10	ND	54	ND			CL	10 to 12.5' - Reddish-brown CLAY; trace silt, trace fine, subangular gravel. Medium soft, wet.
11	ND						
12	ND						
13	ND					SP	12.5 to 15' - Reddish-brown fine SAND, little silt, trace fine, subangular gravel. Loose, wet.
14	ND						
15	ND						

CASING TYPE/DIAMETER (IN.)

INNER: PVC/3 OUTER: N/A

STATIC WATER LEVEL: 4.45 (11/30/11) feet below surface

DEPTH WATER ENCOUNTERED: 5 feet below surface

SCREENED OR OPEN INTERVAL: 0.50 to 15.44
(FEET BELOW SURFACE)

MEASURING POINT ELEVATION: NA ft.msl

GROUND SURFACE ELEVATION: NA ft.msl



Environmental Corporation

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TEMPORARY WELL AND SOIL BORING LOG

WELL NUMBER

RCH-MM-ENV-10W

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	WELL DIAGRAM	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
16		60	ND			SP	15 to 17.5' - Reddish-brown fine SAND; little silt, trace fine, subangular gravel. Loose, wet.
17						CL	17.5 to 20' - Reddish-brown CLAY; trace silt, trace fine, subangular gravel. Medium soft, wet.
18							
19							
20							
							End of boring at 20'
							<u>Well Construction Details</u> 0.50 to 15.44 ft. below surface - 3" diameter 0.010 slot PVC screen 0.50 to 15.44 ft. below surface - No. 01 sand. Total depth of well = 15.44 feet bg as measured on 11/30/11 Note: Borehole backfilled with soil cuttings and restored to grade.



Environmental Corporation

57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

SOIL BORING LOG

BORING NUMBER

RCH-MM-ENV-11

PROJECT NAME: Spectra NJ-NY Expansion

LOCATION: Staten Island, New York

PROJECT NO.: 168217

CONTRACTOR: Land Air Water Environmental Services

DATE DRILLED: 11/28/11

DRILLER: J. Lamprecht

SAMPLER TYPE/DIA.: Hand Auger / Macrocore/2"

DEPTH TO WATER: 4.0 feet

BORING METHOD: Direct Push

TOTAL DEPTH DRILLED: 15 feet

LOGGED BY: W. Lindemuth

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
0						
1					SM	0.0 to 0.5' - Brown SILT; and organics (roots). Dry.
2					SW	0.5 to 6.0' - Light brown, fine to coarse SAND; some silt and fine to coarse gravel, trace clay. Moist from 0.5 to 4.0'.
3						
4		Hand Cleared	ND	RCH-MM-ENV-11/3		Wet at 4.0'.
5						
6					RCH-MM-ENV-11/6	
7					CL	6.0 to 7.0' - Red CLAY; some silt, trace fine to coarse gravel. Wet.
8					ML	7.0 to 11' - Red brown SILT and CLAY, some fine to coarse gravel. Wet.
9		48	ND			
10						
11					SP	11 to 15' - Brown, fine SAND. Wet.
12						
13		42	ND			
14						
15						Note: Borehole backfilled with soil cuttings and restored to grade. End of boring at 15'



Environmental Corporation

57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

SOIL BORING LOG

BORING NUMBER

RCH-MM-ENV-12

PROJECT NAME: Spectra NJ-NY Expansion

LOCATION: Staten Island, New York

PROJECT NO.: 168217

CONTRACTOR: Land Air Water Environmental Services

DATE DRILLED: 11/28/11

SAMPLER TYPE/DIA.: Hand Auger / Macrocore/2"

DEPTH TO WATER: 4.0 feet

DRILLER: J. Lamprecht

BORING METHOD: Direct Push

TOTAL DEPTH DRILLED: 15 feet

LOGGED BY: D. Santana

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
0						
1		Hand Cleared	ND	RCH-MM-ENV-12/3.5	SW	0.0 to 1.0' - Dark brown, fine to medium SAND; trace silt and fine to medium, sub-angular gravel. Loose, moist. Root material
2						SP 1.0 to 6.0' - Orange brown, fine to medium SAND; little silt, trace natural wood fragments. Moist, loose.
3						
4						Wet at 4.0'.
5						
6		48	ND	RCH-MM-ENV-12/7.5	SP	6.0 to 10' - Orange brown, fine to medium SAND; trace silt. Loose, wet.
7						
8						
9						
10		41	ND		CL	10 to 15' - Red brown CLAY; trace silt and fine, sub-angular gravel. Stiff, wet.
11						
12						
13						
14						
15						



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SOIL BORING LOG

BORING NUMBER

RCH-MM-ENV-12

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
16					CL	15 to 20' - Red brown CLAY; trace silt and fine, sub-angular gravel. Stiff, wet. Red brown, fine sand lense at 17'.
17						
18		57	ND			
19						
20						End of boring at 20'



Environmental Corporation

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TEMPORARY WELL AND SOIL BORING LOG

WELL NUMBER RCH-MM-ENV-13W

PROJECT NAME: Spectra NJ-NY Expansion

LOCATION: Staten Island, New York

PROJECT NO.: 168217

CONTRACTOR: Land Air Water Environmental Services

START DATE: 11/28/11

FINISH DATE: 11/28/11

DRILLER: J. Lamprecht

LOGGED BY: D. Santana

SAMPLER TYPE/DIA.: Hand Auger/Macrocore/2"

TYPE OF WELL: Temporary

DEPTH TO BEDROCK: Not Encountered

DRILLING METHOD: Hollow Stem Auger

TOTAL DEPTH DRILLED: 20 feet

BIT TYPE: Auger Bit

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	WELL DIAGRAM	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
0							Top of casing at grade.
1			ND	RCH-MM-ENV-13W/2		SW	0.0 to 1.0' - Dark brown, fine to medium SAND; little fine to coarse, sub-angular gravel, trace silt. Loose, dry.
2			18.1			SW	1.0 to 2.0' - Light brown, fine to medium SAND; trace silt and fine to coarse, sub-angular gravel. Loose, dry.
3			47.3			SP	2.0 to 6.0' - Orange brown, fine to medium SAND; trace silt. Loose, moist.
4		Hand Cleared	137				
5			182				
6			13.6			SP	6.0 to 10' - Light brown, fine to medium SAND; trace silt. Loose, wet.
7			ND	RCH-MM-ENV-13W/7.5			Wet at 5.0'.
8			ND			CL	10 to 15' - Red brown CLAY, trace silt and fine sub-angular gravel. Stiff, wet.
9			ND				
10			ND				
11			ND				
12			48				
13				50	ND		
14							
15							

CASING TYPE/DIAMETER (IN.)	INNER: <u>PVC/3</u> OUTER: <u>N/A</u>	STATIC WATER LEVEL: <u>2.33 (11/29/11)</u> feet below surface
		DEPTH WATER ENCOUNTERED: <u>5</u> feet below surface

SCREENED OR OPEN INTERVAL: <u>0.0 to 14.76</u> (FEET BELOW SURFACE)	MEASURING POINT ELEVATION: <u>NA</u> ft.msl
	GROUND SURFACE ELEVATION: <u>NA</u> ft.msl



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TEMPORARY WELL AND SOIL BORING LOG

WELL NUMBER
RCH-MM-ENV-13W

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	WELL DIAGRAM	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
16		54	ND			CL	15 to 20' - Red brown CLAY; trace silt and fine sub-angular gravel. Stiff, wet. Fine sand lense at 18'.
17							
18							
19							
20							
							End of boring at 20'
							<u>Well Construction Details</u> 0.0 to 14.76 ft. below surface - 3" diameter 0.010 slot PVC screen 0.0 to 14.76 ft. below surface - No. 01 sand. Total depth of well = 14.76 feet bg as measured on 11/29/11 Note: Borehole backfilled with soil cuttings and restored to grade.



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57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

SOIL BORING LOG

BORING NUMBER

RCH-MM-ENV-14

PROJECT NAME: Spectra NJ-NY Expansion

LOCATION: Staten Island, New York

PROJECT NO.: 168217

CONTRACTOR: Land Air Water Environmental Services

DATE DRILLED: 11/17/11

SAMPLER TYPE/DIA.: Hand Auger

DEPTH TO WATER: 3.0 feet

DRILLER: J. Lampert

BORING METHOD: Direct Push

TOTAL DEPTH DRILLED: 6.0 feet

LOGGED BY: W. Lindemuth

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
0						
1						0.0 to 2.0' - Brown, fine SAND and silt.
2						2.0 to 6.0' - Light brown/orange, fine SAND.
3		Hand Cleared	ND	RCH-MM-ENV-14/3		Wet at 3.0'
4						
5				RCH-MM-ENV-14/5		
6						End of Boring at 6.0 feet
7						Note: Borehole backfilled with soil cuttings and restored to grade
8						
9						
10						
11						
12						
13						
14						
15						



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57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

SOIL BORING LOG

BORING NUMBER

RCH-MM-ENV-15

PROJECT NAME: Spectra NJ-NY Expansion

LOCATION: Staten Island, New York

PROJECT NO.: 168217

CONTRACTOR: Land Air Water Environmental Services

DATE DRILLED: 11/17/11

SAMPLER TYPE/DIA.: Hand Auger/
Macrocore/2"

DEPTH TO WATER: 1.0 feet

DRILLER: J. Lampert

BORING METHOD: Direct Push

TOTAL DEPTH DRILLED: 20 feet

LOGGED BY: W. Lindemuth

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
0						
1		Hand Cleared	ND	RCH-MM-ENV-15/3	SM	0.0 to 3.5' - Brown, fine SAND and SILT; some fine to coarse gravel, little organic roots. Wet at 1.0'. 3.5 to 4.0' - Red brown CLAY and fine SAND. 4.0 to 10' - Red brown, fine to medium SAND and CLAY; trace fine to medium gravel.
2						
3						
4					SC	
5						
6						
7				RCH-MM-ENV-15/6		
8		30	ND			
9						
10					CH	10 to 14' - Red brown CLAY; trace sub-angular gravel; stiff.
11						
12		25	ND			
13						
14						
15						



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SOIL BORING LOG

BORING NUMBER

RCH-MM-ENV-15

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
16		40	ND		MH	14 to 18' - Red brown SILT; little clay, trace fine to medium gravel
17						
18						
19		24	ND		SP	18 to 20' - Red brown, fine SAND; trace silt.
20						
21						
22						End of boring at 20'
23						Note: Borehole backfilled with soil cuttings and restored to grade.
24						
25						
26						
27						
28						
29						
30						
31						
32						
33						
34						
35						



Environmental Corporation

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TEMPORARY WELL AND SOIL BORING LOG

WELL NUMBER

RCH-MM-ENV-16W

PROJECT NAME: Spectra NJ-NY Expansion

LOCATION: Staten Island, New York

PROJECT NO.: 168217

CONTRACTOR: Land Air Water Environmental Services

SAMPLER TYPE/DIA.: Hand Auger/Macrocore/2"

TYPE OF WELL: Temporary

DEPTH TO BEDROCK: Not Encountered

DRILLING METHOD: Hollow Stem Auger

TOTAL DEPTH DRILLED: 20 feet

BIT TYPE: Auger Bit

START DATE: 11/17/11

FINISH DATE: 11/17/11

DRILLER: J. Lamprecht

LOGGED BY: D. Santana

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	WELL DIAGRAM	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS			
0							Top of casing at grade.			
1		Hand Cleared	9.8	RCH-MM-ENV-16W/3.5		SP	0.0 to 4.0' - Red brown, fine to medium SAND; trace silt, trace natural wood fragments. Loose, moist.			
2										
3										
4										
5			10.7			RCH-MM-ENV-16W/7		SM	4.0 to 6.0' - Red brown SILT; some red brown, fine to medium sand, trace fine to coarse, subangular gravel. Dense, moist.	
6		1	1.2							CL
7		2.6	3.5					Wet at 8.0'.		
8		8.9	8.9							
9		12.2	1.1					CL	10 to 15' - Red brown CLAY; little silt, trace fine, subangular gravel. Stiff, moist.	
10		0.7	0.6							
11		41	ND	RCH-MM-ENV-16W/49						
12			2.1							10.0
13			8.4							16.7
14			17.6							17.6
15		49	ND							
16										
17										
18										

CASING TYPE/DIAMETER (IN.)
 INNER: PVC/3 OUTER: N/A

STATIC WATER LEVEL: 6.62 (11/18/11) feet below surface
 DEPTH WATER ENCOUNTERED: 8 feet below surface

SCREENED OR OPEN INTERVAL: 5.0 to 19.25
 (FEET BELOW SURFACE)

MEASURING POINT ELEVATION: NA ft.msl
 GROUND SURFACE ELEVATION: NA ft.msl



Environmental Corporation

57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

TEMPORARY WELL AND SOIL BORING LOG

WELL NUMBER
RCH-MM-ENV-16W

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	WELL DIAGRAM	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
16		37	ND			CL	15 - 18' - Red brown CLAY; little silt, trace fine, subangular gravel. Stiff, moist.
17							
18						SP	18 - 20' - Red brown, fine SAND. Medium dense, wet.
19							
20							
							End of boring at 20'
							<p><u>Well Construction Details</u></p> <p>0.0 to 5.0 ft. below surface - 3" diameter PVC riser.</p> <p>5.0 to 19.25 ft. below surface - 3" diameter 0.010 slot PVC screen</p> <p>0.0 to 19.25 ft. below surface - No. 01 sand.</p> <p>Total depth of Well = 19.25 feet bg as measured on 11/18/11</p> <p>Note: Borehole backfilled with soil cuttings and restored to grade</p>

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: RCH-MM-ENV-17

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	Approximately 80 feet south of 5.48							
Location (Latitude/Longitude) – estimated/surveyed	40° 38' 27.4887" N / 74° 10' 35.4409" W – Surveyed							
Site Address	Boring is located in a wooded area, approximately 870 feet east of the intersection of Richmond Terrace and Western Avenue in Staten Island, New York (no exact street address available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	A subsurface sewer line is approximately 66 feet north of boring.							
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	Newark Bay is located approximately 850 feet northwest of boring.							
Drilling Date	11/17/11							
Drilling Company	Land Air Water Environmental Services							
Drilling Method	Hand Auger							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A							
Boring Purpose (e.g. geotech/ environmental/geoarchaeological)	Environmental							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
		X						
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed		Seen Only		Floating Product = <6"		Floating Product = >6"	
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material				Anthropogenically-Generated Material			
	N/A				N/A			
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
PID/Odors (depth)	No PID. No odors.							
Geology	Light brown, fine SAND and SILT; some roots from 0.0 to 1.0 ft bg, underlain by brown/black, fine SAND; little silt from 1.0 to 2.0 ft bg, underlain by light brown/orange, fine SAND from 2.0 to 4.5 ft bg, underlain by red/brown CLAY; some silt; little fine to medium gravel from 4.5 to at least 6.5 ft bg.							
Soil Permeability	Loose		Intermediate			Tight		
			X					
Total Boring Depth (feet bg)	6.5							
GW Temporary Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A							
Laboratory Name and Report No. (if samples collected)	Accutest Laboratories, Lab Report ID JA92420.							
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	RCH-MM-ENV-17/3 (3.0 to 3.5 feet bg) and RCH-MM-ENV-17/6 (6.0 to 6.5 feet bg) were collected for VOC, SVOC, PCB, TPH, pesticide, herbicide, metals and general chemistry analyses.							
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	N/A							
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10⁻² Feet/Day			10⁻² – 10 Feet/Day			>10 Feet/Day	
Additional Comments/Notes/Observations (if applicable)	N/A							



Environmental Corporation

57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

SOIL BORING LOG

BORING NUMBER

RCH-MM-ENV-17

PROJECT NAME: Spectra NJ-NY Expansion

LOCATION: Staten Island, New York

PROJECT NO.: 168217

CONTRACTOR: Land Air Water Environmental Services

SAMPLER TYPE/DIA.: Hand Auger

DEPTH TO WATER: 3.0 feet

BORING METHOD: Direct Push

TOTAL DEPTH DRILLED: 6.5 feet

DATE DRILLED: 11/17/11

DRILLER: J. Lampert

LOGGED BY: W. Lindemuth

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
0						
1		Hand Cleared	ND	RCH-MM-ENV-17/3	SW	0.0 to 1.0' - Light brown, fine SAND and SILT; some roots.
2	1.0 to 2.0' - Brown/black, fine SAND; little silt					
3	2.0 to 4.5' - Light brown/orange, fine SAND					
4	Wet at 3.0'					
5					MH	4.5 to 6.5' - Red/brown CLAY; some silt; little fine to medium gravel
6				RCH-MM-ENV-17/6		
7						End of Boring @ 6.5 feet
8						Note: Borehole backfilled with soil cuttings and restored to grade.
9						
10						
11						
12						
13						
14						
15						



Environmental Corporation

57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

TEMPORARY WELL AND SOIL BORING LOG

WELL NUMBER

RCH-MM-ENV-1W

PROJECT NAME: Spectra NJ-NY Expansion

LOCATION: Staten Island, New York

PROJECT NO.: 168217

CONTRACTOR: Land Air Water Environmental Services

SAMPLER TYPE/DIA.: Hand Auger/Macrocore/2"

TYPE OF WELL: Temporary

DEPTH TO BEDROCK: Not Encountered

DRILLING METHOD: Hollow Stem Auger

TOTAL DEPTH DRILLED: 20 feet

BIT TYPE: Auger Bit

START DATE: 12/05/11

FINISH DATE: 12/05/11

DRILLER: J. Lamprecht

LOGGED BY: W. Lindemuth

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	WELL DIAGRAM	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS					
0							Top of casing to ground surface: -0.20 feet.					
1		Hand Cleared	ND	RCH-MM-ENV-1W/2		SM	0.0 to 4.0' - Dark to light brown, fine to medium SAND and SILT. Moist. Trace vegetation roots from 0.0 to 0.5'.					
2												
3												Wet @ 3.0'
4												
5												
6		48	ND	RCH-MM-ENV-1W/5		SP	4.0 to 10' - Light brown, fine to medium SAND. Wet.					
7												
8												
9		40	ND			CL	10 to 15.5' - Red CLAY; some silt. Wet.					
10												
11												
12												
13												
14												
15												

CASING TYPE/DIAMETER (IN.)

INNER: PVC/3 OUTER: N/A

STATIC WATER LEVEL: 1.41 (12/06/11) feet below surface

DEPTH WATER ENCOUNTERED: 3 feet below surface

SCREENED OR OPEN INTERVAL: 0.2 to 15.06
(FEET BELOW SURFACE)

MEASURING POINT ELEVATION: NA ft.msl

GROUND SURFACE ELEVATION: NA ft.msl



Environmental Corporation

57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

TEMPORARY WELL AND SOIL BORING LOG

WELL NUMBER

RCH-MM-ENV-1W

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	WELL DIAGRAM	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
16		58	ND			SP	15.5 to 20' - Red, fine to medium SAND. Wet.
17							
18							
19							
20							
							<p>End of boring at 20'</p> <p><u>Well Construction Details</u></p> <p>0.2 to 15.06 ft. below surface - 3" diameter 0.010 slot PVC screen</p> <p>0.2 to 15.06 ft. below surface - No. 01 sand.</p> <p>Total depth of well = 15.06 feet bg as measured on 12/6/11.</p> <p>Note: Borehole backfilled with soil cuttings and restored to grade</p>



Environmental Corporation

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SOIL BORING LOG

BORING NUMBER

RCH-MM-ENV-2

PROJECT NAME: Spectra NJ-NY Expansion

LOCATION: Staten Island, New York

PROJECT NO.: 168217

CONTRACTOR: Land Air Water Environmental Services

DATE DRILLED: 12/05/11

SAMPLER TYPE/DIA.: Hand Auger/
Macrocore/2"

DEPTH TO WATER: 3.0 feet

DRILLER: J. Lamprecht

BORING METHOD: Direct Push

TOTAL DEPTH DRILLED: 15 feet

LOGGED BY: B. Chaky

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS		
0								
1		Hand Cleared	ND	RCH-MM-ENV-2/0.5	SW	0.0 to 1.0' - Brown, fine to medium SAND; little fine to medium, sub-rounded gravel, little silt. Dry, loose. Organic root material.		
2	SP				1.0 to 7.0' - Orange brown fine SAND; trace fine, rounded gravel, trace silt. Moist, loose. Large cobble @ 1.0 to 2.0'.			
3					Wet @ 3.0'			
4				RCH-MM-ENV-2/5				
5								
6								
7		48	ND		CL	7.0 to 8.0' - Red brown CLAY; trace fine to medium sand, trace silt. Wet, loose.		
8	SP				8.0 to 9.5' - Red brown, fine to medium SAND; little fine, rounded gravel, trace silt. Wet, loose.			
9	CL				9.5 to 15' - Red brown CLAY; little fine, sub-rounded gravel, trace fine sand, trace silt. Moist, medium-dense.			
10								
11		46	ND					
12								
13								Note: Borehole backfilled with soil cuttings and restored to grade.
14								
15						End of boring at 15'		



Environmental Corporation

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SOIL BORING LOG

BORING NUMBER

RCH-MM-ENV-3

PROJECT NAME: Spectra NJ-NY Expansion

LOCATION: Staten Island, New York

PROJECT NO.: 168217

CONTRACTOR: Land Air Water Environmental Services

DATE DRILLED: 12/02/11

SAMPLER TYPE/DIA.: Hand Auger/Macrocore/2"

DEPTH TO WATER: 2.0 feet

DRILLER: J. Lamprecht

BORING METHOD: Direct Push

TOTAL DEPTH DRILLED: 15 feet

LOGGED BY: D. Santana

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
0						
1		Head Cleared	ND	RCH-MM-ENV-3/3.5	SW	0.0 to 2.5' - Orange brown, fine to medium SAND; trace silt. Loose, moist.
2						
3						
4		35	ND	RCH-MM-ENV-3/6	CL	2.5 to 15' - Red brown CLAY; little silt. Stiff, wet. 6.0 - 15' Trace fine, sub-angular gravel.
5						
6						
7		60	ND			Note: Borehole backfilled with soil cuttings and restored to grade.
8						
9						
10						
11						
12						
13						
14						
15						End of boring at 15'



Environmental Corporation

57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

TEMPORARY WELL AND SOIL BORING LOG

WELL NUMBER **RCH-MM-ENV-4W**

PROJECT NAME: Spectra NJ-NY Expansion

LOCATION: Staten Island, New York

PROJECT NO.: 168217

CONTRACTOR: Land Air Water Environmental Services

SAMPLER TYPE/DIA.: Hand Auger/Macrocore/2"

TYPE OF WELL: Temporary

DEPTH TO BEDROCK: Not Encountered

DRILLING METHOD: Hollow Stem Auger

TOTAL DEPTH DRILLED: 20 feet

BIT TYPE: Auger Bit

START DATE: 12/01/11

FINISH DATE: 12/01/11

DRILLER: J. Lamprecht

LOGGED BY: B. Bermingham

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	WELL DIAGRAM	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS	
0							Top of casing to ground surface: -0.50 feet.	
1		Hand Cleared	ND	RCH-MM-ENV-4W/3.5		SP	0.0 to 1.0' - Dark brown, SILT; and fine to coarse sand, trace fine to coarse gravel, trace cobble, trace organics (roots). Loose, dry.	
2							SM	1.0 to 3.0' - Brown, fine to medium SAND; some silt, trace fine to medium, subangular gravel. Loose, moist.
3							SC	3.0 to 4.0' - Brown, fine to medium SAND; some silt, trace reddish-brown medium soft clay, trace fine to medium gravel. Loose, moist.
4							CL	4.0 to 6.0' - Reddish-brown CLAY; some fine to medium sand, little silt, trace fine, subangular gravel. Medium soft, moist.
5		48	ND	RCH-MM-ENV-4W/7.5		CL	6.0 to 10' - Reddish-brown CLAY; trace silt, trace fine, subangular gravel. Medium soft, wet @ 6.5'.	
6							CL	10 to 15' - Reddish-brown CLAY; trace silt, trace fine, subangular gravel. Medium soft, wet.
7								
8								
9		54	ND					
10								
11								
12								
13								
14								
15								

CASING TYPE/DIAMETER (IN.)
 INNER: PVC/3 OUTER: N/A

STATIC WATER LEVEL: 9.58 (12/2/11) feet below surface
 DEPTH WATER ENCOUNTERED: 6.5 feet below surface

SCREENED OR OPEN INTERVAL: 0.5 to 19.83
 (FEET BELOW SURFACE)

MEASURING POINT ELEVATION: NA ft.msl
 GROUND SURFACE ELEVATION: NA ft.msl



Environmental Corporation

57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

TEMPORARY WELL AND SOIL BORING LOG

WELL NUMBER

RCH-MM-ENV-4W

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	WELL DIAGRAM	UNITED	LITHOLOGIC CLASSIFICATION AND COMMENTS
16		54	ND			SP	15 to 20' - Reddish-brown CLAY; trace silt, trace fine, subangular gravel. Medium soft, wet.
17							
18							
19							
20							
							End of boring at 20'
							<u>Well Construction Details</u> 0.5 to 19.83 ft. below surface - 3" diameter 0.010 slot PVC screen 0.5 to 19.83 ft. below surface - No. 01 sand. Total depth of well = 19.83 feet bg as measured on 12/2/11. Note: Borehole backfilled with soil cuttings and restored to grade



Environmental Corporation

57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

SOIL BORING LOG

BORING NUMBER

RCH-MM-ENV-5

PROJECT NAME: Spectra NJ-NY Expansion

LOCATION: Staten Island, New York

PROJECT NO.: 168217

CONTRACTOR: Land Air Water Environmental Services

DATE DRILLED: 12/01/11

SAMPLER TYPE/DIA.: Hand Auger/
Macrocore/2"
BORING METHOD: Direct Push

DEPTH TO WATER: 7.0 feet

DRILLER: J. Lamprecht

TOTAL DEPTH DRILLED: 20 feet

LOGGED BY: D. Santana

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
0						
1					ML	0.0 to 10.5' - Red brown SILT; little fine to medium sand, trace clay, trace fine to coarse, sub-angular gravel. Dry, soft. Stiff from 8.0 to 10.5'. Wet @ 7.0' 10 to 20' - Red brown CLAY; little silt. Stiff, wet.
2						
3		Head Cleared	ND	RCH-MM-ENV-5/3		
4						
5						
6				RCH-MM-ENV-5/6		
7						
8		40	ND			
9						
10						
11					CL	
12		44	ND			
13						
14						
15		42	ND			



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SOIL BORING LOG

BORING NUMBER

RCH-MM-ENV-5

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
16		42	ND		CL	10 to 20' - Red brown CLAY; little silt. Stiff, wet.
17						
18						
19		24	ND			End of boring at 20'
20						
						Note: Borehole backfilled with soil cuttings and restored to grade.



Environmental Corporation

57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

SOIL BORING LOG

BORING NUMBER

RCH-MM-ENV-6

PROJECT NAME: Spectra NJ-NY Expansion

LOCATION: Staten Island, New York

PROJECT NO.: 168217

CONTRACTOR: Land Air Water Environmental Services

DATE DRILLED: 12/01/11

SAMPLER TYPE/DIA.: Hand Auger/
Macrocore/2"

DEPTH TO WATER: 3.0 feet

DRILLER: J. Lamprecht

BORING METHOD: Direct Push

TOTAL DEPTH DRILLED: 15 feet

LOGGED BY: D. Santana

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
0						
1						
2						
3						
4		Head Cleared	ND	RCH-MM-ENV-6/3	SW	0.0 to 4.0' - Dark brown to red brown, fine to medium SAND; little silt, little fine to coarse, sub-angular gravel. Moist, medium-dense.
5						
6						
7				RCH-MM-ENV-6/6.5		
8						
9		41	ND			
10						
11						
12						
13		45	ND			
14						
15						End of boring at 15'



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57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

SOIL BORING LOG

BORING NUMBER

RCH-MM-ENV-7W

PROJECT NAME: Spectra NJ-NY Expansion

LOCATION: Staten Island, New York

PROJECT NO.: 168217

CONTRACTOR: Land Air Water Environmental Services

DATE DRILLED: 12/01/11

SAMPLER TYPE/DIA.: Hand Auger / Macrocore/2"

DEPTH TO WATER: Not Encountered

DRILLER: J. Lamprecht

BORING METHOD: Direct Push

TOTAL DEPTH DRILLED: 20 feet

LOGGED BY: B. Bermingham

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
0						
1		Hand Cleared	ND	RCH-MM-ENV-7W/3.5	SM	0.0 to 1.0 - Dark brown SILT; and fine to coarse sand, little fine to coarse gravel, trace cobble, trace roots. Dry, loose. 1.0 to 6.0' - Reddish brown SILT; little fine to coarse, sub-angular gravel, trace fine to medium sand, trace cobble. Dry, loose, moist @ 2.0'. 6.0 to 15' - Reddish-brown CLAY; trace silt, trace fine, sub-angular gravel. Medium soft, moist.
2	SM					
3						
4						
5						
6		48	ND	RCH-MM-ENV-7W-7.5	CL	
7						
8						
9		44	ND			
10						
11						
12						
13						
14						
15						



Environmental Corporation

57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

SOIL BORING LOG

BORING NUMBER

RCH-MM-ENV-7W

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
16						CL 15 to 20' - Reddish-brown CLAY; trace silt, trace fine, sub-angular gravel. Medium soft, moist.
17						
18		46	ND			
19						
20						
						End of boring @ 20'
						Note: Borehole backfilled with soil cuttings and restored to grade.
						Note: Temporary well not installed due to no water encountered during hand auger or macrocore sampling.



Environmental Corporation

57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

SOIL BORING LOG

BORING NUMBER

RCH-MM-ENV-8

PROJECT NAME: Spectra NJ-NY Expansion

LOCATION: Staten Island, New York

PROJECT NO.: 168217

CONTRACTOR: Land Air Water Environmental Services

DATE DRILLED: 11/30/11

SAMPLER TYPE/DIA.: Hand Auger/
Macrocore/2"

DEPTH TO WATER: Not encountered

DRILLER: J. Lamprecht

BORING METHOD: Geoprobe/Hand Auger

TOTAL DEPTH DRILLED: 15 feet

LOGGED BY: W.Lindemuth

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
0						
1		Hand Cleared	ND	RCH-MM-ENV-8/3		0.0 to 3.0' - FILL: Brown silt and fine sand, little fine to coarse gravel. Moist. Trace organic roots and cinder block pieces from 0.0 to 1.0'. Wood and plastic fill from 1.0 to 3.0'.
			ND			
			ND			
2			ND			
			ND			
3			10.6	RCH-MM-ENV-8/5		3.0 to 6.0' - FILL: Red brown silt; little fine to coarse gravel. Moist. Trace wood fill material from 4.0 to 6.0'.
4		1.4				
			ND			
5			ND			
			ND			
6			ND			
7		48	ND	ML		6.0 to 10' - Red brown SILT; some clay, trace fine to coarse gravel. Moist.
8						
9						
10		48	ND	CL		10 to 15' - Red brown CLAY; and silt, little fine to coarse gravel. Moist.
11						
12						
13						
14		12	ND		Note: Borehole backfilled with soil cuttings and restored to grade	
15						

End of Boring at 15'



Environmental Corporation

57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

SOIL BORING LOG

BORING NUMBER

RCH-MM-ENV-9

PROJECT NAME: Spectra NJ-NY Expansion

LOCATION: Staten Island, New York

PROJECT NO.: 168217

CONTRACTOR: Land Air Water Environmental Services

DATE DRILLED: 11/29/11

SAMPLER TYPE/DIA.: Hand Auger/
Macrocore/2"

DEPTH TO WATER: Not encountered

DRILLER: J. Lamprecht

BORING METHOD: Geoprobe/Hand Auger

TOTAL DEPTH DRILLED: 15 feet

LOGGED BY: W.Lindemuth

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
0						
1		Hand Cleared	ND	RCH-MM-ENV-9/2	ML	0.0 to 11' - Red brown SILT and CLAY, some fine to coarse gravel. Moist. Trace organic roots from 0.0 to 0.5'.
2						
3						
4						
5				RCH-MM-ENV-9/6		
6						
7						
8		48	ND			
9						
10				RCH-MM-ENV-9/6	CL	11 to 15' - Red brown CLAY; some silt, trace fine to coarse gravel. Moist. Note: Borehole backfilled with soil cuttings and restored to grade
11						
12						
13						
14						
15		48	ND			End of Boring at 15'

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: 1R-22.1-ENV-4

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	Approximately 15 feet northwest of 3.77							
Location (Latitude/Longitude) – estimated/surveyed	40° 37' 31.9065" N/74° 11' 48.2333" W – Surveyed							
Site Address	Boring located approximately 375 feet southwest of the intersection of 4 th Avenue and 5 th Street in Staten Island, New York (no exact street address available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	A subsurface water line is located approximately 375 feet northeast of boring.							
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	Arthur Kill is located approximately 1,500 feet west of boring. Boring is located in wetlands.							
Drilling Date	7/7/2011							
Drilling Company	Land Air Water Environmental Services							
Drilling Method	Geoprobe – Direct Push / 2" Macrocore							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A							
Boring Purpose (e.g. geotech/environmental/geoarchaeological)	Environmental							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
			X					
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed	Sheen Only	Floating Product = <6"	Floating Product = >6"				
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material				Anthropogenically-Generated Material			
	Brown silt; little clay; trace gravel from grade to 1.0 feet bg, underlain by brown medium to fine sand; little sub-rounded gravel; trace silt to 5.0 feet bg, underlain by fine sand; little clay; trace gravel to 6.0 feet bg, underlain by gray brown coarse to fine sand; little sub-rounded gravel; trace silt to 10 feet bg.				N/A			
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
PID/Odors (depth)	PID readings from 10' to 15' (max = 407 ppm from 13.5 to 14 feet bg). No odors noted.							
Geology	Fill to 10 feet bg (see above), underlain by gray CLAY and little peat to at least 15 feet bg.							
Soil Permeability	Loose		Intermediate			Tight		
							X	
Total Boring Depth (feet bg)	15							
GW Monitoring Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report IDs JA80291, JA80291R and JA80291RT.							
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	1R-22.1-4/1 (1.0 to 1.5 feet bg) and 1R-22.1-4/5 (5.0 to 5.5 feet bg) were collected for VOC, SVOC, PCB, TPH, pesticide, herbicide, metals (including hexavalent chromium) and general chemistry analyses.							
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	N/A							
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10⁻² Feet/Day			10⁻² – 10 Feet/Day		>10 Feet/Day		

New Jersey/New York Expansion Project
Boring Summary Table

Additional Comments/Notes/ Observations (if applicable)	N/A
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**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: 1R-22.1-ENV-5

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	Approximately 11 feet northwest of 3.80							
Location (Latitude/Longitude) – estimated/surveyed	40° 37' 33.0138" N/74° 11' 46.9211" W – Surveyed							
Site Address	Boring located approximately 215 feet southwest of the intersection of 4 th Avenue and 5 th Street in Staten Island, New York (no exact street address available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	A subsurface water line is located approximately 215 feet northwest of boring.							
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	Arthur Kill is located approximately 1,300 feet west of boring. Boring is located in wetlands.							
Drilling Date	7/7/2011							
Drilling Company	Land Air Water Environmental Services							
Drilling Method	Geoprobe – Direct Push / 2" Macrocore							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A							
Boring Purpose (e.g. geotech/environmental/geoarchaeological)	Environmental							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
			X					
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed	Sheen Only	Floating Product = <6"	Floating Product = >6"				
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material			Anthropogenically-Generated Material				
	Brown medium to fine sand; some silt from grade to 1.0 ft bg, underlain by brown silt; little little clay; trace fine silt to 5.0 ft bg, underlain by gray medium to fine sand; little medium to fine sub-rounded gravel, trace silt to 6.5 feet bg.			N/A				
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
PID/Odors (depth)	Elevated PID readings (max = 73.6 ppm from 13 to 13.5 feet bg). Odors noted at 15 feet bg							
Geology	Fill to 6.5 feet bg (see above), underlain by gray brown CLAY and PEAT to 10 feet bg, underlain by gray CLAY; trace fine sand to 13 feet bg, underlain by dark brown to black PEAT to at least 15 feet bg.							
Soil Permeability	Loose		Intermediate			Tight		
			X					
Total Boring Depth (feet bg)	15							
GW Monitoring Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report IDs JA80291 and JA80291R.							
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	1R-22.1-5/1 (1.0 to 1.5 feet bg) and 1R-22.1-5/6 (6.0 to 6.5 feet bg) were collected for VOC, SVOC, PCB, TPH, pesticide, herbicide, metals (including hexavalent chromium) and general chemistry analyses.							
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	N/A							
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10⁻² Feet/Day		10⁻² – 10 Feet/Day			>10 Feet/Day		
Additional Comments/Notes/Observations (if applicable)	N/A							

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: 1R-22.1-ENV-6W

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	4.02R							
Location (Latitude/Longitude) – estimated/surveyed	40° 37' 27.9908" N/ 74° 11' 36.9804" W – Surveyed							
Site Address	Boring is located approximately 140 feet southwest of the intersection of Lambert Avenue and 6 th Avenue in Staten Island, New York (no exact street address available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	A subsurface water pipe is located approximately 1,000 feet northwest of the boring.							
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	Carteret Waterfront is located approximately 2,000 feet west of the boring. Old Place Creek is located approximately 1,600 feet northeast of the boring. Boring is located within wetlands.							
Drilling Date	7/6/2011							
Drilling Company	Land Air Water Environmental Services							
Drilling Method	2"-Macrocore / GeoProbe (soil samples) Hollow Stem Auger (well installation)							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	Pump Test							
Boring Purpose (e.g. geotech/ environmental/geoarchaeological)	Environmental							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
		X						
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed		Sheen Only		Floating Product = <6"		Floating Product = >6"	
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material				Anthropogenically-Generated Material			
	N/A				Brown fine to medium sand, some medium gravel, little silt, trace roots, trace concrete, trace cobbles from grade to 5.0 feet bg.			
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	12.1 – 16.0	>12.1
	X	X	X					
PID/Odors (depth)	Elevated PID readings from 4.0 to 19.5 feet bg (max = 105 ppm from 12.0 to 12.5 feet bg). Petroleum-like odor from 10.0 to at least 20.0 feet bg.							
Geology	FILL from grade to 5.0 feet bg (see above), underlain by brown fine to coarse SAND, some fine to medium gravel, trace silt to 10.0 feet bg, underlain by dark gray to dark brown fine to medium SAND, little silt, little clay, trace roots to 15.0 feet bg, underlain by dark gray fine to medium SAND, little fine to medium gravel, little clay to at least 20.0 feet bg. Wet at 3.0 feet bg, sub-rounded.							
Soil Permeability	Loose			Intermediate		Tight		
				X				
Total Boring Depth (feet bg)	20							
GW Temporary Well Installed (Depth, Screen, Riser, Slot Size, Casing)	Grade to 20.0 feet bg - 3-inch diameter 0.010-slot PVC screen Grade to 20.0 feet bg - No. 1 sand							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report IDs JA80288, JA80169 and JA80169R.							
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	1R-22.1-6W/4 (4.0 to 4.5 feet bg) and 1R-22.1-6W/5 (5.0 to 5.5 feet bg) were collected for VOC, SVOC, PCB, TPH, pesticide, metals and general chemistry analyses.							
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	1R-22.1-6W was collected for VOC, metals and general chemistry analyses.							

**New Jersey/New York Expansion Project
Boring Summary Table**

Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10⁻² Feet/Day	10⁻² – 10 Feet/Day	>10 Feet/Day
Additional Comments/Notes/ Observations (if applicable)	N/A		

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: 1R-22.1-HDD-1

Boring Information								
Alternate Boring ID (if applicable)	B-1A (SI)							
Pipeline Mile Marker ID	3.71R							
Location (Latitude/Longitude) – estimated/surveyed	40°37'25.79"N / 74°11'54.96"W - surveyed							
Site Address	Arthur Kill Road - TETCO easement extending from Waters Street on property owned by IMTT Pipeline, Staten Island, New York (no exact street address provided).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	Numerous subsurface TETCO and IMTT product/natural gas pipelines running along easement approximately 25 feet south of the soil boring.							
Nearby Hydraulic Features (Distance and Direction from wetlands, piping, etc.)	The Arthur Kill is located approximately 525 feet west of the soil boring.							
Drilling Date	10/27/2010							
Drilling Company	Warren George, Inc.							
Drilling Method	Mud Rotary / Tri-cone Roller Bit							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A							
Boring Purpose (e.g. geotech/ environmental/geoarcheological)	Geotechnical (HDD pullback area)							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 - 2.0	2.1 - 4.0	4.1 - 6.0	6.1 - 8.0	8.1 - 12.0	12.1 - 16.0	16.1 - 20.0	>20
			X					
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed		Sheen Only		Floating Product = <6"		Floating Product = >6"	
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material				Anthropogenically-Generated Material			
	Reddish brown loose fine to medium sand; trace silt and roots from grade to 4.00 feet bg.				Wood pieces from 2.5 to 3.0 feet bg.			
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
		X						
PID/Odors (depth)	Elevated PID readings were detected between 3.0 and 21.0 feet bg (max PID reading = 873 ppm from 19.5 to 20 feet bg); organic-like odors were identified from 3.75 to 7.0 feet bg, 13.0 to 15.0 feet bg, 15.0 to 17.0 feet bg, and 19.0 to 21.0 feet bg.							
Geology	FILL from grade to 4.00 feet bg (see above), underlain by reddish black CLAY; and some silt from 3.75 to 5.0 feet bg. Black SILT; and some clay was identified from 7.0 to 9.0 feet bg. Dark gray SILT; with trace fine sand and shells were identified from 11.0 to 13.0 feet bg, underlain by gray PEAT; and organic silt to 17.0 feet bg. Grey PEAT; and organic silt were identified from 19.0 to at least 21.0 feet bg. Continuous drilling from 9.0 to 11.0 feet bg and from 17.0 to 19.0 feet bg – no cores collected.							
Soil Permeability	Loose			Intermediate		Tight		
						X		
Total Boring Depth (feet bg)	21							
GW Monitoring Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	N/A							
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	N/A							
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	N/A							
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10⁻² Feet/Day			10⁻² – 10 Feet/Day		>10 Feet/Day		

New Jersey/New York Expansion Project
Boring Summary Table

Boring Observations	
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Additional Comments/Notes/ Observations (if applicable)	N/A
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**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: 1R-22.1-HDD-2

Boring Information									
Alternate Boring ID (if applicable)	B-4 (SI)								
Pipeline Mile Marker ID	4.11R								
Location (Latitude/Longitude) – estimated/surveyed	40°37'2.64"N / 74°11'31.56"W - surveyed								
Site Address	Boring located approximately 250 feet southeast of the intersection of Lambert and 6 th Avenues on a former GATX property on Lambert Avenue in Staten Island, New York (no exact street address available).								
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, etc.)	A subsurface water pipe located at the intersection of 4 th and Lambert Avenues is located approximately 1,400 feet northwest of boring.								
Nearby Hydraulic Features (Distance and Direction from wetlands, piping, etc.)	Boring is located on the side of a paved road surrounded by wetlands; a ditch is located approximately 15 feet west of the boring.								
Drilling Date	10/22/2010								
Drilling Company	Warren George, Inc.								
Drilling Method	Mud Rotary / Tri-cone Roller Bit								
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A								
Boring Purpose (e.g. geotech/ environmental/geoarcheological)	Geotechnical (HDD entry point)								
Boring Observations									
Depth to saturation (feet bg) – Check where applicable	0.0 - 2.0	2.1 - 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20	
	X								
PRODUCT									
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	Yes—soil impacted with petroleum product-like odor and sheen to approximately 6.5 feet bg.								
- Product in GW – Check where applicable	None Observed		Sheen Only		Floating Product = <6"		Floating Product = >6"		
					X				
Historic Fill Material									
- Composition, other observations – complete, as applicable	Reworked Material				Anthropogenically-Generated Material				
	Asphalt with some sand from grade to 2.25 feet bg, underlain by reddish brown to black fine to coarse SAND with some fine to coarse gravel and little silt from 2.25 to 4.0 feet bg. Dark brown to black fine to coarse SAND and some fine to coarse gravel from 4.5 to 6.5 feet bg.				Wood pieces from 4.0 to 4.5 feet bg.				
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1		
			X						
PID/Odors (depth)	Elevated PID readings and petroleum-like odors detected from 3.0 to 7.0 feet bg (max PID reading = 315 ppm between 4.5 and 5.0 feet bg).								
Geology	FILL to 6.5 feet bg (see above), underlain by reddish-brown to gray fine to coarse SAND and little fine to coarse gravel to at least 9.0 feet bg. PEAT (decomposing plant matter and organic silt) was encountered from 16.0 to 18.0 feet bg and from 20.0 to at least 22.0 feet bg. Continuous drilling from 9.0 to 16.0 feet bg and 18.0 to 22.0 feet bg – no cores collected. Wet at 1.5 feet bg.								
Soil Permeability	Loose		Intermediate			Tight			
	X								
Total Boring Depth (feet bg)	22								
GW Monitoring Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A								
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	N/A								
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	N/A								
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	N/A								

**New Jersey/New York Expansion Project
Boring Summary Table**

Additional Hydro/Geological Test –	<10⁻² Feet/Day	10⁻² – 10 Feet/Day	>10 Feet/Day
Permeability Results (e.g. pump test/slug test/packer test)			
Additional Comments/Notes/ Observations (if applicable)	Recovery trench/ditch for remediation was observed along Lambert Avenue, approximately 300 feet up-gradient and northwest of the boring. No information available regarding the construction of the recovery trench or the nature of the remedial activities.		

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: 1R-22.1-HDD-3

Boring Information								
Alternate Boring ID (if applicable)	B-5							
Pipeline Mile Marker ID	4.31R							
Location (Latitude/Longitude) – estimated/surveyed	40° 37' 34.9618"N / 74° 11' 25.2817"W – Surveyed							
Site Address	Boring is located approximately 150 feet southeast of the intersection of 6 th Avenue and 3 rd Street in Staten Island, New York (no exact street address available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	A subsurface water pipeline is located approximately 1,050 feet northwest of the boring.							
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	Old Place Creek is located approximately 800 feet northwest of the boring.							
Drilling Date	7/27/2011							
Drilling Company	Warren George, Inc.							
Drilling Method	Mud Rotary / Tri-cone Roller Bit							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A							
Boring Purpose (e.g. geotech/environmental/geoarchaeological)	Geotechnical							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
					X			
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed	Sheen Only	Floating Product = <6"	Floating Product = >6"				
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material				Anthropogenically-Generated Material			
	N/A				N/A			
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
PID/Odors (depth)	Elevated PID readings at 10.0 to 10.5 feet bg (25.4 ppm), 10.5 to 11.0 feet bg (33.8 ppm), and 11.0 to 11.5 feet bg (1,253 ppm). No odors identified.							
Geology	<p>No cores collected from grade to 10.0 feet bg, from 17.0 feet to 20.0 feet bg, from 22.0 to 25.0 feet bg, from 27.0 to 30.0 feet bg, from 32.0 to 35.0 feet bg, and from 37.0 to 40.5 feet bg.</p> <p>Dark brown PEAT, little silt, little clay, trace root material from 10.0 to 17.0 feet bg. Wet at 10.0 feet bg. Gray/brown fine to medium SAND, some coarse to fine gravel, little silt, loose, sub-rounded from 20.0 to 22.0 feet bg. Red/brown fine to medium SAND, some fine to medium gravel, little silt, dense, angular to sub-angular from 25.0 to 27.0 feet bg. Red/brown fine to coarse GRAVEL, some clay, little fine to medium sand, dense, angular from 30.0 to 32.0 feet bg. Red/brown fine SAND, some silt, little fine to medium gravel, dense, angular, some decomposed rock at bottom 2-inches from 35.0 to 37.0 feet bg. Red/brown fine grained SHALE, highly fractured and weathered from 40.5 to at least 47.5 feet bg.</p> <p>½-inch to 8-inch joint spacing, 0 to 90 degree fractures, RQD = 0% from 40.5 to 42.5 feet bg. 1-inch to 4-inch joint spacing, 0 to 70 degree fractures, RQD = 9% from 42.5 to at least 47.5 feet bg.</p>							
Soil Permeability	Loose			Intermediate		Tight		
	X							
Total Boring Depth (feet bg)	47.5							
GW Monitoring Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	N/A							

**New Jersey/New York Expansion Project
Boring Summary Table**

Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	N/A		
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	N/A		
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10⁻² Feet/Day	10⁻² – 10 Feet/Day	>10 Feet/Day
Additional Comments/Notes/Observations (if applicable)	N/A		

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: 1R-22.1H-ENV-1W

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	3.84R							
Location (Latitude/Longitude) – estimated/surveyed	40° 37' 33.2496"N / 74° 11' 44.7166"W – Surveyed							
Site Address	Boring is located approximately 100 feet south of the intersection of 4 th Avenue and 5 th Street in Staten Island, New York (no exact street address is available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	A subsurface water pipeline is located approximately 60 feet north of boring.							
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	Arthur Kill is located approximately 1,500 feet west of boring. Boring is located in wetlands.							
Drilling Date	07/05/11							
Drilling Company	Land Air Water Environmental Services							
Drilling Method	2"-Macrocore / GeoProbe (soil samples) Hollow Stem Auger (well installation)							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	Pump Test							
Boring Purpose (e.g. geotech/environmental/geoarchaeological)	Environmental							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
	X							
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed	Sheen Only	Floating Product = <6"	Floating Product = >6"				
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material				Anthropogenically-Generated Material			
	N/A				Brown, medium to fine sand, medium gravel, little silt, trace roots, clay pipe material, and shells from grade to 3.0 feet bg.			
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
	X	X						
PID/Odors (depth)	Elevated PID readings (max = 52.1 ppm from 13 to 13.5 feet bg). Odor detected from 6.0 to 11 feet bg and slight odor from 15 to 20 feet bg.							
Geology	FILL from grade to 3.0 feet bg (see above), underlain by gray brown medium to fine SAND; some clay, little silt to 6.0 feet bg, underlain by gray brown CLAY; trace silt, trace roots to 10 feet bg, underlain by dark gray, medium to fine SAND; little silt, little clay to 11 feet bg, underlain by dark gray CLAY; trace roots, trace shells to 15 feet bg, underlain by dark gray, medium to fine SAND; little silt to at least 20 feet bg.							
Soil Permeability	Loose			Intermediate		Tight		
				X				
Total Boring Depth (feet bg)	20							
GW Temporary Well Installed (Depth, Screen, Riser, Slot Size, Casing)	Well Construction: Grade to 20 feet bg – 3 inch diameter 0.010-slot PVC screen Grade to 20 feet bg – No. 1 sand Next Day Measurements: Total depth of well: 20.12 feet bg							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report IDs JA80288 and JA80082.							
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	1R-22.1H-1W/2 (2.0 to 2.5 feet bg) and 1R-22.1H-1W/6 (6.0 to 6.5 feet bg) were collected for VOC, SVOC, PCB, TPH, pesticide, herbicide, metals and general chemistry analyses.							

**New Jersey/New York Expansion Project
Boring Summary Table**

GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	1R-22-1H-1W was collected for VOC, metals and general chemistry analyses.		
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10⁻² Feet/Day	10⁻² – 10 Feet/Day	>10 Feet/Day
		X	
Additional Comments/Notes/Observations (if applicable)	N/A		

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: NYC-2-PIP-1

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	19.85R							
Location (Latitude/Longitude) – estimated/surveyed	40° 44' 21.7035" N / 74° 00' 41.2403" W – Surveyed							
Site Address	Boring located on New York Sanitation Pier property, on Bloomfield street near the corner of 13 th Avenue in New York, New York (no exact street address available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	No nearby subsurface features in the vicinity of boring.							
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	Hudson River is located approximately 40 feet south and 40 feet west of boring.							
Drilling Date	11/2/11-11/8/11							
Drilling Company	Warren George, Inc.							
Drilling Method	Stainless Steel Split Spoon / 2"/ Mud Rotary / Tri-cone roller bit							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A							
Boring Purpose (e.g. geotech/ environmental/geoarchaeological)	Geotechnical							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
			X					
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed	Sheen Only	Floating Product = <6"	Floating Product = >6"				
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material			Anthropogenically-Generated Material				
	8.0 to 9.0 feet bg - Gray silt and fine to medium sand; trace fine gravel.			Some red brick from 1.5 to 8.0 feet bg. Trace concrete from 1.5 to 8.0 and 10 to 12 feet bg. Trace asphalt at 5.0 feet bg. Trace wood/timber from 15 to 40 feet bg.				
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
	X	X	X	X			X	X
PID/Odors (depth)	N/D							
Geology	Asphalt (0.25' thick), underlain by belgian block, underlain by concrete from grade to 1.5 feet bg, underlain by FILL to 40 feet bg, underlain by gray SILT and CLAY; trace shells and fine to medium sand to 55 ft bg, underlain by gray CLAY; trace silt and shells to 105 ft bg, underlain by gray SILT and CLAY, trace peat to 140 ft bg, underlain by gray, fine to coarse SAND; some to trace silt to 165 feet bg, underlain by gray, fine to coarse SAND and fine GRAVEL to 180 feet bg, underlain by red/brown, fine to coarse SAND and SILT; some fine gravel to at least 205 feet bg. Continuous drilling from 9 to 10 ft bg and 12 to 15 ft bg.							
Soil Permeability	Loose		Intermediate			Tight		
	X							
Total Boring Depth (feet bg)	205							
GW Temporary Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	N/A							
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	N/A							
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	N/A							

**New Jersey/New York Expansion Project
Boring Summary Table**

Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10⁻² Feet/Day	10⁻² – 10 Feet/Day	>10 Feet/Day
Additional Comments/Notes/ Observations (if applicable)	Refusal from 36.5 to 37.5 feet bg, from 161 to 161.5 feet bg, and from 196.5 to 197 feet bg,		

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: NYC-2-PIP-2

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	19.86R							
Location (Latitude/Longitude) – estimated/surveyed	40° 44' 21.9328" N / 74° 00' 40.1883" W – Surveyed							
Site Address	Boring located on New York Sanitation Pier property, on Bloomfield street near the corner of 13 th Avenue in New York, New York (no exact street address available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	No nearby subsurface features in the vicinity of boring.							
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	Hudson River is approximately 70 feet south of boring.							
Drilling Date	10/27/2011							
Drilling Company	Warren George, Inc.							
Drilling Method	Hand Auger / Split Spoon / Mud Rotary / Tri-cone Roller Bit							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A							
Boring Purpose (e.g. geotech/ environmental/geoarchaeological)	Geotechnical							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
					X			
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed	Sheen Only	Floating Product = <6"	Floating Product = >6"				
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material			Anthropogenically-Generated Material				
	N/A			Trace concrete from 1.0 to 8.0 feet bg, underlain by granite stone to 9.0 feet bg, underlain by large pieces of reinforced concrete, red brick, and wood timbers to 10 feet bg, underlain by trace pieces of red brick to 12 feet bg.				
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
	X	X	X	X	X	X		
PID/Odors (depth)	N/D							
Geology	Asphalt from grade to 1.0 foot bg, underlain by FILL to 12 feet bg, underlain by gray, medium soft CLAY and SILT; trace fine gravel to 32 feet bg, underlain by gray, medium soft CLAY; trace silt to 112 feet bg (trace shells from 70 to 87 feet bg), underlain by gray, medium soft CLAY; trace silt, trace wood, trace peat to 132 feet bg, underlain by gray, medium soft CLAY; trace silt to 155 feet bg. Encountered bedrock at 155 feet bg.							
Soil Permeability	Loose		Intermediate			Tight		
			X					
Total Boring Depth (feet bg)	155 (Encountered bedrock)							
GW Temporary Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	N/A							
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	N/A							
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	N/A							
Additional Hydro/Geological Test –	<10⁻² Feet/Day			10⁻² – 10 Feet/Day		>10 Feet/Day		

**New Jersey/New York Expansion Project
Boring Summary Table**

Permeability Results (e.g. pump test/slug test/packer test)			
Additional Comments/Notes/ Observations (if applicable)	Boring hole grouted, topped with cement and asphalt to grade.		

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: NYC-2-PIP-3

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	19.87R							
Location (Latitude/Longitude) – estimated/surveyed	40° 44' 21.3453" N / 74° 00' 39.2533" W – Surveyed							
Site Address	Boring located on New York Sanitation Pier property, on Bloomfield street between 11 th and 13 th Avenue in New York, New York (no exact street address available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	No nearby subsurface features in the vicinity of boring.							
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	Hudson River is approximately 25 feet south of boring.							
Drilling Date	10/25/2011							
Drilling Company	Warren George, Inc.							
Drilling Method	Hand Auger/ Split Spoon/ Mud Rotary							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A							
Boring Purpose (e.g. geotech/ environmental/geoarchaeological)	Geotechnical							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
				X				
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed	Sheen Only	Floating Product = <6"	Floating Product = >6"				
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material			Anthropogenically-Generated Material				
	N/A			Asphalt (0.25' thick), underlain by belgian block, underlain by concrete rubble from grade to 3.0 feet bg, underlain by red brick from 3.0 to 9.0 feet bg. Little black ash from 5.0 to 9.0 feet bg.				
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
	X	X	X	X	X			
PID/Odors (depth)	No PID or odor detected.							
Geology	FILL (see above) to 9.0 feet bg, underlain by gray SILT and soft CLAY; trace fine to medium sand to 22 feet, underlain by dark brown, fine to medium SAND and SILT; little fine gravel to 40 feet bg, underlain by medium gray CLAY; trace silt to 50 feet, underlain by gray CLAY; trace silt, trace fine gravel to 55 feet, underlain by ray, medium soft CLAY; trace silt, trace shells to at least 80 feet bg. Continuous drilling from 11 to 20 ft bg, 22 to 25 ft bg, 27 to 30 ft bg, 32 to 35 ft bg, 37 to 40 ft bg, 42 to 45 ft bg, 52 to 55 ft bg, 57 to 60 ft bg, 62 to 65 ft bg, 67 to 70 ft bg, 72 to 75 ft bg, and 77 to 80 ft bg.							
Soil Permeability	Loose			Intermediate		Tight		
				X				
Total Boring Depth (feet bg)	80							
GW Temporary Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	N/A							
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	N/A							
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	N/A							

**New Jersey/New York Expansion Project
Boring Summary Table**

Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10⁻² Feet/Day	10⁻² – 10 Feet/Day	>10 Feet/Day
Additional Comments/Notes/ Observations (if applicable)	Borehole grouted, topped with cement and asphalt to grade.		

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: NYC-2-PIP-4

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	19.90R							
Location (Latitude/Longitude) – estimated/surveyed	40° 44' 21.3100" N / 74° 00' 37.4852" W – Surveyed							
Site Address	Boring located on New York Sanitation Pier property, on Bloomfield street near the corner of Hudson River Greenway in New York, New York (no exact street address available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	No nearby subsurface features in the vicinity of boring.							
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	Hudson River is approximately 35 feet south of boring.							
Drilling Date	10/21/2011							
Drilling Company	Warren George, Inc.							
Drilling Method	Stainless Steel Split Spoon / 2" / Mud Rotary / Tri-cone roller bit							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A							
Boring Purpose (e.g. geotech/ environmental/geoarchaeological)	Geotechnical							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
	X							
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed		Seen Only		Floating Product = <6"		Floating Product = >6"	
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material				Anthropogenically-Generated Material			
	1.5 to 8.0 feet bg - dark to light brown, fine to coarse sand and silt, some sub-rounded to sub-angular, fine gravel and gray clay.				Crushed and small pieces of red brick from 11.5 to 27 feet bg.			
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
						X	X	
PID/Odors (depth)	N/D							
Geology	Asphalt (0.5'), underlain by Belgian block (0.5') underlain by void space with concrete bottom from grade to 1.5 feet bg, underlain by FILL (see above) to 27 feet bg, underlain by dark gray CLAY to 50 feet bg, underlain by fine SAND and SILT to 55 ft bg, underlain by dark gray SILT; trace clay and fine sand to 61 ft bg, underlain by dark gray CLAY to at least 77 ft bg. Continuous drilling from 12 to 15 ft bg, 17 to 20 ft bg, 22 to 25 ft bg, 27 to 30 ft bg, 32 to 35 ft bg, 37 to 40 ft bg, 42 to 45 ftbg, 47 to 50 ft bg, 52 to 55 ftbg, 57 to 60 ft bg, 62 to 65 ft bg, 67 to 70 ft bg, and 72 to 75 ft bg – no spoons collected.							
Soil Permeability	Loose			Intermediate			Tight	
	X							
Total Boring Depth (feet bg)	77							
GW Temporary Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	N/A							
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	N/A							
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	N/A							
Additional Hydro/Geological Test –	<10⁻² Feet/Day			10⁻² – 10 Feet/Day			>10 Feet/Day	

**New Jersey/New York Expansion Project
Boring Summary Table**

Permeability Results (e.g. pump test/slug test/packer test)			
Additional Comments/Notes/ Observations (if applicable)	Borehole backfilled with grout and restored to natural grade.		

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: RCH-1-ENV-3

Boring Information								
Alternate Boring ID (if applicable)	RCH-1-ARC-MT-1							
Pipeline Mile Marker ID	4.85R							
Location (Latitude/Longitude) – estimated/surveyed	40° 37' 52.1622"N / 74° 11' 6.1317"W – Surveyed							
Site Address	Test pit located in the M&R-058 lot, approximately 50 feet southeast of the entrance on Western Avenue in Staten Island, New York (no exact street address available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	A Coca Cola Enterprises subsurface waterline is located approximately 88 feet northwest of test pit.							
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	Old Place Creek is located approximately 800 feet southwest of test pit. Test pit is located approximately 225 feet southwest of wetlands.							
Drilling Date	8/17/2011							
Drilling Company	The Napp-Greco Company							
Drilling Method	Excavator							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A							
Boring Purpose (e.g. geotech/environmental/geoarchaeological)	Environmental/Geoarchaeological							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
	X							
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)								
- Product in GW – Check where applicable	None Observed	Sheen Only	Floating Product = <6"	Floating Product = >6"				
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material				Anthropogenically-Generated Material			
	Orange brown fine to medium sand; little silt from 1.0 to 1.5 feet bg. Brown to gray brown fine to coarse sand; some fine to coarse sub-angular to sub-rounded gravel, little silt, mica schist and granite cobbles from 1.5 to 3.0 feet bg.				Asphalt millings, gravel base from grade to 1.0 foot bg.			
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
	X							
PID/Odors (depth)	N/D							
Geology	FILL from grade to 3.0 feet bg (see above), underlain by brown to dark brown fine SAND; little silt, black organic staining to at least 4.0 feet bg.							
Soil Permeability	Loose		Intermediate			Tight		
			X					
Total Test Pit Depth (feet bg)	4							
GW Temporary Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report IDs JA83967 and JA83820							
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	RCH-1-ENV-3/1.5 (1.5 to 2.0 feet bg) and RCH-1-ENV-3/4 (4.0 to 4.5 feet bg) were collected for VOC, SVOC, TPH, PCB, pesticide, herbicide, metals and general chemistry analyses.							
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	RCH1ARCMT4 was collected for VOC, metals and general chemistry analyses.							
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10⁻² Feet/Day			10⁻² – 10 Feet/Day			>10 Feet/Day	

**New Jersey/New York Expansion Project
Boring Summary Table**

Additional Comments/Notes/ Observations (if applicable)	N/A
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**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: RCH-1-ARC-MT-2

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	Approximately 14 feet southwest of 4.86R							
Location (Latitude/Longitude) – estimated/surveyed	40°37'52.43"N / 74°11'5.68"W – estimated (no survey data collected)							
Site Address	Boring is located in a gravel area approximately 452 feet northeast of the intersection of US Highway 278 and Western Avenue in Staten Island, NY (no exact street address available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	An underground water line is located 75 feet northwest of the boring.							
Nearby Hydraulic Features (Distance and Direction from wetlands, piping, etc.)	Old Place Creek is located approximately 835 feet southwest of boring. Boring is located in wetland.							
Drilling Date	8/18/2011							
Drilling Company	The Napp-Greco Company							
Drilling Method	Excavator							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A							
Boring Purpose (e.g. geotech/environmental/geoarcheological)	Archaeological							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 - 2.0	2.1 - 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
		X						
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed		Sheen Only		Floating Product = <6"		Floating Product = >6"	
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material				Anthropogenically-Generated Material			
	Asphalt from grade to 0.1 feet bg, underlain by gray-brown fine to coarse sand; some fine to medium angular to sub-rounded gravel; little silt. Dry, dense, gravel base, metal fragments, mica-schist, granitic pieces from 0.1 to 2.3 feet bg, little slag fragments at 1.7', underlain by orange-brown fine sand; little silt; trace fine sub-rounded gravel, moist, medium dense from 2.3 to 2.7 feet bg.							
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
	X	X						
PID/Odors (depth)	No PID detected. No odors.							
Geology	Dark brown to black fine sand; little silt; trace fine rounded gravel. Moist, medium dense, dark organic staining from 2.7 to 3.6 feet, underlain by brown fine SAND; little silt. Wet, medium dense, organic root material from 3.6 to at least 5.0 feet bg.							
Soil Permeability	Loose			Intermediate			Tight	
							X	
Total Boring Depth (feet bg)	5.0							
GW Monitoring Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A							
Laboratory Name and Report No. (if samples collected)	N/A							
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	No samples collected							
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	N/A							
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug	<10⁻² Feet/Day			10⁻² – 10 Feet/Day			>10 Feet/Day	

**New Jersey/New York Expansion Project
Boring Summary Table**

test/packer test)			
Additional Comments/Notes/ Observations (if applicable)	Soil boring was a test pit used to evaluate subsurface conditions.		

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: RCH-1-ARC-MT-5

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	Approximately 14 feet southwest of 4.86R							
Location (Latitude/Longitude) – estimated/surveyed	40°37'52.43"N / 74°11'5.68"W – estimated (no survey data collected)							
Site Address	Boring is located in a gravel area approximately 452 feet northeast of the intersection of US Highway 278 and Western Avenue in Staten Island, NY (no exact street address available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	Boring is located 75 feet southeast of underground water line.							
Nearby Hydraulic Features (Distance and Direction from wetlands, piping, etc.)	Old Place Creek is located approximately 835 feet southwest of boring. Boring is located in wetland.							
Drilling Date	8/18/2011							
Drilling Company	The Napp-Greco Company							
Drilling Method	Excavator							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A							
Boring Purpose (e.g. geotech/environmental/geoarcheological)	Archaeological							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 - 2.0	2.1 - 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed	Sheen Only	Floating Product = <6"			Floating Product = >6"		
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material				Anthropogenically-Generated Material			
	Asphalt from grade to 0.1 feet bg, underlain by gray-brown fine to coarse sand; some fine to medium angular to sub-rounded gravel; little silt. Dry, dense, gravel base, metal fragments, mica-schist, granitic pieces from 0.1 to 2.3 feet bg, little slag fragments at 1.7', underlain by orange-brown fine sand; little silt; trace fine sub-rounded gravel, moist, medium dense from 2.3 to 2.7 feet bg.							
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
	X	X						
PID/Odors (depth)	No PID detected. No odors.							
Geology	Dark brown to black fine sand; little silt; trace fine rounded gravel. Moist, medium dense, dark organic staining from 2.7 to 3.6 feet, underlain by brown fine SAND; little silt. Wet, medium dense, organic root material from 3.6 to 5.0 feet bg.							
Soil Permeability	Loose		Intermediate			Tight		
						X		
Total Boring Depth (feet bg)	5.0							
GW Monitoring Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A							
Laboratory Name and Report No. (if samples collected)	N/A							
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	No samples collected							
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	N/A							
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug	<10⁻² Feet/Day		10⁻² – 10 Feet/Day			>10 Feet/Day		

**New Jersey/New York Expansion Project
Boring Summary Table**

test/packer test)			
Additional Comments/Notes/ Observations (if applicable)	Soil boring was a test pit used to evaluate subsurface conditions.		

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: RCH-1-ARC-MT-6

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	4.87R							
Location (Latitude/Longitude) – estimated/surveyed	40°37'52.74"N / 74°11'04.87"W – Estimated (survey data forthcoming)							
Site Address	Test pit located in the M&R-058 lot, approximately 150 feet northeast of the entrance on Western Avenue in Staten Island, New York (no exact street address available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	A Coca Cola Enterprises subsurface waterline is located approximately 110 feet northwest of test pit.							
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	Old Place Creek is located approximately 900 feet southwest of test pit. Test pit is located approximately 100 feet southwest of wetlands.							
Drilling Date	8/23/2011							
Drilling Company	The Napp-Greco Company							
Drilling Method	Excavator							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A							
Boring Purpose (e.g. geotech/environmental/geoarchaeological)	Geoarchaeological							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed	Sheen Only	Floating Product = <6"			Floating Product = >6"		
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material				Anthropogenically-Generated Material			
	Dark brown medium to coarse sand; gravel throughout from grade to 0.5 feet bg.				Structural and non-structural pieces of wood from 0.5 to 4.5 feet bg.			
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
	X	X	X					
PID/Odors (depth)	N/D							
Geology	FILL from grade to 4.5 feet bg (see above), underlain by brown medium SAND; some CLAY, lenses of silty clay throughout to at least 8.0 feet bg.							
Soil Permeability	Loose			Intermediate			Tight	
				X				
Total Boring Depth (feet bg)	8							
GW Temporary Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	N/A							
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	N/A							
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	N/A							
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10 ⁻² Feet/Day			10 ⁻² – 10 Feet/Day			>10 Feet/Day	
Additional Comments/Notes/ Observations (if applicable)	N/A							

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: RCH-1-ARC-MT-7

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	4.86R							
Location (Latitude/Longitude) – estimated/surveyed	40°37'52.72"N / 74°11'04.94"W – Estimated (survey data forthcoming)							
Site Address	Test pit located in the M&R-058 lot, approximately 130 feet east of the entrance on Western Avenue in Staten Island, New York (no exact street address available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	A Coca Cola Enterprises subsurface waterline is located approximately 130 feet northwest of test pit.							
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	Old Place Creek is located approximately 840 feet southwest of test pit. Test pit is located approximately 130 feet southwest of wetlands.							
Drilling Date	8/24/2011							
Drilling Company	The Napp-Greco Company							
Drilling Method	Excavator							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A							
Boring Purpose (e.g. geotech/ environmental/geoarchaeological)	Geoarchaeological							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
			X					
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed		Seen Only		Floating Product = <6"		Floating Product = >6"	
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material				Anthropogenically-Generated Material			
	Dark brown medium to coarse sand, gravel throughout from grade to 1.0 foot bg, underlain by light brown-orange medium sand, some gravel to 2.0 feet bg.				Large intact bricks from 2.0 to 5.0 feet bg.			
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
	X	X	X					
PID/Odors (depth)	N/D							
Geology	FILL from grade to 5.0 feet bg (see above), underlain by dark brown fine SAND and SILT; organic material throughout to 6.0 feet bg, underlain by light brown silty CLAY and fine SAND to at least 8.0 feet bg.							
Soil Permeability	Loose		Intermediate			Tight		
			X					
Total Test Pit Depth (feet bg)	8							
GW Temporary Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	N/A							
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	N/A							
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	N/A							
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10⁻² Feet/Day			10⁻² – 10 Feet/Day			>10 Feet/Day	
Additional Comments/Notes/	N/A							

New Jersey/New York Expansion Project
Boring Summary Table

Observations (if applicable)	
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**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: RCH-1-ARC-MT-8

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	4.86R							
Location (Latitude/Longitude) – estimated/surveyed	40°37'51.95"N / 74°11'04.99"W – Estimated (survey data forthcoming)							
Site Address	Test pit located in the M&R-058 lot, approximately 135 feet southeast of the entrance on Western Avenue in Staten Island, New York (no exact street address available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	A Coca Cola Enterprises subsurface waterline is located approximately 165 feet northwest of test pit.							
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	Old Place Creek is located approximately 800 feet southwest of test pit. Test pit is located approximately 180 feet southwest of wetlands.							
Drilling Date	8/25/2011							
Drilling Company	The Napp-Greco Company							
Drilling Method	Excavator							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A							
Boring Purpose (e.g. geotech/environmental/geoarchaeological)	Geoarchaeological							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
			X					
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed	Sheen Only	Floating Product = <6"	Floating Product = >6"				
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material			Anthropogenically-Generated Material				
	Dark brown medium to coarse sand; gravel throughout from grade to 1.0 foot bg, underlain by light brown-orange medium sand; some small pebbles, some silt to 2.0 feet bg, underlain by brown medium sand and silt, some large rocks throughout to 4.5 feet bg, underlain by dark brown, fine sand and silt with organic material throughout to 5.0 feet bg, underlain by light brown silty clay with fine sand to 6.0 feet bg.			N/A				
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
PID/Odors (depth)	N/D							
Geology	FILL from grade to 6.0 feet bg (see above), underlain by light brown silty CLAY and fine SAND to at least 9.0 feet bg.							
Soil Permeability	Loose		Intermediate			Tight		
			X					
Total Test Pit Depth (feet bg)	9							
GW Temporary Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	N/A							
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	N/A							
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	N/A							

**New Jersey/New York Expansion Project
Boring Summary Table**

Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10⁻² Feet/Day	10⁻² – 10 Feet/Day	>10 Feet/Day
Additional Comments/Notes/ Observations (if applicable)	Archaeological feature, possibly a fire pit, at 5.5 feet bg.		

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: RCH-1-ENV-5

Boring Information								
Alternate Boring ID (if applicable)	RCH-1-ARC/MT-4							
Pipeline Mile Marker ID	4.88R							
Location (Latitude/Longitude) – estimated/surveyed	40° 37' 53.1548"N / 74° 11' 4.9537"W – Surveyed							
Site Address	Test pit located in the M&R-058 lot, approximately 150 feet northeast of the entrance on Western Avenue in Staten Island, New York (no exact street address available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	A Coca Cola Enterprises subsurface waterline is located approximately 80 feet northwest of test pit							
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	Old Place Creek is located approximately 930 feet southwest of test pit. Test pit is located approximately 85 feet southwest of wetlands.							
Drilling Date	8/15/2011							
Drilling Company	The Napp-Greco Company							
Drilling Method	Excavator							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A							
Boring Purpose (e.g. geotech/environmental/geoarchaeological)	Environmental/Geoarchaeological							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
	X							
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed		Sheen Only		Floating Product = <6"		Floating Product = >6"	
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material				Anthropogenically-Generated Material			
	Gray, fine to coarse gravel; some fine to medium sand, little silt, rock fragments from 1.0 to 1.5 feet bg.				Brick fragments from grade to 1.0 foot bg and 1.5 to 4.0 feet bg. Concrete and engineered clay from 1.5 to 4.0 feet bg.			
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
	X	X						
PID/Odors (depth)	Elevated PID readings (max=15.3 ppm at 2.0 feet bg). No odor.							
Geology	FILL from grade to at least 4.0 feet bg (see above).							
Soil Permeability	Loose			Intermediate			Tight	
							X	
Total Test Pit Depth (feet bg)	4							
GW Temporary Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report ID JA83820							
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	RCH1ARCMT4/2 (2.0 to 2.5 feet bg) was collected for VOC, SVOC, TPH, PCB, pesticide, herbicide, metals, and general chemistry analyses.							
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	RCH1ARCMT4 was collected for VOC, metals and general chemistry analyses.							
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10⁻² Feet/Day			10⁻² – 10 Feet/Day			>10 Feet/Day	
Additional Comments/Notes/ Observations (if applicable)	N/A							

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: RCH-1-ENV-6

Boring Information								
Alternate Boring ID (if applicable)	RCH-1-ARC-MT-3							
Pipeline Mile Marker ID	4.87R							
Location (Latitude/Longitude) – estimated/surveyed	40°37'52.76"N / 74°11'05.32"W – Estimated (survey data forthcoming)							
Site Address	Test pit located in the M&R-058 lot, approximately 100 feet northeast of the entrance on Western Avenue in Staten Island, New York (no exact street address available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	A Coca Cola Enterprises subsurface waterline is located approximately 80 feet northwest of test pit							
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	Old Place Creek is located approximately 900 feet southwest of test pit. Test pit is located approximately 140 feet southwest of wetlands.							
Drilling Date	8/15/2011							
Drilling Company	The Napp-Greco Company							
Drilling Method	Backhoe Loader							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A							
Boring Purpose (e.g. geotech/environmental/geoarchaeological)	Environmental/Geoarchaeological							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed	Sheen Only	Floating Product = <6"	Floating Product = >6"				
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material				Anthropogenically-Generated Material			
	Orange brown, fine to medium sand; trace fine gravel from 1.0 to 1.5 feet bg.				Trace concrete from grade to 1.0 foot bg, little concrete, little brick from 1.5 to 4.0 feet bg			
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
	X	X						
PID/Odors (depth)	N/D							
Geology	FILL from grade to 4.0 feet bg (see above), underlain by dark brown to black, fine SAND; little silt, trace fine rounded gravel, tree root and tree stump material to 5.0 feet bg, underlain by tan brown, fine SAND; some silt, little fine gravel to at least 6.0 feet bg.							
Soil Permeability	Loose		Intermediate			Tight		
	X							
Total Test Pit Depth (feet bg)	6							
GW Temporary Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report ID JA83923							
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	RCH1ENV6/4 (4.0 to 4.5 feet bg) was collected for VOC, SVOC, TPH, PCB, pesticide, herbicide, metals and general chemistry analyses.							
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	N/A							
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10⁻² Feet/Day		10⁻² – 10 Feet/Day			>10 Feet/Day		
Additional Comments/Notes/ Observations (if applicable)	N/A							

**New Jersey/New York Expansion Project
Boring Summary Table**

TRC Boring Identification: RCH-1-HDD-1

Boring Information								
Alternate Boring ID (if applicable)	B-2A(SI)							
Pipeline Mile Marker ID	4.76R							
Location (Latitude/Longitude) – estimated/surveyed	40° 37' 51.78" N / 74° 11' 5.64" W - surveyed							
Site Address	Boring located in a gravel-paved area approximately 410 feet northeast of the intersection of Goethals Road North and Western Avenue in the northeast corner of the Texas East Transportation Corporation facility at 2495 Goethals Road North and 425 Western Avenue in Staten Island, New York.							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	A subsurface water utility line is located approximately 125 feet northwest of the boring.							
Nearby Hydraulic Features (Distance and Direction from wetlands, piping, etc.)	Old Place Creek is located approximately 800 feet south of the boring, beyond Goethals Road North.							
Drilling Date	10/15/2010							
Drilling Company	Warren George, Inc.							
Drilling Method	Mud Rotary – Tri-cone roller bit							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A							
Boring Purpose (e.g. geotech/ environmental/geoarchaeological)	Geotechnical (HDD entry point)							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
		X						
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed	Sheen Only	Floating Product = <6"	Floating Product = >6"				
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material				Anthropogenically-Generated Material			
	N/A				N/A			
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
PID/Odors (depth)	N/D							
Geology	Reddish-brown fine to coarse SAND with trace gravel and silt from grade to 4.0 feet bg, underlain by moist to wet brown fine to medium SAND with trace silt to 12.0 feet bg. Reddish-brown fine to coarse SAND with some silt and trace clay from 15.0 to 17.0 feet bg and 20.0 to 22.0 feet bg. Continuous drilling from 12.0 to 15.0 feet bg and 17.0 to 22.0 feet bg – no cores collected. Wet at 2.5 feet bg.							
Soil Permeability	Loose		Intermediate			Tight		
			X					
Total Boring Depth (feet bg)	22.0							
GW Monitoring Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	N/A							
Soil Samples Collected (Parameters, Analytical Results Summary)	N/A							
GW Samples Collected (Parameters, Analytical Results Summary)	N/A							
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10⁻² Feet/Day		10⁻² – 10 Feet/Day			>10 Feet/Day		
Additional Comments/Notes/Observations (if applicable)	N/A							

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: RCH-2-ARC-4

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	4.68							
Location (Latitude/Longitude) – estimated/surveyed	40°37'58.10"N / 74°11'00.29"W – Estimated (survey data forthcoming)							
Site Address	Boring is located approximately 1,400 feet northeast of the intersection of 6 th Avenue and Western Avenue in Staten Island, New York (no exact street address available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	Boring is located in a former A & A landfill, approximately 150 feet southwest of a subsurface Procter and Gamble utility line.							
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	A small creek is located approximately 150 feet southwest of boring. Boring is located in wetlands.							
Drilling Date	8/8/2011							
Drilling Company	Land Air Water Environmental Services							
Drilling Method	Hand Auger							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A							
Boring Purpose (e.g. geotech/environmental/geoarchaeological)	Geoarcheological							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
	X							
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed	Sheen Only	Floating Product = <6"	Floating Product = >6"				
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material				Anthropogenically-Generated Material			
	N/A				Trace ceramic pieces from grade to 1.0 foot bg, 3.0 feet bg, and 4.0 to 5.0 feet bg, trace cinder fragments from 1.0 to 5.0 feet bg, trace construction-grade wood pieces from 3.0 to 4.0 feet bg, broken glass pieces at 2.0 feet bg.			
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
	X	X	X					
PID/Odors (depth)	N/D							
Geology	FILL from grade to at least 5.0 feet bg (see above).							
Soil Permeability	Loose		Intermediate			Tight		
			X					
Total Boring Depth (feet bg)	Lithology recorded to 5.0 feet bg, archeological boring advanced to 20 feet.							
GW Temporary Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	N/A							
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	N/A							
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	N/A							
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10 ⁻² Feet/Day		10 ⁻² – 10 Feet/Day			>10 Feet/Day		
Additional Comments/Notes/ Observations (if applicable)	N/A							

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: RCH-2-ENV-2

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	Approximately 17 feet southwest of 4.61							
Location (Latitude/Longitude) – estimated/surveyed	40° 37' 55.4455" N/74° 11' 2.4818" W – Surveyed							
Site Address	Boring is located approximately 140 feet south of a bridge crossing a small creek on Western Avenue in Staten Island, New York (no exact street address is available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	A subsurface water pipeline is located approximately 145 feet southwest of boring. Boring is located on a historic landfill and superfund site.							
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	Old Place Creek is located approximately 1,250 feet southwest of boring. Boring is located approximately 95 feet northwest of a tributary to a small unnamed creek and is in wetlands.							
Drilling Date	8/8/2011							
Drilling Company	Land Air Water Environmental Services							
Drilling Method	2"-Macrocore / GeoProbe (soil samples)							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A							
Boring Purpose (e.g. geotech/environmental/geoarchaeological)	Environmental							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
	X							
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed	Sheen Only	Floating Product = <6"	Floating Product = >6"				
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material				Anthropogenically-Generated Material			
	N/A				N/A			
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
PID/Odors (depth)	ND. No odors detected.							
Geology	Dark brown organic SILT with some organic material/ roots and little medium to fine sand from grade to 2 feet bg, underlain by dark grayish-brown fine SAND and some silt with little organic material/roots from 2 to 3 feet bg, underlain by grayish brown medium to fine SAND; little silt from 3 to 8.5 feet bg, underlain by orange brown medium to fine SAND; little clay and trace silt from 8.5 to 10 feet bg, underlain by grayish-brown, medium to fine SAND; and silt to at least 15 feet bg.							
Soil Permeability	Loose		Intermediate			Tight		
	X							
Total Boring Depth (feet bg)	15							
GW Monitoring Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report IDs JA83045, JA83045svoc, and JA83045RT.							
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	RCH-2-2/3 (3.0 to 3.5 feet bg) and RCH-2-2/6 (6.0 to 6.5 feet bg) were collected for VOC, SVOC, PCB, TPH, pesticide, herbicide, metals (including hexavalent chromium) and general chemistry analyses.							
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	N/A							
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10⁻² Feet/Day			10⁻² – 10 Feet/Day			>10 Feet/Day	
Additional Comments/Notes/Observations (if applicable)	N/A							

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: RCH-2-ENV-3W

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	4.64							
Location (Latitude/Longitude) – estimated/surveyed	40° 37' 56.8433"N / 74° 11' 0.8853"W – Surveyed							
Site Address	Boring is located approximately 50 feet southeast of a bridge crossing a small creek on Western Avenue in Staten Island, New York (no exact street address is available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	A subsurface water pipeline is located approximately 300 feet southeast of boring. Boring is located on a historic landfill and superfund site.							
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	Old Place Creek is located approximately 1,400 feet southwest of boring. Boring is located approximately 40 feet northeast of a small creek and is in wetlands.							
Drilling Date	8/8/2011							
Drilling Company	Land Air Water Environmental Services							
Drilling Method	2"-Macrocore / GeoProbe (soil samples) Hollow Stem Auger (well installation)							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	Pump Test							
Boring Purpose (e.g. geotech/environmental/geoarchaeological)	Environmental							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
	X							
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed		Sheen Only		Floating Product = <6"		Floating Product = >6"	
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material				Anthropogenically-Generated Material			
	N/A				Grayish-brown silt; and fibrous organic material/roots, trace fine sand, trace brick/concrete pieces from grade to 1.0 foot bg.			
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
	X							
PID/Odors (depth)	Elevated PID readings (max = 100.1 ppm from 1.5 to 2.0 feet bg). Organic-like odor detected from 1.0 to 17.5 feet bg.							
Geology	FILL from grade to 1.0 foot bg (see above), underlain by grayish-brown SILT; and fibrous organic material/roots, trace fine sand to 4.0 feet bg, underlain by dark gray SILT; some to trace fibrous organic material/roots, little fine sand to 15 feet bg, underlain by gray medium to coarse SAND; trace silt to 17.5 feet bg, underlain by reddish-brown, fine SAND; and silt to at least 20 feet bg. High plasticity.							
Soil Permeability	Loose			Intermediate			Tight	
	X							
Total Boring Depth (feet bg)	20							
GW Temporary Well Installed (Depth, Screen, Riser, Slot Size, Casing)	Well Construction: 1.5 feet ag to 13.5 feet bg – 3 inch diameter 0.010-slot PVC screen Grade to 13.5 feet bg – No. 1 sand Next Day Measurements: Total depth of well: 13.68 feet bg Borehole backfilled to well depth.							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report IDs JA83047 and JA83045.							
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	RCH2-3W/1.5 (1.5 to 2.0 feet bg) and RCH2-3W/6 (6.0 to 6.5 feet bg) were collected for VOC, SVOC, PCB, TPH, pesticide, herbicide, metals and general chemistry analyses.							

**New Jersey/New York Expansion Project
Boring Summary Table**

GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	RCH-2-3W was collected for VOC, metals and general chemistry analyses.		
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10⁻² Feet/Day	10⁻² – 10 Feet/Day	>10 Feet/Day
		X	
Additional Comments/Notes/Observations (if applicable)	N/A		

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: RCH-4-ENV-19

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	4.79R							
Location (Latitude/Longitude) – estimated/surveyed	40° 38' 0.9750" N/74° 10' 54.0148" W - Surveyed							
Site Address	Boring is located approximately 745 feet northeast of a bridge crossing a small creek on Western Avenue in Staten Island, New York (no exact street address is available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	Utility easements and other pipelines for Proctor and Gamble are located approximately 85 feet east of the boring.							
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	A wetland area surrounds the boring. An unnamed stream is located approximately 250 feet northeast of boring.							
Drilling Date	04/11/2012							
Drilling Company	Land Air Water Environmental Services							
Drilling Method	Hand Auger/ 2" Macrocore							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A							
Boring Purpose (e.g. geotech/ environmental/geoarchaeological)	Environmental							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
			X					
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed	Sheen Only	Floating Product = <6"	Floating Product = >6"				
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material			Anthropogenically-Generated Material				
				Brown, fine to coarse sand and silt, some fine to coarse gravel, little asphalt, wood, metal and red brick to 2.0 ft bg, underlain by black, fine to coarse sand and silt, some fine to coarse gravel, little red brick, wood and glass to 6.0 ft bg.				
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
	X	X	X					
PID/Odors (depth)	N/D							
Geology	FILL (see above) to 6.0 ft bg, underlain by black to brown, fine to coarse SAND and SILT, some fine to coarse gravel, trace organics from 6.0 to 8.0 ft bg, underlain by black to gray CLAY, trace organics from 8.0 to 10 ft bg, underlain by light brown to gray, fine to coarse SAND, little clay from 10 to 15 ft bg, underlain by gray, fine SAND from 15 to at least 20 ft bg.							
Soil Permeability	Loose		Intermediate			Tight		
			X					
Total Boring Depth (feet bg)	20							
GW Monitoring Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report ID JB3917, JB3774, JB4278, and JB4278T.							
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	RCH-4-ENV-19/3 (3.0 to 3.5 feet bg) and RCH-4-ENV-19/7 (7.0 to 7.5 feet bg) were collected for VOC, SVOC, PCB, pesticide, TPH, metals (including hexavalent chromium) and general chemistry analyses. RCH-4-ENV-19-WC was collected for SVOC, PCB, pesticide, TPH, metals (including hexavalent chromium) and general chemistry analyses. RCH-4-ENV-19+20W+21-WC-COMP was collected for metals TCLP, RCRA characteristics, SVOC, PCB, pesticide, TPH, metals (including hexavalent chromium) and general chemistry analyses.							
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	N/A							

**New Jersey/New York Expansion Project
Boring Summary Table**

Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10 ⁻² Feet/Day	10 ⁻² – 10 Feet/Day	>10 Feet/Day
Additional Comments/Notes/ Observations (if applicable)	Borehole backfilled with grout and restored to natural grade.		

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: RCH-4-ENV-20W

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	4.82R							
Location (Latitude/Longitude) – estimated/surveyed	40° 38' 1.9431" N/74° 10' 55.2658" W - Surveyed							
Site Address	Boring is located approximately 745 feet northeast of a bridge crossing a small creek on Western Avenue in Staten Island, New York (no exact street address is available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	Utility easements and other pipelines for Proctor and Gamble are located approximately 35 feet north of the boring.							
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	A wetland area surrounds the boring. An unnamed stream is located approximately 125 feet east of boring.							
Drilling Date	04/10/2012							
Drilling Company	Land Air Water Environmental Services							
Drilling Method	Hand Auger/ 2" Macrocore (soil) Hollow stem auger (well installation)							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A							
Boring Purpose (e.g. geotech/ environmental/geoarchaeological)	Environmental							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
			X					
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed	Seen Only	Floating Product = <6"	Floating Product = >6"				
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material			Anthropogenically-Generated Material				
	Gray brown, medium to fine sand, little medium to fine, sub-angular to sub-rounded gravel and silt to 1.0 ft bg, underlain by gray brown, medium to fine sand, some medium to fine, angular to sub-rounded gravel, little silt and cobbles from 2.0 to 6.5 ft bg, underlain by red brown, medium to fine sand, some silt, little fine, sub-rounded gravel, trace clay from 6.5 to 9.0 ft bg.			Orange brown, medium to fine sand, little coarse to fine, angular to sub-angular gravel, silt and slag from 1.0 to 2.0 ft bg.				
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
	X							
PID/Odors (depth)	N/D							
Geology	FILL (see above) to 9.0 ft bg, underlain by dark gray to black PEAT and CLAY, trace silt from 9.0 to 10 ft bg, underlain by gray brown to brown, medium to fine SAND, little clay, trace fine, rounded gravel and silt from 10 to 15 ft bg, underlain by brown to gray brown, medium to fine SAND, trace silt from 15 to at least 20 ft bg.							
Soil Permeability	Loose			Intermediate		Tight		
				X				
Total Boring Depth (feet bg)	20							
GW Monitoring Well Installed (Depth, Screen, Riser, Slot Size, Casing)	0.25 to 14.76 ft. below surface - 3" diameter 0.010 slot PVC screen Total depth of well = 14.76 feet bg as measured on 4/11/12							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report ID JB3809, JB3922, JB3923, JB3774, JB4278, and JB4278T.							
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	RCH-4-ENV-20W/2 (2.0 to 2.5 feet bg) and RCH-4-ENV-20W/7 (7.0 to 7.5 feet bg) were collected for VOC, SVOC, PCB, pesticide, TPH, metals (including hexavalent chromium) and general chemistry analyses. RCH-4-ENV-20W-WC, RCH-4-ENV-20W-WC/2 (2.0 to 2.5 ft bg), RCH-4-ENV-20W-WC/4 (4.0 to 4.5 ft bg), RCH-4-ENV-20W-WC/6 (6.0 to 6.5 ft bg), and RCH-4-ENV-20W-WC/8 (8.0 to 8.5 ft bg)							

**New Jersey/New York Expansion Project
Boring Summary Table**

	were collected for TPH and general chemistry analyses. RCH-4-ENV-19+20W+21-WC-COMP was collected for metals TCLP, RCRA characteristics, SVOC, PCB, pesticide, TPH, metals (including hexavalent chromium) and general chemistry analyses.		
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	RCH-4-ENV-20W was collected for VOCs, metals, PCBs, NYCDEP Sewer Use Discharge Parameters, and SPDES analyses.		
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10⁻² Feet/Day	10⁻² – 10 Feet/Day	>10 Feet/Day
Additional Comments/Notes/Observations (if applicable)	Borehole backfilled with grout and restored to natural grade.		

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: RCH-4-ENV-22

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	4.82R							
Location (Latitude/Longitude) – estimated/surveyed	40° 38' 4.4329" N/74° 10' 54.3629" W - Surveyed							
Site Address	Boring is located approximately 955 feet northeast of a bridge crossing a small creek on Western Avenue in Staten Island, New York (no exact street address is available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	Utility easements and other pipelines for Proctor and Gamble are located approximately 130 feet northeast of the boring.							
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	A wetland area surrounds the boring. An unnamed stream is located approximately 260 feet southwest of boring.							
Drilling Date	04/06/2012							
Drilling Company	Land Air Water Environmental Services							
Drilling Method	Hand Auger/ 2" Macrocore							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A							
Boring Purpose (e.g. geotech/ environmental/geoarchaeological)	Environmental							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
				X				
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed	Sheen Only	Floating Product = <6"	Floating Product = >6"				
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material			Anthropogenically-Generated Material				
				Red brown, fine to coarse sand, concrete and red brick, some fine to coarse gravel to 4.0 ft bg, underlain by gray brown, fine to coarse sand, red brick, concrete, wood and glass, little fine to coarse gravel from 4.0 to 8.0 ft bg.				
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
	X	X	X	X				
PID/Odors (depth)	N/D							
Geology	FILL (see above) to 8.0 ft bg, underlain by brown gray, fine to coarse SAND from 8.0 to 10 ft bg, underlain by brown gray, fine to coarse SAND, some clay from 10 to 19 ft bg, underlain by gray, fine to coarse SAND, some clay, trace vegetation from 19 to 20 ft bg, underlain by red brown, fine to coarse SAND and GRAVEL from 20 to 24 ft bg, underlain by red brown, fine SAND from 24 to at least 25 ft bg.							
Soil Permeability	Loose		Intermediate			Tight		
			X					
Total Boring Depth (feet bg)	25							
GW Monitoring Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report ID JB3652, JB3652R, JB3774, and JB3809.							
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	RCH-4-ENV-22/3 (3.0 to 3.5 feet bg) and RCH-4-ENV-22/6 (6.0 to 6.5 feet bg) were collected for VOC, SVOC, PCB, pesticide, TPH, metals (including hexavalent chromium) and general chemistry analyses. RCH-4-ENV-22-WC, RCH-4-ENV-22-WC/2 (2.0 to 2.5 ft bg), RCH-4-ENV-22-WC/4 (4.0 to 4.5 ft bg), RCH-4-ENV-22-WC/6 (6.0 to 6.5 ft bg), and RCH-4-ENV-22-WC/8 (8.0 to 8.5 ft bg) were collected for TPH and general chemistry analyses. RCH-4-ENV-22+23+24 COMP was collected for VOC TCLP, SVOC TCLP, pesticide/herbicide TCLP, metals TCLP, RCRA characteristics, SVOC, PCB, pesticide, TPH, metals (including hexavalent chromium) and general chemistry analyses.							
GW Samples Collected - Sample ID(s) and	N/A							

**New Jersey/New York Expansion Project
Boring Summary Table**

Sampling Parameter(s)			
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10⁻² Feet/Day	10⁻² – 10 Feet/Day	>10 Feet/Day
Additional Comments/Notes/Observations (if applicable)	Borehole backfilled with grout and restored to natural grade.		

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: RCH-4-ENV-23

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	4.86R							
Location (Latitude/Longitude) – estimated/surveyed	40° 38' 5.7252" N/74° 10' 54.3316" W - Surveyed							
Site Address	Boring is located approximately 1,125 feet northeast of a bridge crossing a small creek on Western Avenue in Staten Island, New York (no exact street address is available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	Utility easements and other pipelines for Proctor and Gamble are located approximately 70 feet south of the boring.							
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	A wetland area is located approximately 140 feet south of boring.							
Drilling Date	04/06/2012							
Drilling Company	Land Air Water Environmental Services							
Drilling Method	Hand Auger/ 2" Macrocore							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A							
Boring Purpose (e.g. geotech/ environmental/geoarchaeological)	Environmental							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
		X						
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed	Sheen Only	Floating Product = <6"	Floating Product = >6"				
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material			Anthropogenically-Generated Material				
				Gray to dark brown, medium to fine sand, some coarse to fine, sub-angular to sub-rounded gravel, little silt, roots, concrete and rip-rap to 1.0 ft bg, underlain by dark brown to orange brown, medium to fine sand, little coarse to fine, sub-angular to sub-rounded gravel, some brick and concrete, little silt from 1.0 to 3.0 ft bg, underlain by orange brown, medium to fine sand, trace medium to fine, sub-angular to rounded gravel, some brick and concrete, little silt from 3.0 to 8.0 ft bg.				
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
	X	X	X	X				
PID/Odors (depth)	N/D							
Geology	FILL (see above) to 8.0 ft bg, underlain by brown, medium to fine SAND, trace fine, rounded gravel and silt from 8.0 to 15 ft bg, underlain by orange brown, medium to fine SAND, little silt, trace fine, rounded gravel from 15 to at least 20 ft bg.							
Soil Permeability	Loose		Intermediate			Tight		
			X					
Total Boring Depth (feet bg)	20							
GW Monitoring Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report ID JB3652, JB3652R, JB3774, and JB3809.							
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	RCH-4-ENV-23/1 (1.0 to 1.5 feet bg) and RCH-4-ENV-23/5 (5.0 to 5.5 feet bg) were collected for VOC, SVOC, PCB, pesticide, TPH, metals (including hexavalent chromium) and general chemistry analyses. RCH-4-ENV-23-WC, RCH-4-ENV-23-WC/2 (2.0 to 2.5 ft bg), RCH-4-ENV-23-WC/4 (4.0 to 4.5 ft bg), RCH-4-ENV-23-WC/6 (6.0 to 6.5 ft bg), and RCH-4-ENV-23-WC/8 (8.0 to 8.5 ft bg) were collected for							

**New Jersey/New York Expansion Project
Boring Summary Table**

	TPH and general chemistry analyses. RCH-4-ENV-22+23+24 COMP was collected for VOC TCLP, SVOC TCLP, pesticide/herbicide TCLP, metals TCLP, RCRA characteristics, SVOC, PCB, pesticide, TPH, metals (including hexavalent chromium) and general chemistry analyses.		
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	N/A		
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10⁻² Feet/Day	10⁻² – 10 Feet/Day	>10 Feet/Day
Additional Comments/Notes/Observations (if applicable)	Borehole backfilled with grout and restored to natural grade.		

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: RCH-4-ENV-24

Boring Information									
Alternate Boring ID (if applicable)	N/A								
Pipeline Mile Marker ID	4.90R								
Location (Latitude/Longitude) – estimated/surveyed	40° 38' 7.8354" N/74° 10' 52.9354" W - Surveyed								
Site Address	Boring is located approximately 1,325 feet northeast of a bridge crossing a small creek on Western Avenue in Staten Island, New York (no exact street address is available).								
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	Utility easements and other pipelines for Proctor and Gamble are located approximately 205 feet north of the boring.								
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	A wetland area is located approximately 320 feet south of boring.								
Drilling Date	04/10/2012								
Drilling Company	Land Air Water Environmental Services								
Drilling Method	Hand Auger/ 2" Macrocore								
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A								
Boring Purpose (e.g. geotech/ environmental/geoarchaeological)	Environmental								
Boring Observations									
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20	
		X							
PRODUCT									
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No								
- Product in GW – Check where applicable	None Observed	Sheen Only	Floating Product = <6"	Floating Product = >6"					
	X								
HISTORIC FILL MATERIAL									
- Composition, other observations – complete, as applicable	Reworked Material				Anthropogenically-Generated Material				
					Brown, coarse to fine sand, little coarse to fine, gravel, trace coal to 1.0 ft bg.				
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1		
	X								
PID/Odors (depth)	N/D								
Geology	FILL (see above) to 1.0 ft bg, underlain by brown, coarse to fine SAND, little coarse to fine, gravel from 1.0 to 4.0 ft bg, underlain by Brown to gray, coarse to fine SAND, trace clay from 4.0 to 8.0 ft bg, underlain by brown, fine to coarse SAND from 8.0 to at least 20 ft bg.								
Soil Permeability	Loose		Intermediate			Tight			
			X						
Total Boring Depth (feet bg)	20								
GW Monitoring Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A								
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report ID JB3774 and JB3809.								
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	RCH-4-ENV-24/1 (1.0 to 1.5 feet bg) and RCH-4-ENV-24/7 (7.0 to 7.5 feet bg) were collected for VOC, SVOC, PCB, pesticide, TPH, metals (including hexavalent chromium) and general chemistry analyses. RCH-4-ENV-24-WC, RCH-4-ENV-24-WC/2 (2.0 to 2.5 ft bg), RCH-4-ENV-24-WC/4 (4.0 to 4.5 ft bg), RCH-4-ENV-24-WC/6 (6.0 to 6.5 ft bg), and RCH-4-ENV-24-WC/8 (8.0 to 8.5 ft bg) were collected for TPH and general chemistry analyses. RCH-4-ENV-22+23+24 COMP was collected for VOC TCLP, SVOC TCLP, pesticide/herbicide TCLP, metals TCLP, RCRA characteristics, SVOC, PCB, pesticide, TPH, metals (including hexavalent chromium) and general chemistry analyses.								
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	N/A								
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10² Feet/Day			10² – 10 Feet/Day			>10 Feet/Day		

**New Jersey/New York Expansion Project
Boring Summary Table**

Additional Comments/Notes/ Observations (if applicable)	
	Borehole backfilled with grout and restored to natural grade.

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: RCH-4-ENV-25W

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	4.94R							
Location (Latitude/Longitude) – estimated/surveyed	40° 38' 10.7421" N/74° 10' 51.5726" W – Surveyed							
Site Address	Boring is located approximately 1,760 feet southwest of the intersection of Western Avenue and Richmond Terrace in Staten Island, New York (no exact street address is available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	Utility easements and other pipelines for Proctor and Gamble are located approximately 5 feet east of the boring.							
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	A wetland area is located approximately 715 feet northeast of the boring.							
Drilling Date	04/09/2012 to 04/10/2012							
Drilling Company	Land Air Water Environmental Services							
Drilling Method	Hand Auger (soil)/Hollow Stem Auger (well installation)							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A							
Boring Purpose (e.g. geotech/environmental/geoarchaeological)	Environmental							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
		X						
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed	Sheen Only	Floating Product = <6"	Floating Product = >6"				
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material				Anthropogenically-Generated Material			
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
PID/Odors (depth)	N/D							
Geology	Brown SILT and fine to coarse SAND, little fine to coarse gravel, trace organics (roots) to 1.0 ft bg, underlain by brownish gray, fine to coarse SAND, little fine to coarse gravel from 1.0 to 6.0 ft bg, underlain by gray/brown, fine to coarse SAND from 6.0 to 15 ft bg, underlain by red/Brown, fine to coarse SAND from 15 to at least 20 ft bg.							
Soil Permeability	Loose			Intermediate			Tight	
				X				
Total Boring Depth (feet bg)	20							
GW Monitoring Well Installed (Depth, Screen, Riser, Slot Size, Casing)	0.50 to 15.50 ft. below surface - 3" diameter 0.010 slot PVC screen. Total Depth of well = 14.58 feet bg as measured on 4/10/12.							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report ID JA3506, JB3820, JB3744, JB3744T and JB3744R.							
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	RCH-4-ENV-25W/2 (2.0 to 2.5 feet bg) and RCH-4-ENV-25W/7 (7.0 to 7.5 feet bg) were collected for VOC, SVOC, PCB, pesticide, TPH, metals (including hexavalent chromium) and general chemistry analyses. RCH-4-ENV-25W-WC was collected for SVOC, TPHC, and general chemistry analyses. RCH-4-ENV-25W-WC/2 (2.0 to 2.5 ft bg), RCH-4-ENV-25W-WC/4 (4.0 to 4.5 ft bg), RCH-4-ENV-25W-WC/6 (6.0 to 6.5 ft bg), and RCH-4-ENV-25W-WC/8 (8.0 to 8.5 ft bg) were collected for TPH and general chemistry analyses. RCH-4-ENV-25W+26 COMP was collected for VOC TCLP, SVOC TCLP, pesticide/herbicide TCLP, metals TCLP, RCRA characteristics, SVOC, PCB, pesticide, TPH, metals (including hexavalent chromium) and general chemistry analyses.							
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	RCH-4-ENV-25W was collected for VOCs, metals, PCBs and SPDES analyses.							
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug)	<10⁻² Feet/Day			10⁻² – 10 Feet/Day			>10 Feet/Day	

**New Jersey/New York Expansion Project
Boring Summary Table**

test/packer test)			
Additional Comments/Notes/ Observations (if applicable)	Borehole backfilled with grout and restored to grade.		

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: RCH-4-ENV-26

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	4.97R							
Location (Latitude/Longitude) – estimated/surveyed	40° 38' 11.8331" N/74° 10' 50.8903" W - Surveyed							
Site Address	Boring is located approximately 1,590 feet southwest of the intersection of Western Avenue and Richmond Terrace in Staten Island, New York (no exact street address is available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	Utility easements and other pipelines for Proctor and Gamble are located approximately 195 feet southeast of the boring.							
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	A wetland area is located approximately 600 feet northeast of the boring.							
Drilling Date	04/9/2012							
Drilling Company	Land Air Water Environmental Services							
Drilling Method	Hand Auger/ 2" Macrocore							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A							
Boring Purpose (e.g. geotech/ environmental/geoarchaeological)	Environmental							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
		X						
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed		Seen Only		Floating Product = <6"		Floating Product = >6"	
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material				Anthropogenically-Generated Material			
	Gray brown, medium to fine sand, trace fine rounded gravel and silt from 4.0 to 10 ft bg.				Gray brown, medium to fine sand, some medium to fine, angular to sub-angular gravel, trace silt, concrete, brick, road base gravel and glass to 2.0 ft bg, underlain by brown to dark brown, fine to medium sand, little fine to medium, sub-angular to sub-rounded gravel and concrete, trace silt from 2.0 to 4.0 ft bg.			
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
	X	X						
PID/Odors (depth)	N/D							
Geology	FILL (see above) to 10 ft bg, underlain by red/brown, medium to fine SAND, little silt, trace fine, sub-rounded gravel from 10 to 15 ft bg, underlain by brown, medium to fine SAND, trace silt from 15 to at least 20 ft bg.							
Soil Permeability	Loose			Intermediate		Tight		
				X				
Total Boring Depth (feet bg)	20							
GW Monitoring Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report ID JB3744 and JB3744R.							
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	RCH-4-ENV-26/1 (1.0 to 1.5 feet bg) and RCH-4-ENV-26/6 (6.0 to 6.5 feet bg) were collected for VOC, SVOC, PCB, pesticide, TPH, metals (including hexavalent chromium) and general chemistry analyses. RCH-4-ENV-26-WC, RCH-4-ENV-26-WC/2 (2.0 to 2.5 ft bg), RCH-4-ENV-26-WC/4 (4.0 to 4.5 ft bg), RCH-4-ENV-26-WC/6 (6.0 to 6.5 ft bg), and RCH-4-ENV-26-WC/8 (8.0 to 8.5 ft bg) were collected for TPH and general chemistry analyses. RCH-4-ENV-25W+26 COMP was collected for VOC TCLP, SVOC TCLP, pesticide/herbicide TCLP, metals TCLP, RCRA characteristics, SVOC, PCB, pesticide, TPH, metals (including hexavalent chromium) and general chemistry analyses.							
GW Samples Collected - Sample ID(s) and	N/A							

**New Jersey/New York Expansion Project
Boring Summary Table**

Sampling Parameter(s)			
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10⁻² Feet/Day	10⁻² – 10 Feet/Day	>10 Feet/Day
Additional Comments/Notes/Observations (if applicable)	Borehole backfilled with grout and restored to grade.		

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: RCH-4-ENV-27

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	5.01R							
Location (Latitude/Longitude) – estimated/surveyed	40° 38' 13.5631" N/74° 10' 49.8192" W - Surveyed							
Site Address	Boring is located approximately 1,390 feet southeast of the intersection of Richmond Terrace and Western Avenue in Staten Island, New York (no exact street address is available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	Utility easements and other pipelines for Proctor and Gamble are located approximately 390 feet south of the boring.							
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	A wetland area is located approximately 485 feet east of boring.							
Drilling Date	04/05/2012							
Drilling Company	Land Air Water Environmental Services							
Drilling Method	Hand Auger/ 2" Macrocore							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A							
Boring Purpose (e.g. geotech/ environmental/geoarchaeological)	Environmental							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
		X						
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed	Sheen Only	Floating Product = <6"	Floating Product = >6"				
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material				Anthropogenically-Generated Material			
					Brown, coarse to fine sand, some silt, little coarse to fine gravel, trace cinders and slag to 2.0 ft bg.			
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
	X							
PID/Odors (depth)	N/D							
Geology	FILL (see above) to 2.0 ft bg, underlain by brown, fine to coarse SAND, some fine to coarse gravel, trace silt from 2.0 to 4.0 ft bg, underlain by light brown, fine to coarse SAND from 4.0 to 9.0 ft bg, underlain by red brown, SILT and CLAY from 9.0 to 14 ft bg, underlain by red brown, fine to coarse SAND from 14 to at least 15 ft bg.							
Soil Permeability	Loose		Intermediate			Tight		
			X					
Total Boring Depth (feet bg)	15							
GW Monitoring Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report ID JB3514.							
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	RCH-4-ENV-27/1 (1.0 to 1.5 feet bg) and RCH-4-ENV-27/6 (6.0 to 6.5 feet bg) were collected for VOC, SVOC, PCB, pesticide, TPH, metals (including hexavalent chromium) and general chemistry analyses. RCH-4-ENV-27-WC was collected for SVOC, PCB, pesticide, TPH, metals (including hexavalent chromium) and general chemistry analyses. RCH-4-ENV-27-WC/2 (2.0 to 2.5 ft bg), RCH-4-ENV-27-WC/4 (4.0 to 4.5 ft bg), RCH-4-ENV-27-WC/6 (6.0 to 6.5 ft bg), and RCH-4-ENV-27-WC/8 (8.0 to 8.5 ft bg) were collected for TPH and general chemistry analyses. RCH-4-ENV-27+28 COMP was collected for metals TCLP, RCRA characteristics, SVOC, PCB, pesticide, TPH, metals (including hexavalent chromium) and general chemistry analyses.							
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	N/A							

**New Jersey/New York Expansion Project
Boring Summary Table**

Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10 ⁻² Feet/Day	10 ⁻² – 10 Feet/Day	>10 Feet/Day
Additional Comments/Notes/ Observations (if applicable)	Borehole backfilled with grout and restored to grade.		

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: RCH-4-ENV-28

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	5.05R							
Location (Latitude/Longitude) – estimated/surveyed	40° 38' 15.4759" N /74° 10' 48.5776" W - Surveyed							
Site Address	Boring is located approximately 1,190 feet southeast of the intersection of Richmond Terrace and Western Avenue in Staten Island, New York (no exact street address is available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	Utility easements and other pipelines for Proctor and Gamble are located approximately 370 feet east of the boring.							
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	A wetland area is located approximately 420 feet east of boring.							
Drilling Date	04/04/2012							
Drilling Company	Land Air Water Environmental Services							
Drilling Method	Hand Auger/ 2" Macrocore							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A							
Boring Purpose (e.g. geotech/ environmental/geoarchaeological)	Environmental							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
		X						
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed	Sheen Only	Floating Product = <6"	Floating Product = >6"				
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material			Anthropogenically-Generated Material				
	Asphalt (4" thick); gravel base (4"); dark brown, medium to fine sand, some medium to fine angular to sub-angular gravel, little silt to 2.0 ft bg, underlain by orange brown, medium to fine sand, little clay, trace medium to fine, rounded gravel, trace silt from 2.0 to 9.0 ft bg.							
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
PID/Odors (depth)	N/D							
Geology	FILL (see above) to 9.0 ft bg, underlain by red brown CLAY, little medium to fine, angular to rounded gravel, trace medium to fine sand from 9.0 to 16 ft bg, underlain by red, underlain by Brown, medium to fine SAND, trace silt from 16 to at least 20 ft bg.							
Soil Permeability	Loose		Intermediate			Tight		
			X					
Total Boring Depth (feet bg)	20							
GW Monitoring Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report ID JB3514, JB3410R, and JB3410.							
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	RCH-4-ENV-28/2 (2.0 to 2.5 feet bg) and RCH-4-ENV-28/7 (7.0 to 7.5 feet bg) were collected for VOC, SVOC, PCB, pesticide, TPH, metals (including hexavalent chromium) and general chemistry analyses. RCH-4-ENV-28-WC was collected for metals TCLP, TPH, and general chemistry analyses. RCH-4-ENV-28-WC/2 (2.0 to 2.5 ft bg), RCH-4-ENV-28-WC/4 (4.0 to 4.5 ft bg), RCH-4-ENV-28-WC/6 (6.0 to 6.5 ft bg), and RCH-4-ENV-28-WC/8 (8.0 to 8.5 ft bg) were collected for TPH and general chemistry analyses. RCH-4-ENV-27+28 COMP was collected for metals TCLP, RCRA characteristics, SVOC, PCB, pesticide, TPH, metals (including hexavalent chromium) and general chemistry analyses.							
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	N/A							

**New Jersey/New York Expansion Project
Boring Summary Table**

Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10 ⁻² Feet/Day	10 ⁻² – 10 Feet/Day	>10 Feet/Day
Additional Comments/Notes/ Observations (if applicable)	Borehole backfilled with grout and restored to grade.		

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: RCH-4-ENV-29W

Boring Information									
Alternate Boring ID (if applicable)	N/A								
Pipeline Mile Marker ID	5.09R								
Location (Latitude/Longitude) – estimated/surveyed	40° 38' 17.0855" N/74° 10' 48.2051" W - Surveyed								
Site Address	Boring is located approximately 1,000 feet southeast of the intersection of Richmond Terrace and Western Avenue in Staten Island, New York (no exact street address is available).								
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	Utility easements and other pipelines for Proctor and Gamble are located approximately 330 feet east of the boring.								
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	A wetland area is located approximately 435 feet southeast of boring.								
Drilling Date	04/04/2012								
Drilling Company	Land Air Water Environmental Services								
Drilling Method	Hand Auger/2" Macro core Hollow stem auger (well installation)								
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A								
Boring Purpose (e.g. geotech/environmental/geoarchaeological)	Environmental								
Boring Observations									
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20	
		X							
PRODUCT									
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No								
- Product in GW – Check where applicable	None Observed		Seen Only		Floating Product = <6"		Floating Product = >6"		
	X								
HISTORIC FILL MATERIAL									
- Composition, other observations – complete, as applicable	Reworked Material				Anthropogenically-Generated Material				
					Black asphalt and fine to coarse, gravel and brown, fine to coarse sand and silt, some fine to coarse gravel, trace concrete and wood to 3.0 ft bg.				
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1		
	X	X							
PID/Odors (depth)	N/D								
Geology	Fill (see above) to 3.0 ft bg, underlain by light brown/gray, fine to coarse SAND, little silt from 3.0 to 8.0 ft bg, underlain by red/brown CLAY, little fine to medium gravel from 8.0 to 10 ft bg, underlain by red/brown CLAY, trace fine to medium gravel from 10 to at least 20 ft bg.								
Soil Permeability	Loose		Intermediate			Tight			
			X						
Total Boring Depth (feet bg)	20								
GW Monitoring Well Installed (Depth, Screen, Riser, Slot Size, Casing)	0.8 to 14.71 ft. below surface - 3" diameter 0.010 slot PVC screen Total Depth of well = 14.71 feet bg as measured on 4/5/12								
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report ID JB3508, JB3515, JB3233, JB3410R, JB3410, and JB3514.								
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	RCH-4-ENV-29W/1 (1.0 to 1.5 feet bg) and RCH-4-ENV-29W/7 (7.0 to 7.5 feet bg) were collected for VOC, SVOC, PCB, pesticide, TPH, metals (including hexavalent chromium) and general chemistry analyses. RCH-4-ENV-29W-WC, RCH-4-ENV-29W-WC/2 (2.0 to 2.5 ft bg), RCH-4-ENV-29W-WC/4 (4.0 to 4.5 ft bg), RCH-4-ENV-29W-WC/6 (6.0 to 6.5 ft bg), and RCH-4-ENV-29W-WC/8 (8.0 to 8.5 ft bg) were collected for TPH and general chemistry analyses. RCH-4-ENV-29W+30 COMP was collected for VOC TCLP, SVOC TCLP, pesticide/herbicide TCLP, metals TCLP, RCRA characteristics, SVOC, PCB, pesticide, TPH, metals (including hexavalent chromium) and general chemistry analyses.								
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	RCH-4-ENV-29W was collected for VOCs, metals, PCBs, NYCDEP Sewer Use Discharge and SPDES.								

**New Jersey/New York Expansion Project
Boring Summary Table**

Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10 ⁻² Feet/Day	10 ⁻² – 10 Feet/Day	>10 Feet/Day
Additional Comments/Notes/ Observations (if applicable)	Borehole backfilled with grout and restored to grade.		

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: RCH-4-ENV-30

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	5.12R							
Location (Latitude/Longitude) – estimated/surveyed	40° 38' 19.1796" N/74° 10' 47.8787" W - Surveyed							
Site Address	Boring is located approximately 805 feet southeast of the intersection of Richmond Terrace and Western Avenue in Staten Island, New York (no exact street address is available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	Utility easements and other pipelines for Proctor and Gamble are located approximately 300 feet east of the boring.							
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	A wetland area is located approximately 540 feet southeast of boring.							
Drilling Date	04/05/2012							
Drilling Company	Land Air Water Environmental Services							
Drilling Method	Hand Auger/ 2" Macrocore							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A							
Boring Purpose (e.g. geotech/ environmental/geoarchaeological)	Environmental							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
		X						
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed	Sheen Only	Floating Product = <6"	Floating Product = >6"				
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material				Anthropogenically-Generated Material			
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
PID/Odors (depth)	N/D							
Geology	Asphalt and coarse to fine gravel to 1.0 ft bg, underlain by red brown, coarse to fine SAND and CLAY, some coarse to fine gravel, little cobbles from 1.0 to 4.0 ft bg, underlain by Red brown CLAY and coarse to fine GRAVEL from 4.0 to 8.0 ft bg, underlain by brown red SILT, little clay, trace coarse to fine gravel from 8.0 to 10 ft bg, underlain by red brown SILT and CLAY, little fine gravel from 10 to at least 20 ft bg.							
Soil Permeability	Loose		Intermediate			Tight		
			X					
Total Boring Depth (feet bg)	20							
GW Monitoring Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report ID JB3514.							
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	RCH-4-ENV-30/1 (1.0 to 1.5 feet bg) and RCH-4-ENV-30/5 (5.0 to 5.5 feet bg) were collected for VOC, SVOC, PCB, pesticide, TPH, metals (including hexavalent chromium) and general chemistry analyses. RCH-4-ENV-30-WC, RCH-4-ENV-30-WC/2 (2.0 to 2.5 ft bg), RCH-4-ENV-30-WC/4 (4.0 to 4.5 ft bg), RCH-4-ENV-30-WC/6 (6.0 to 6.5 ft bg), and RCH-4-ENV-30-WC/8 (8.0 to 8.5 ft bg) were collected for TPH and general chemistry analyses. RCH-4-ENV-29W+30 COMP was collected for VOC TCLP, SVOC TCLP, pesticide/herbicide TCLP, metals TCLP, RCRA characteristics, SVOC, PCB, pesticide, TPH, metals (including hexavalent chromium) and general chemistry analyses.							
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	N/A							
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug	<10⁻² Feet/Day			10⁻² – 10 Feet/Day			>10 Feet/Day	

**New Jersey/New York Expansion Project
Boring Summary Table**

test/packer test)			
Additional Comments/Notes/ Observations (if applicable)	Borehole backfilled with grout and restored to grade.		

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: RCH-4-ENV-31

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	5.16R							
Location (Latitude/Longitude) – estimated/surveyed	40° 38' 21.0551" N/74° 10' 47.5846" W - Surveyed							
Site Address	Boring is located approximately 600 feet southeast of the intersection of Richmond Terrace and Western Avenue in Staten Island, New York (no exact street address is available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	Utility easements and other pipelines for Proctor and Gamble are located approximately 270 feet east of the boring.							
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	An unnamed pond is located approximately 630 feet east of the boring.							
Drilling Date	04/03/2012							
Drilling Company	Land Air Water Environmental Services							
Drilling Method	Hand Auger/ 2" Macrocore							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A							
Boring Purpose (e.g. geotech/ environmental/geoarchaeological)	Environmental							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
		X						
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed	Sheen Only	Floating Product = <6"	Floating Product = >6"				
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material			Anthropogenically-Generated Material				
	Asphalt (3" thick); Gray brown, coarse to fine sand, some medium to fine, sub-angular to sub-rounded gravel, little silt to 1.0 ft bg, underlain by red brown, medium to fine, sand, some clay, little medium to fine, sub-angular to rounded, gravel, little silt from 1.0 to 3.0 ft bg.			Gray, medium to fine, angular to sub-angular gravel, little medium to fine sand, clay and concrete from 3.0 to 6.0 ft bg.				
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
		X	X					
PID/Odors (depth)	N/D							
Geology	Fill (see above) to 6.0 ft bg, underlain by red brown CLAY, some medium to fine, sub-angular to rounded gravel, little medium to fine, sand from 6.0 to at least 15 ft bg.							
Soil Permeability	Loose		Intermediate			Tight		
			X					
Total Boring Depth (feet bg)	15							
GW Monitoring Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report ID JB3229, JB3229R and JB3142.							
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	RCH-4-ENV-31/1 (1.0 to 1.5 feet bg) and RCH-4-ENV-31/7 (7.0 to 7.5 feet bg) were collected for VOC, SVOC, PCB, pesticide, TPH, metals (including hexavalent chromium) and general chemistry analyses. RCH-4-ENV-31-WC, RCH-4-ENV-31-WC/2 (2.0 to 2.5 ft bg), RCH-4-ENV-31-WC/4 (4.0 to 4.5 ft bg), RCH-4-ENV-31-WC/6 (6.0 to 6.5 ft bg), and RCH-4-ENV-31-WC/8 (8.0 to 8.5 ft bg) were collected for TPH and general chemistry analyses. RCH-4-ENV-31+32 COMP was collected for metals TCLP, RCRA characteristics, SVOC, PCB, pesticide, TPH, metals (including hexavalent chromium) and general chemistry analyses.							
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	N/A							

**New Jersey/New York Expansion Project
Boring Summary Table**

Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10 ⁻² Feet/Day	10 ⁻² – 10 Feet/Day	>10 Feet/Day
Additional Comments/Notes/ Observations (if applicable)	Borehole backfilled with soil cuttings and restored to grade.		

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: RCH-4-ENV-32

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	5.20R							
Location (Latitude/Longitude) – estimated/surveyed	40° 38' 22.8159" N/74° 10' 47.0922" W - Surveyed							
Site Address	Boring is located approximately 400 feet southeast of the intersection of Richmond Terrace and Western Avenue in Staten Island, New York (no exact street address is available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	Utility easements and other pipelines for Proctor and Gamble are located approximately 30 feet west of the boring.							
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	An unnamed pond is located approximately 605 feet east of the boring.							
Drilling Date	04/03/2012							
Drilling Company	Land Air Water Environmental Services							
Drilling Method	Hand Auger/ 2" Macrocore							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A							
Boring Purpose (e.g. geotech/ environmental/geoarchaeological)	Environmental							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
						X		
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed	Sheen Only	Floating Product = <6"	Floating Product = >6"				
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material				Anthropogenically-Generated Material			
	Asphalt (1" thick); Gray brown, medium to fine sand and medium to fine, angular to sub-angular gravel, trace silt and clay to 1.0 ft bg, underlain by dark brown, medium to fine sand, some medium to fine, sub-angular to rounded gravel, little silt, trace clay to 2.0 ft bg, underlain by orange brown, medium to fine sand, little medium to fine, sub-rounded to rounded gravel, little silt and clay to 4.0 ft bg.							
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
PID/Odors (depth)	N/D							
Geology	Fill (see above) to 4.0 ft bg, underlain by red brown CLAY, some medium to fine, rounded to sub-rounded gravel, little medium to fine sand from 4.0 to at least 20 ft bg.							
Soil Permeability	Loose		Intermediate			Tight		
			X					
Total Boring Depth (feet bg)	20							
GW Monitoring Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report ID JB3229, JB3229R and JB3142.							
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	RCH-4-ENV-32/1 (1.0 to 1.5 feet bg) and RCH-4-ENV-32/6 (6.0 to 6.5 feet bg) were collected for VOC, SVOC, PCB, pesticide, TPH, metals (including hexavalent chromium) and general chemistry analyses. RCH-4-ENV-32-WC, RCH-4-ENV-32-WC/2 (2.0 to 2.5 ft bg), RCH-4-ENV-32-WC/4 (4.0 to 4.5 ft bg), RCH-4-ENV-32-WC/6 (6.0 to 6.5 ft bg), and RCH-4-ENV-32-WC/8 (8.0 to 8.5 ft bg) were collected for TPH and general chemistry analyses. RCH-4-ENV-31+32 COMP was collected for metals TCLP, RCRA characteristics, SVOC, PCB, pesticide, TPH, metals (including hexavalent chromium) and general chemistry analyses.							

**New Jersey/New York Expansion Project
Boring Summary Table**

GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	N/A		
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10⁻² Feet/Day	10⁻² – 10 Feet/Day	>10 Feet/Day
Additional Comments/Notes/Observations (if applicable)	Borehole backfilled with soil cuttings and restored to grade.		

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: RCH-4-ENV-33W

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	5.24R							
Location (Latitude/Longitude) – estimated/surveyed	40° 38' 24.6661" N/74° 10' 46.7745" W - Surveyed							
Site Address	Boring is located approximately 215 feet southeast of the intersection of Richmond Terrace and Western Avenue in Staten Island, New York (no exact street address is available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	Utility easements and other pipelines for Proctor and Gamble are located approximately 42 feet west of the boring.							
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	An unnamed pond is located approximately 600 feet southeast of the boring.							
Drilling Date	04/02/2012							
Drilling Company	Land Air Water Environmental Services							
Drilling Method	Hand Auger/ 2" Macrocore							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A							
Boring Purpose (e.g. geotech/ environmental/geoarchaeological)	Environmental							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
			X					
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed	Sheen Only	Floating Product = <6"			Floating Product = >6"		
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material				Anthropogenically-Generated Material			
	Asphalt and fine to coarse gravel to 0.5 ft bg.							
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
PID/Odors (depth)	ND							
Geology	Fill (see above) to 0.5 ft bg, underlain by light brown, fine to coarse SAND, little fine to coarse, gravel from 0.5 to 6.0 ft bg, underlain by brown/red CLAY, some fine to coarse sand, little fine to coarse gravel from 6.0 to at least 20 ft bg.							
Soil Permeability	Loose			Intermediate			Tight	
				X				
Total Boring Depth (feet bg)	20							
GW Monitoring Well Installed (Depth, Screen, Riser, Slot Size, Casing)	0.75 to 14.98 ft. below surface - 3" diameter 0.010 slot PVC screen. Total depth of well = 14.98 feet bg as measured on 4/3/12.							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report ID JB93506, JB3233, JB3142R and JB3142.							
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	RCH-4-ENV-33W/3 (3.0 to 3.5 feet bg) and RCH-4-ENV-33W/7 (7.0 to 7.5 feet bg) were collected for VOC, SVOC, PCB, pesticide, TPH, metals (including hexavalent chromium) and general chemistry analyses. RCH-4-ENV-33W-WC, RCH-4-ENV-33W-WC/2 (2.0 to 2.5 ft bg), RCH-4-ENV-33W-WC/4 (4.0 to 4.5 ft bg), RCH-4-ENV-33W-WC/6 (6.0 to 6.5 ft bg), and RCH-4-ENV-33W-WC/8 (8.0 to 8.5 ft bg) were collected for TPH and general chemistry analyses. RCH-4-ENV-33W+34 COMP was collected for VOC TCLP, SVOC TCLP, pesticide/herbicide TCLP, metals TCLP, RCRA characteristics, SVOC, PCB, pesticide, TPH, metals (including hexavalent chromium) and general chemistry analyses.							
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	RCH-4-ENV-33W was collected for VOCs, metals, PCBs and SPDES analyses.							
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10⁻² Feet/Day			10⁻² – 10 Feet/Day			>10 Feet/Day	
Additional Comments/Notes/ Observations (if applicable)	Borehole backfilled with soil cuttings and restored to grade.							

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: RCH-4-ENV-34

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	5.27R							
Location (Latitude/Longitude) – estimated/surveyed	40° 38' 26.4555" N/74° 10' 46.7829" W - Surveyed							
Site Address	Boring is located approximately 40 feet east of the intersection of Richmond Terrace and Western Avenue in Staten Island, New York (no exact street address is available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	Utility easements and other pipelines for Proctor and Gamble are located approximately 30 feet west of the boring.							
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	An inlet to Newark Bay is located approximately 530 feet north of the boring.							
Drilling Date	04/02/2012							
Drilling Company	Land Air Water Environmental Services							
Drilling Method	Hand Auger/ 2" Macrocore							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A							
Boring Purpose (e.g. geotech/ environmental/geoarchaeological)	Environmental							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
			X					
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed		Sheen Only		Floating Product = <6"		Floating Product = >6"	
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material			Anthropogenically-Generated Material				
	Asphalt (1" thick); Gray to brown, coarse to fine sand and medium to fine, angular to sub-angular gravel, little silt, trace clay to 1.0 ft bg, underlain by red brown to brown, medium to fine, sand some coarse to fine, sub-angular to sub-rounded gravel, little silt, cobbles and clay from 1.0 to 4.0 ft bg.			Black medium to fine sand, little medium to fine, sub-rounded gravel, little silt, slag, coal, processed wood, cinders from 4.0 to 7.0 ft bg.				
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
		X	X	X				
PID/Odors (depth)	N/D							
Geology	Fill (see above) to 7.0 ft bg, underlain by red brown CLAY, little medium to fine, sub-angular to sub-rounded gravel and sand from 7.0 to at least 20 ft bg.							
Soil Permeability	Loose		Intermediate			Tight		
			X					
Total Boring Depth (feet bg)	20							
GW Monitoring Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report ID JB3142R and JB3142.							
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	RCH-4-ENV-34/2 (2.0 to 2.5 feet bg) and RCH-4-ENV-34/5 (5.0 to 5.5 feet bg) were collected for VOC, SVOC, PCB, pesticide, TPH, metals (including hexavalent chromium) and general chemistry analyses. RCH-4-ENV-34-WC, RCH-4-ENV-34-WC/2 (2.0 to 2.5 ft bg), RCH-4-ENV-34-WC/4 (4.0 to 4.5 ft bg), RCH-4-ENV-34-WC/6 (6.0 to 6.5 ft bg), and RCH-4-ENV-34-WC/8 (8.0 to 8.5 ft bg) were collected for TPH and general chemistry analyses. RCH-4-ENV-33W+34 COMP was collected for VOC TCLP, SVOC TCLP, pesticide/herbicide TCLP, metals TCLP, RCRA characteristics, SVOC, PCB, pesticide, TPH, metals (including hexavalent chromium) and general chemistry analyses.							
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	N/A							

**New Jersey/New York Expansion Project
Boring Summary Table**

Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10 ⁻² Feet/Day	10 ⁻² – 10 Feet/Day	>10 Feet/Day
Additional Comments/Notes/ Observations (if applicable)	Borehole backfilled with soil cuttings and restored to grade.		

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: RCH-4H-ENV-10

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	Approximately 50 feet southwest of 5.24R							
Location (Latitude/Longitude) – estimated/surveyed	40° 38' 24.9134" N / 74° 10' 47.4015" W – Surveyed							
Site Address	Boring is located approximately 200 feet south of the intersection of Richmond Terrace and Western Avenue in Staten Island, New York (no exact street address is available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	Utility easements and other pipelines for Proctor and Gamble are located approximately 15 feet east of the boring.							
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	An unnamed pond is located approximately 665 feet southeast of boring.							
Drilling Date	11/01/2011							
Drilling Company	Land Air Water Environmental Services							
Drilling Method	Hand Auger/ GeoProbe (soil samples)							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A							
Boring Purpose (e.g. geotech/ environmental/geoarchaeological)	Environmental							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
		X						
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed		Sheen Only		Floating Product = <6"		Floating Product = >6"	
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material				Anthropogenically-Generated Material			
	Asphalt roadway and gravel road base from 0.0 to 1.0 feet bg							
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
PID/Odors (depth)	No PID. No odor.							
Geology	Asphalt roadway and gravel road base from 0.0 to 1.0 feet bg, underlain by light brown fine to medium SAND; little clay, trace fine gravel from 1.0 to 3.0 ft bg, underlain by red brown, CLAY; some fine to medium sand, trace fine gravel from 3.0 to at least 15 ft bg.							
Soil Permeability	Loose		Intermediate		Tight			
			X					
Total Boring Depth (feet bg)	15							
GW Monitoring Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report ID JA90804 and JA90804R.							
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	RCH-4H-ENV-10/3.5 (3.5 to 4.0 feet bg) and RCH-4H-ENV-10/7 (7.0 to 7.5 feet bg) were collected for VOC, SVOC, PCB, pesticide, TPH, metals (including hexavalent chromium) and general chemistry analyses.							
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	N/A							
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10⁻² Feet/Day			10⁻² – 10 Feet/Day		>10 Feet/Day		
Additional Comments/Notes/Observations (if applicable)	Borehole backfilled with grout, bentonite chips, and black dyed concrete and restored to natural grade.							

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: RCH-4H-ENV-2W

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	Approximately 25 feet west of 4.83							
Location (Latitude/Longitude) – estimated/surveyed	40° 38' 4.6799" N/ 74° 10' 55.0290"W – Surveyed							
Site Address	Boring is located approximately 450 feet northeast of a bridge crossing a railroad bed on Western Avenue in Staten Island, New York (no exact street address is available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	Underground utility easements and pipelines are located approximately 65 feet southwest of boring.							
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	A small unnamed creek is located 200 feet southwest of boring. Old Place Creek is located approximately 2,300 feet southwest of boring. Boring is located in wetlands.							
Drilling Date	9/15/2011							
Drilling Company	Land Air Water Environmental Services							
Drilling Method	Hand Auger / GeoProbe (soil samples) Hollow Stem Auger (well installation)							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	Pump Test and Slug Test							
Boring Purpose (e.g. geotech/environmental/geoarchaeological)	Environmental							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
		X						
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed		Sheen Only		Floating Product = <6"		Floating Product = >6"	
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material				Anthropogenically-Generated Material			
	Asphalt from 0.0 to 1.0 feet bg, underlain by dark brown to brown, fine to medium sand; little fine to medium, sub-angular to sub-rounded gravel, trace silt; medium dense from 1.0 to 5.0 feet bg.							
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
PID/Odors (depth)	No PID. No odor.							
Geology	Asphalt from 0.0 to 1.0 foot bg, underlain by FILL from 1.0 foot bg to 5.0 feet bg (see above), underlain by brown, fine to medium SAND; trace silt; medium dense from 5.0 to 17 feet bg, underlain by gray, fine SAND; little silt; medium dense from 17 to 17.5 feet bg, underlain by red brown, fine to medium SAND; trace silt; dense from 17.5 to at least 21 feet bg.							
Soil Permeability	Loose		Intermediate		Tight			
			X					
Total Boring Depth (feet bg)	21							
GW Temporary Well Installed (Depth, Screen, Riser, Slot Size, Casing)	1.0 foot bg to 6.0 feet bg - 3 inch diameter PVC riser 6.0 feet bg to 21 feet bg – 3 inch diameter 0.010-slot PVC screen							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report IDs JA86430 and JA86430R.							
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	RCH-4H-ENV-2W/1 (1.0 to 1.5 feet bg) and RCH-4H-ENV-2W/4 (4.0 to 4.5 feet bg) were collected for VOC, SVOC, PCB, TPH, pesticide, herbicide, metals and general chemistry analyses.							
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	RCH-4H-ENV-2W was collected for NY SPDES, VOCs, SVOCs, PCBs, metals and pesticide analyses.							
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug	<10⁻² Feet/Day		10⁻² – 10 Feet/Day		>10 Feet/Day			

**New Jersey/New York Expansion Project
Boring Summary Table**

test/packer test)			
Additional Comments/Notes/ Observations (if applicable)	N/A		

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: RCH-4H-ENV-3

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	4.85							
Location (Latitude/Longitude) – estimated/surveyed	40° 38' 5.7252" N/74° 10' 54.3316" W– Surveyed							
Site Address	Boring is located approximately 580 feet northeast of a bridge crossing a small creek on Western Avenue in Staten Island, New York (no exact street address is available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	Utility easements and other pipelines for Proctor and Gamble are located approximately 65 feet northeast of the boring.							
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	A wetland area is located approximately 35 feet southwest of boring.							
Drilling Date	10/20/2011							
Drilling Company	Land Air Water Environmental Services							
Drilling Method	Hand Auger/ GeoProbe (soil samples)							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A							
Boring Purpose (e.g. geotech/ environmental/geoarchaeological)	Environmental							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
		X						
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed	Sheen Only	Floating Product = <6"	Floating Product = >6"				
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material			Anthropogenically-Generated Material				
	Asphalt/concrete (10" thick) and gravel road base (14" thick) from 0.0 to 2.0 feet bg.							
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
PID/Odors (depth)	Highest PID – 0.2 ppm at 2.5 feet bg. No odor.							
Geology	Asphalt from 0.0 to 2.0 feet bg, underlain by orange brown, fine to medium SAND; trace sub-angular, fine to coarse gravel, trace silt from 2.0 to 9.0 ft bg, underlain by light brown, fine to medium SAND; trace silt from 9.0 to at least 15 ft b g. Light gray sandy clay lens at 9.0ft bg.							
Soil Permeability	Loose		Intermediate			Tight		
	X							
Total Boring Depth (feet bg)	15							
GW Monitoring Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report ID JA89714.							
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	RCH-4H-ENV-3/2.5 (2.5 to 3.0 feet bg) and RCH-4H-ENV-3/6.5 (6.5 to 7.0 feet bg) were collected for VOC, SVOC, PCB, pesticide, TPH, metals (including hexavalent chromium) and general chemistry analyses.							
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	N/A							
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10⁻² Feet/Day		10⁻² – 10 Feet/Day			>10 Feet/Day		
Additional Comments/Notes/Observations (if applicable)	Borehole backfilled with grout, bentonite chips, black dyed concrete and restored to natural grade.							

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: RCH-4H-ENV-4

Boring Information									
Alternate Boring ID (if applicable)	N/A								
Pipeline Mile Marker ID	Approximately 55 feet west of 4.93R								
Location (Latitude/Longitude) – estimated/surveyed	40° 38' 9.4773" N/ 74° 10' 52.6495" W– Surveyed								
Site Address	Boring is located approximately 1,040 feet northeast of a bridge crossing a small creek on Western Avenue in Staten Island, New York (no exact street address is available).								
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	Utility easements and other pipelines for Proctor and Gamble are located approximately 60 feet northeast of the boring.								
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	A wetland area is located approximately 490 feet southwest of boring.								
Drilling Date	10/21/2011								
Drilling Company	Land Air Water Environmental Services								
Drilling Method	Hand Auger/ GeoProbe (soil samples)								
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A								
Boring Purpose (e.g. geotech/ environmental/geoarchaeological)	Environmental								
Boring Observations									
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20	
			X						
PRODUCT									
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No								
- Product in GW – Check where applicable	None Observed		Sheen Only		Floating Product = <6"		Floating Product = >6"		
	X								
HISTORIC FILL MATERIAL									
- Composition, other observations – complete, as applicable	Reworked Material				Anthropogenically-Generated Material				
	Asphalt/concrete (7" thick), concrete with gravel base and some fine to medium sand (13" thick) from 0.0 to 2.0 feet bg.								
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1		
PID/Odors (depth)	No PID. No odor.								
Geology	Asphalt from 0.0 to 2.0 feet bg, underlain by orange brown, fine to medium SAND; trace sub-angular, fine to coarse gravel, trace silt from 2.0 to 4.0 ft bg, underlain by dark to light brown, fine to medium SAND; some silt, little clay, trace fine to medium, sub-rounded gravel from 5.0 to 8.0 ft b g, underlain by orange brown, fine to medium SAND; trace silt from 8.0 to at least 15 ft bg.								
Soil Permeability	Loose		Intermediate			Tight			
	X								
Total Boring Depth (feet bg)	15								
GW Monitoring Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A								
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report ID JA89865 and JA89865R.								
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	RCH-4H-ENV-4/3.5 (3.5 to 4.0 feet bg) and RCH-4H-ENV-4/7.5 (7.5 to 8.0 feet bg) were collected for VOC, SVOC, PCB, pesticide, TPH, metals (including hexavalent chromium) and general chemistry analyses.								
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	N/A								
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10⁻² Feet/Day			10⁻² – 10 Feet/Day			>10 Feet/Day		
Additional Comments/Notes/Observations (if applicable)	Borehole backfilled with grout, bentonite chips, black dyed concrete and restored to natural grade.								

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: RCH-4H-ENV-5W

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	Approximately 25 feet west of 4.97R							
Location (Latitude/Longitude) – estimated/surveyed	40° 38' 11.7674"N / 74° 10' 51.3752"W – Surveyed							
Site Address	Boring is located approximately 1,565 feet south of the intersection Western Avenue and Richmond Terrace in Staten Island, New York (no exact street address is available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	Underground utility easements and pipelines are located approximately 185 feet south of boring.							
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	A portion of Bridge Creek is located 730 feet west of boring.							
Drilling Date	9/19/2011							
Drilling Company	Land Air Water Environmental Services							
Drilling Method	Hand Auger / GeoProbe (soil samples) Hollow Stem Auger (well installation)							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	Pump Test and Slug Test							
Boring Purpose (e.g. geotech/environmental/geoarchaeological)	Environmental							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
	X							
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed		Sheen Only		Floating Product = <6"		Floating Product = >6"	
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material				Anthropogenically-Generated Material			
	Asphalt (15") and gravel base from 0.0 to 1.5 feet bg.				Gray, fine to medium, angular to sub-angular gravel; some fine to coarse sand, trace silt; trace brick fragments from 1.5 to 3.5 feet bg.			
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
	X	X						
PID/Odors (depth)	No PID. Slight petroleum-like odor from 3.5 to 4.5 feet bg.							
Geology	Asphalt (15") and gravel base from 0.0 to 1.5 feet bg, underlain by FILL from 1.0 foot bg to 3.5 feet bg (see above), underlain by dark brown to black, fine to medium SAND; trace fine to coarse, sub-angular gravel, trace silt; slight petroleum-like odor; trace organic root material 3.5 to 4.5 feet bg, underlain by light brown to brown, fine to medium SAND; trace silt from 4.5 to 10 feet bg; trace fine gravel from 4.5 to 5.0 feet bg, underlain by red brown, fine to medium SAND; little silt 10 to at least 20 feet bg. Red brown, stiff clay layer with trace fine gravel from 12 to 13 feet bg.							
Soil Permeability	Loose			Intermediate		Tight		
				X				
Total Boring Depth (feet bg)	20							
GW Temporary Well Installed (Depth, Screen, Riser, Slot Size, Casing)	1.0 feet bg to 6.0 feet bg - 3 inch diameter PVC riser 6.0 feet bg to 16 feet bg – 3 inch diameter 0.010-slot PVC screen							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report IDs JA86686, JA86687, JA86559 and JA86559R.							
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	RCH-4H-ENV-5W/3.5 and RCH-4H-ENV-5W/3.5A (3.5 to 4.0 feet bg) and RCH-4H-ENV-5W/5.5 (5.5 to 6.0 feet bg) were collected for VOCs, SVOCs, PCBs, TPH, pesticide, herbicide, metals (including hexavalent chromium) and general chemistry analyses.							
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	RCH-4H-ENV-5W was collected for NYDEC Sewer Use Discharge parameters, NY SPDES, VOCs, SVOCs, PCBs, metals and pesticide analyses.							
Additional Hydro/Geological Test –	<10⁻² Feet/Day			10⁻² – 10 Feet/Day		>10 Feet/Day		

**New Jersey/New York Expansion Project
Boring Summary Table**

Permeability Results (e.g. pump test/slug test/packer test)			
Additional Comments/Notes/ Observations (if applicable)	Total depth of well was approximately 16 feet bg.		

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: RCH-4H-ENV-6

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	5.05R							
Location (Latitude/Longitude) – estimated/surveyed	40° 38' 15.1117" N / 74° 10' 49.2840" W – Surveyed							
Site Address	Boring is located approximately 1,200 feet south of the intersection of Richmond Terrace and Western Avenue in Staten Island, New York (no exact street address is available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	Utility easements and other pipelines for Proctor and Gamble are located approximately 400 feet east of the boring.							
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	A wetland area is located approximately 460 feet east of boring.							
Drilling Date	10/27/2011							
Drilling Company	Land Air Water Environmental Services							
Drilling Method	Hand Auger/ GeoProbe (soil samples)							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A							
Boring Purpose (e.g. geotech/ environmental/geoarchaeological)	Environmental							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
		X						
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed		Sheen Only		Floating Product = <6"		Floating Product = >6"	
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material				Anthropogenically-Generated Material			
	Asphalt (12" thick), black fine to coarse gravel and fine to coarse sand (12" thick) from 0.0 to 2.0 feet bg.							
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
PID/Odors (depth)	No PID. No odor.							
Geology	Asphalt from 0.0 to 2.0 feet bg, underlain by brown fine to medium SAND; some fine to coarse gravel from 2.0 to 4.0 ft bg, underlain by light brown SILT; some clay from 4.0 to 5.0 ft bg, underlain by light brown fine to medium SAND; little silt from 5.0 to 10 ft bg, underlain by red/brown CLAY; some silt; little fine gravel from 10 to at least 15 ft bg.							
Soil Permeability	Loose		Intermediate		Tight			
			X					
Total Boring Depth (feet bg)	15							
GW Monitoring Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report ID JA90403 and JA90403R.							
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	RCH-4H-ENV-6/3.5 (3.5 to 4.0 feet bg) and RCH-4H-ENV-6/7.5 (7.5 to 8.0 feet bg) were collected for VOC, SVOC, PCB, pesticide, TPH, metals (including hexavalent chromium) and general chemistry analyses.							
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	N/A							
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10⁻² Feet/Day		10⁻² – 10 Feet/Day		>10 Feet/Day			
Additional Comments/Notes/Observations (if applicable)	Borehole backfilled with grout, bentonite chips, black dyed concrete and restored to natural grade.							

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: RCH-4H-ENV-7

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	5.09R							
Location (Latitude/Longitude) – estimated/surveyed	40° 38' 16.6563" N / 74° 10' 48.6679" W – Surveyed							
Site Address	Boring is located approximately 1,000 feet south of the intersection of Richmond Terrace and Western Avenue in Staten Island, New York (no exact street address is available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	Utility easements and other pipelines for Proctor and Gamble are located approximately 455 feet east of the boring.							
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	A wetland area is located approximately 465 feet east of boring.							
Drilling Date	10/28/2011							
Drilling Company	Land Air Water Environmental Services							
Drilling Method	Hand Auger/ GeoProbe (soil samples)							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A							
Boring Purpose (e.g. geotech/ environmental/geoarchaeological)	Environmental							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
		X						
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed		Sheen Only		Floating Product = <6"		Floating Product = >6"	
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material				Anthropogenically-Generated Material			
	Asphalt and fine coarse gravel road base from 0.0 to 1.0 feet bg							
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
PID/Odors (depth)	No PID. No odor.							
Geology	Asphalt and fine coarse gravel road base from 0.0 to 1.0 feet bg, underlain by brown fine to medium SAND; little fine to coarse gravel from 1.0 to 4.0 ft bg, underlain by fine to medium SAND; little clay from 4.0 to 7.0 ft bg, underlain by red/brown fine to medium SAND and CLAY from 7.0 to 10 ft bg, underlain by Red/brown CLAY; little fine to medium sand; trace organic (vegetation) from 10 to at least 15 ft bg.							
Soil Permeability	Loose			Intermediate		Tight		
				X				
Total Boring Depth (feet bg)	15							
GW Monitoring Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report ID JA90574 and JA90574R.							
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	RCH-4H-ENV-7/3.5 (3.5 to 4.0 feet bg), RCH-4H-ENV-7/3.5A, and RCH-4H-ENV-7/6.5 (6.5 to 7.0 feet bg) were collected for VOC, SVOC, PCB, pesticide, TPH, metals (including hexavalent chromium) and general chemistry analyses.							
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	N/A							
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10⁻² Feet/Day			10⁻² – 10 Feet/Day		>10 Feet/Day		
Additional Comments/Notes/Observations (if applicable)	Borehole backfilled with grout, bentonite chips, black dyed concrete and restored to natural grade.							

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: RCH-4H-ENV-8W

Boring Information								
Alternate Boring ID (if applicable)	RCH-4H-ENV-8							
Pipeline Mile Marker ID	5.17R							
Location (Latitude/Longitude) – estimated/surveyed	40° 38' 21.3451" N / 74° 10' 47.9302" W – Surveyed							
Site Address	Boring located on Western Avenue on Port Authority property approximately 560 feet south of Richmond Terrace in Staten Island, New York (no exact street address available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	Proctor and Gamble utility easements and pipelines are located approximately 150 feet north of boring.							
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	Newark Bay is located approximately 1,100 feet north of boring. Wetlands are located approximately 980 feet southeast of boring.							
Drilling Date	10/24/2011							
Drilling Company	Land Air Water Environmental Services							
Drilling Method	Hand Auger / Macrocore / 2" / Direct Push							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A							
Boring Purpose (e.g. geotech/ environmental/geoarchaeological)	Environmental							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed	Sheen Only	Floating Product = <6"	Floating Product = >6"				
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material			Anthropogenically-Generated Material				
	1.0 to 2.0 feet bg - Brown, fine sand; some fine to coarse, sub-angular gravel, little reddish-brown silt. 2.0 to 3.0 feet bg - Reddish-brown silt; some brown, fine to medium sand, little fine to medium, sub-angular gravel.			N/A				
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
PID/Odors (depth)	No PID, no odor detected.							
Geology	Asphalt layer (5" thick) underlain by concrete mixed with gravel, some fine brown sand (base) to 1.0 foot bg, underlain by FILL to 3.0 feet bg, underlain by reddish-brown SILT; some clay, trace fine, sub-angular gravel to at least 20 feet bg. Water not encountered.							
Soil Permeability	Loose		Intermediate			Tight		
						X		
Total Boring Depth (feet bg)	20							
GW Temporary Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report ID JA90025.							
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	RCH-4H-ENV-8W/3.5 (3.5 to 4.0 feet bg) and RCH-4H-ENV-8W/7.0 (7.0 to 7.5 feet bg) were collected for VOC, SVOC, PCB, pesticide, herbicide, TPH, metals and general chemistry analyses.							
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	N/A							
Additional Hydro/Geological Test –	<10⁻² Feet/Day		10⁻² – 10 Feet/Day			>10 Feet/Day		

**New Jersey/New York Expansion Project
Boring Summary Table**

Permeability Results (e.g. pump test/slug test/packer test)			
Additional Comments/Notes/ Observations (if applicable)	No well installed, water not encountered during boring. Borehole backfilled with grout, bentonite chips, black dyed cement and restored to natural grade.		

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: RCH-4H-ENV-9

Boring Information									
Alternate Boring ID (if applicable)	N/A								
Pipeline Mile Marker ID	Approximately 40 feet west of 5.20R								
Location (Latitude/Longitude) – estimated/surveyed	40° 38' 23.0856" N / 74° 10' 47.6560" W – Surveyed								
Site Address	Boring is located approximately 385 feet south of the intersection of Richmond Terrace and Western Avenue in Staten Island, New York (no exact street address is available).								
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	Utility easements and other pipelines for Proctor and Gamble are located approximately 10 feet east of the boring.								
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	An unnamed pond is located approximately 655 feet east of boring.								
Drilling Date	10/31/2011								
Drilling Company	Land Air Water Environmental Services								
Drilling Method	Hand Auger/ GeoProbe (soil samples)								
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A								
Boring Purpose (e.g. geotech/ environmental/geoarchaeological)	Environmental								
Boring Observations									
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20	
		X							
PRODUCT									
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No								
- Product in GW – Check where applicable	None Observed		Sheen Only		Floating Product = <6"		Floating Product = >6"		
	X								
HISTORIC FILL MATERIAL									
- Composition, other observations – complete, as applicable	Reworked Material				Anthropogenically-Generated Material				
	Asphalt roadway and gravel road base from 0.0 to 1.0 feet bg								
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1		
PID/Odors (depth)	No PID. No odor.								
Geology	Asphalt roadway and gravel road base from 0.0 to 1.0 feet bg, underlain by brown fine to medium SAND; little silt from 1.0 to 4.0 ft bg, underlain by red/brown CLAY; fine to coarse gravel from 4.0 to at least 15 ft bg.								
Soil Permeability	Loose		Intermediate			Tight			
			X						
Total Boring Depth (feet bg)	15								
GW Monitoring Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A								
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report ID JA90684 and JA90684R.								
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	RCH-4H-ENV-9/3.5 (3.5 to 4.0 feet bg) and RCH-4H-ENV-9/7 (7.0 to 7.5 feet bg) were collected for VOC, SVOC, PCB, pesticide, TPH, metals (including hexavalent chromium) and general chemistry analyses.								
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	N/A								
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10⁻² Feet/Day			10⁻² – 10 Feet/Day			>10 Feet/Day		
Additional Comments/Notes/Observations (if applicable)	Borehole backfilled with grout, bentonite chips, and black dyed concrete and restored to natural grade.								

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: RCH-4-PIP-3

Boring Information									
Alternate Boring ID (if applicable)	N/A								
Pipeline Mile Marker ID	4.82R								
Location (Latitude/Longitude) – estimated/surveyed	40° 38' 1.9433" N/ 74° 10' 55.2457" W - Surveyed								
Site Address	Boring is located approximately 715 feet northeast of a bridge crossing a small creek on Western Avenue in Staten Island, New York (no exact street address is available).								
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	Utility easements and other pipelines for Proctor and Gamble are located approximately 50 feet north of the boring.								
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	A stream is located approximately 130 feet west of boring. The boring is located within the wetland area.								
Drilling Date	04/18/13 to 04/19/12								
Drilling Company	Land Air Water Environmental Services								
Drilling Method	Hand Auger/ Tri-cone roller bit								
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A								
Boring Purpose (e.g. geotech/ environmental/geoarchaeological)	Environmental								
Boring Observations									
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20	
			X						
PRODUCT									
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No								
- Product in GW – Check where applicable	None Observed		Sheen Only		Floating Product = <6"		Floating Product = >6"		
	X								
HISTORIC FILL MATERIAL									
- Composition, other observations – complete, as applicable	Reworked Material				Anthropogenically-Generated Material				
	Gray, fine to medium sand; some fine to medium sub-angular to sub-rounded gravel, trace silt from 2.0 to 6.0 ft bg, underlain by brown, fine sand; some fine to medium, sub-angular to sub-rounded gravel, trace silt from 6.0 to 8.0 ft bg.				Orange-brown, fine to medium sand; some fine to coarse, angular to sub-rounded gravel, trace silt, concrete pieces to 2.0 ft bg.				
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1		
	X								
PID/Odors (depth)	No PID. No odor.								
Geology	Fill (see above) to 8.0 feet bg, underlain by brown PEAT, some clay, trace silt from 8.0 to 11 ft bg, underlain by gray, medium to fine SAND, trace silt from 11 to 17 ft bg, underlain by brown, fine SAND, trace silt from 20 to at least 27 ft bg. Continuous drilling from 17 to 20 ft bg.								
Soil Permeability	Loose		Intermediate		Tight				
			X						
Total Boring Depth (feet bg)	27								
GW Monitoring Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A								
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	No samples collected.								
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	N/A								
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	N/A								
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10⁻² Feet/Day		10⁻² – 10 Feet/Day			>10 Feet/Day			
Additional Comments/Notes/Observations (if applicable)	Borehole grouted in accordance with N.J.A.C. 7:9D-3.1.								

**New Jersey/New York Expansion Project
Boring Summary Table**

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: RCH-5H-ENV-1W

Boring Information									
Alternate Boring ID (if applicable)	N/A								
Pipeline Mile Marker ID	5.32R								
Location (Latitude/Longitude) – estimated/surveyed	40° 38' 27.1845" N / 74° 10' 43.9593" W – Surveyed								
Site Address	Boring is located in Port Authority property on Richmond Terrace at the intersection of Catherine Place in Staten Island, New York (no exact street address available).								
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	A manhole is located 8 feet northwest of boring. A subsurface gas line is located 19 feet south of boring.								
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	Newark bay is located approximately 650 feet north of boring.								
Drilling Date	10/25/2011								
Drilling Company	Land Air Water Environmental Services								
Drilling Method	Hand Auger/ Macrocore/2"/Direct Push								
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	Slug Test								
Boring Purpose (e.g. geotech/ environmental/geoarchaeological)	Environmental								
Boring Observations									
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20	
			X						
PRODUCT									
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No								
- Product in GW – Check where applicable	None Observed		Seen Only		Floating Product = <6"		Floating Product = >6"		
	X								
HISTORIC FILL MATERIAL									
- Composition, other observations – complete, as applicable	Reworked Material				Anthropogenically-Generated Material				
	1.0 to 5.0 feet bg - Orange-brown, fine to medium sand; trace silt, trace fine to coarse, sub-angular gravel. Cobble at 3.0 feet bg. 5.0 to 10 feet bg - Dark brown, fine to medium sand; some silt, little clay, trace fine gravel.				N/A				
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1		
PID/Odors (depth)	Max PID = 85.9 ppm from 9.0 to 9.5 feet bg. Sewage-like odor from 5.0 to 10 feet bg.								
Geology	Asphalt layer (5" thick), underlain by concrete mixed with gravel from grade to 1.0 foot bg, underlain by FILL to 10 feet bg (see above), underlain by reddish brown SILT; little clay, trace sub-rounded gravel to at least 20 feet bg.								
Soil Permeability	Loose		Intermediate			Tight			
	X								
Total Boring Depth (feet bg)	20								
GW Temporary Well Installed (Depth, Screen, Riser, Slot Size, Casing)	0.58 to 15.70 feet bg - 3" diameter 0.010 slot PVC screen 0.58 to 15.70 ft. below surface - No. 01 sand								
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report IDs JA90265 and JA90105								
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	RCH-5H-ENV-1W/3.5 (3.5 to 4.0 feet bg) and RCH-5H-ENV-1W/7.0 (7.0 to 7.5 feet bg) was collected for VOC, SVOC, PCB, pesticide, herbicide, metals, TPH and general chemistry analyses.								
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	RCH-5H-ENV-1W was collected for VOC, metals, PCB and general chemistry analyses.								
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10⁻² Feet/Day			10⁻² – 10 Feet/Day		>10 Feet/Day			
				X					

**New Jersey/New York Expansion Project
Boring Summary Table**

Additional Comments/Notes/ Observations (if applicable)	Borehole backfilled with grout, bentonite chips, black dyed cement and restored to natural grade.
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**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: RCH-5H-ENV-2

Boring Information									
Alternate Boring ID (if applicable)	N/A								
Pipeline Mile Marker ID	Approximately 20 feet southeast of 5.36								
Location (Latitude/Longitude) – estimated/surveyed	40° 38' 27.3981" N/ 74° 10' 40.4933" W– Surveyed								
Site Address	Boring is located in on Richmond Terrace, approximately 500 feet east of the intersection of Western Avenue and Richmond Terrace in Staten Island, New York (no exact street address is available).								
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	A subsurface water pipeline is located approximately 30 feet north of the boring.								
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	Newark Bay is located approximately 575 feet north of boring.								
Drilling Date	10/26/2011								
Drilling Company	Land Air Water Environmental Services								
Drilling Method	Hand Auger/ GeoProbe (soil samples)								
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A								
Boring Purpose (e.g. geotech/ environmental/geoarchaeological)	Environmental								
Boring Observations									
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20	
		X							
PRODUCT									
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No								
- Product in GW – Check where applicable	None Observed		Sheen Only		Floating Product = <6"		Floating Product = >6"		
	X								
HISTORIC FILL MATERIAL									
- Composition, other observations – complete, as applicable	Reworked Material				Anthropogenically-Generated Material				
	Asphalt layer (5" thick) and concrete from 0.0 to 1.0 ft bg, underlain by brown silt and fine to coarse sand; some fine to coarse gravel from 1.0 to 2.0 feet bg, underlain by brown/red, fine sand and clay from 8.0 to 10 feet bg.				Black/brown fine to coarse sand and silt; some fine to coarse gravel from 2.0 to 8.0 ft bg; trace wood and coal fragments at 4.0 ft bg.				
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1		
		X	X	X					
PID/Odors (depth)	No PID. No odor.								
Geology	Asphalt from 0.0 to 1.0 feet bg, underlain by Fill from 1.0 to 10 feet bg (see above), underlain by red-brown CLAY and SILT; little fine gravel from 10 to at least 15 feet bg.								
Soil Permeability	Loose		Intermediate		Tight				
				X					
Total Boring Depth (feet bg)	15								
GW Monitoring Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A								
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report ID JA90265 and JA90265R.								
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	RCH-5H-ENV-2/2.5 (2.5 to 3.0 feet bg) and RCH-5H-ENV-2/7.5 (7.5 to 8.0 feet bg) were collected for VOC, SVOC, PCB, pesticide, TPH, metals (including hexavalent chromium) and general chemistry analyses.								
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	N/A								
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10⁻² Feet/Day		10⁻² – 10 Feet/Day			>10 Feet/Day			
Additional Comments/Notes/Observations (if applicable)	N/A								

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: RCH-5H-ENV-3W

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	Approximately 20 feet northeast of 5.38							
Location (Latitude/Longitude) – estimated/surveyed	40° 38' 27.5933" N/ 74° 10' 39.3371" W – Surveyed							
Site Address	Boring is located on Richmond Terrace, approximately 600 feet east of the intersection of Western Avenue and Richmond Terrace in Staten Island, New York (no exact street address is available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	A subsurface water pipeline is located approximately 5 feet north of the boring.							
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	Newark Bay is located approximately 500 feet north of boring.							
Drilling Date	9/19/2011							
Drilling Company	Land Air Water Environmental Services							
Drilling Method	Hand Auger / GeoProbe (soil samples) Hollow Stem Auger (well installation)							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A							
Boring Purpose (e.g. geotech/ environmental/geoarchaeological)	Environmental							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
				X				
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed	Sheen Only	Floating Product = <6"	Floating Product = >6"				
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material				Anthropogenically-Generated Material			
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
PID/Odors (depth)	No PID. No odor.							
Geology	Asphalt (5") and concrete layer containing coarse gravel from 0.0 to 1.0 feet bg, underlain by reddish brown, fine to medium SAND; little reddish brown soft clay, trace silt, trace fine to medium, sub-angular gravel from 1.0 foot bg to 3.0 feet bg, underlain by reddish brown CLAY; little fine to medium sand, trace fine to medium, sub-angular gravel; medium plasticity from 3.0 to 7.0 feet bg, underlain by reddish-brown SILT; little clay, trace fine sand, trace fine to medium, sub-angular gravel from 7.0 to 15 feet bg; Medium dense to very stiff from 10 to 15 feet bg; dark brown, fine to medium sand lens, wet and loose at 8.5 to 9.5 feet bg, underlain by reddish brown, fine SAND; trace silt from 15 to at least 20 feet bg.							
Soil Permeability	Loose			Intermediate		Tight		
				X				
Total Boring Depth (feet bg)	20.5							
GW Temporary Well Installed (Depth, Screen, Riser, Slot Size, Casing)	0.5 feet bg to 5.5 feet bg – 3" diameter PVC riser 5.5 feet bg to 20.5 feet bg – 3" diameter 0.010-slot PVC screen							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report IDs JA86686, JA86687, JA86559 and JA86559R.							
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	RCH-5H-ENV-3W/2 (2.0 to 2.5 feet bg) and RCH-5H-ENV-3W/8 (8.0 to 8.5 feet bg) were collected for VOCs, SVOCs, PCBs, TPH, pesticide, herbicide, metals (including hexavalent chromium) and general chemistry analyses.							
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	RCH-5H-ENV-3W was collected for NYDEC Sewer Use Discharge parameters, NY SPDES, VOCs, SVOCs, PCBs, metals and pesticide analyses.							
Additional Hydro/Geological Test –	<10⁻² Feet/Day			10⁻² – 10 Feet/Day		>10 Feet/Day		

**New Jersey/New York Expansion Project
Boring Summary Table**

Permeability Results (e.g. pump test/slug test/packer test)			
Additional Comments/Notes/ Observations (if applicable)	Installation depth of well was 20.5 feet bg. Total depth of well, measured on 9/20/11, was 18.13 feet bg.		

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: RCH-5H-ENV-4

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	Approximately 20 feet northwest of 5.41							
Location (Latitude/Longitude) – estimated/surveyed	40° 38' 27.8890" N/74° 10' 37.6570" W– Surveyed							
Site Address	Boring is located in on Richmond Terrace, approximately 700 feet east of the intersection of Western Avenue and Richmond Terrace in Staten Island, New York (no exact street address is available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	A subsurface water pipeline is located approximately 10 feet south of the boring.							
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	Newark Bay is located approximately 475 feet northwest of boring.							
Drilling Date	9/20/2011							
Drilling Company	Land Air Water Environmental Services							
Drilling Method	Hand Auger/ GeoProbe (soil samples)							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A							
Boring Purpose (e.g. geotech/ environmental/geoarchaeological)	Environmental							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
	X							
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed	Sheen Only	Floating Product = <6"	Floating Product = >6"				
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material			Anthropogenically-Generated Material				
	Asphalt layer (5" thick) and concrete with coarse gravel layer (19" thick) from 0.0 to 2.0 feet bg.			Light brown, fine to medium sand; little fine to medium, sub-angular gravel, little intermittent clumps of red clay, trace silt from 2.0 to 7.0 feet bg; trace pieces of brick and slight creosote-like odor from 3.0 to 4.0 feet bg; trace pieces of glass from 4.0 to 5.0 feet bg; trace pieces of plastic from 5.0 to 6.0 feet bg, underlain by reddish brown clay; little fine sand, little silt; trace pieces of glass from 7.0 to 8.0 feet bg.				
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
		X	X	X	X			
PID/Odors (depth)	PID throughout; highest PID - 14 ppm at 3.0 feet bg. Creosote- like odor from 3.0 to 4.0 feet bg.							
Geology	Asphalt from 0.0 to 2.0 feet bg, underlain by FILL from 2.0 to 8.0 feet bg (see above), underlain by red CLAY; little fine gravel, trace silt; very stiff from 8.0 to 13 feet bg; fine sand lens (2" thick) at 9 feet bg, underlain by red SILT; little fine to coarse, sub-angular gravel, trace fine sand; stiff from 13 to at least 15 feet bg.							
Soil Permeability	Loose			Intermediate		Tight		
						X		
Total Boring Depth (feet bg)	15							
GW Monitoring Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report ID JA86667 and JA86667R.							
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	RCH-5H-ENV-4/3 (3.0 to 3.5 feet bg) and RCH-5H-ENV-4/7 (7.0 to 7.5 feet bg) were collected for VOC, SVOC, PCB, pesticide, TPH, metals (including hexavalent chromium) and general chemistry analyses.							

**New Jersey/New York Expansion Project
Boring Summary Table**

GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	N/A		
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10⁻² Feet/Day	10⁻² – 10 Feet/Day	>10 Feet/Day
Additional Comments/Notes/Observations (if applicable)	N/A		

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: RCH-5H-ENV-5

Boring Information									
Alternate Boring ID (if applicable)	N/A								
Pipeline Mile Marker ID	5.4								
Location (Latitude/Longitude) – estimated/surveyed	40° 38' 28.2995" N / 74° 10' 35.7462" W– Surveyed								
Site Address	Boring is located on Richmond Terrace, approximately 740 feet northeast of the intersection of Richmond Terrace and Western Avenue in Staten Island, New York (no exact street address available).								
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	A subsurface sewer line is approximately 7 feet west of boring.								
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	Newark Bay is located approximately 700 feet north of boring.								
Drilling Date	10/28/11								
Drilling Company	Land Air Water Environmental Services								
Drilling Method	2"-Macrocore / GeoProbe								
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A								
Boring Purpose (e.g. geotech/ environmental/geoarchaeological)	Environmental								
Boring Observations									
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20	
	X								
PRODUCT									
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No								
- Product in GW – Check where applicable	None Observed		Sheen Only		Floating Product = <6"		Floating Product = >6"		
	X								
HISTORIC FILL MATERIAL									
- Composition, other observations – complete, as applicable	Reworked Material				Anthropogenically-Generated Material				
	Dark brown clay and fine sand; trace shell fragments from 2.0 to 3.0 feet bg, underlain by Dark brown and black, fine sand, little silt to 4.0 feet bg.				Trace wood chips (mulch) from 4.0 to 7.0 feet bg, trace red brick pieces from 7.0 to 8.0 feet bg.				
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1		
		X	X	X					
PID/Odors (depth)	Elevated PID readings (max = 3.1 ppm at 4.0 feet bg). Slight organic-like odor from 4.0 to 7.0 and 8.0 to 10 feet bg. Strong organic-like odor from 7.0 to 8.0 feet bg.								
Geology	Asphalt(5"), underlain by cement (1'), underlain by sandy base (7") from grade to 2.0 feet bg, underlain by FILL to 8.0 feet bg (see above), underlain by red-brown fine to medium SAND; some silt, trace fine, sub-angular gravel, some brittle rock fragments to 10 feet bg, underlain by red CLAY; some fine, angular gravel, little medium to coarse sand to at least 15 feet bg.								
Soil Permeability	Loose		Intermediate			Tight			
	X								
Total Boring Depth (feet bg)	15								
GW Temporary Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A								
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report ID JA90574								
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	RCH-5H-ENV-5/4 (4.0 to 4.5 feet bg) and RCH-5H-ENV-5/7 (7.0 to 7.5 feet bg) were collected for VOC, SVOC, PCB, TPH, pesticide, herbicide, metals and general chemistry analyses.								
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	N/A								
Additional Hydro/Geological Test –	<10⁻² Feet/Day			10⁻² – 10 Feet/Day		>10 Feet/Day			

**New Jersey/New York Expansion Project
Boring Summary Table**

Permeability Results (e.g. pump test/slug test/packer test)			
Additional Comments/Notes/ Observations (if applicable)	N/A		

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: RCH-5H-ENV-6.1W

Boring Information									
Alternate Boring ID (if applicable)	N/A								
Pipeline Mile Marker ID	5.48								
Location (Latitude/Longitude) – estimated/surveyed	40° 38' 28.4103" N / 74° 10' 33.0368" W – Surveyed								
Site Address	Boring is located on Richmond Terrace, approximately 1,080 feet east of the intersection of Richmond Terrace and Western Avenue in Staten Island, New York (no exact street address available)								
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	A subsurface water pipeline is located approximately 20 feet south of boring.								
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	Newark Bay is located approximately 800 feet north of boring.								
Drilling Date	10/27/2011								
Drilling Company	Land Air Water Environmental Services								
Drilling Method	2"-Macrocore / Geoprobe (soil samples) Hollow Stem Auger (well installation)								
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	Slug Test								
Boring Purpose (e.g. geotech/ environmental/geoarchaeological)	Environmental								
Boring Observations									
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20	
			X						
PRODUCT									
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No								
- Product in GW – Check where applicable	None Observed		Sheen Only		Floating Product = <6"		Floating Product = >6"		
	X								
HISTORIC FILL MATERIAL									
- Composition, other observations – complete, as applicable	Reworked Material				Anthropogenically-Generated Material				
	4.0 to 8.0 feet bg - orange-brown, fine to medium sand; little silt, trace clay pieces, trace fine to medium, sub-angular gravel.				Little concrete pieces (1-4" diameter) from 1.0 to 4.0 feet bg. Trace coal pieces from 8.0 to 10 feet bg.				
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1		
	X	X			X				
PID/Odors (depth)	N/D								
Geology	Asphalt (4" thick), underlain by concrete mixed with gravel from grade to 1.0 foot bg, underlain by FILL (see above) to 10 feet bg, underlain by reddish-brown SILT; some clay, trace fine, sub-angular gravel, trace organic material to 16 feet bg, underlain by reddish-brown, fine SAND to at least 20 feet bg.								
Soil Permeability	Loose		Intermediate			Tight			
	X								
Total Boring Depth (feet bg)	20								
GW Temporary Well Installed (Depth, Screen, Riser, Slot Size, Casing)	1.0 to 15.95 feet bg - 3" diameter 0.010 slot PVC screen 1.0 to 15.95 feet bg - No. 01 sand								
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report IDs JA90403 and JA90567								
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	RCH-5H-ENV-6.1W/3.5 (3.5 to 4.0 feet bg) and RCH-5H-ENV-6.1W/7.5 (7.5 to 8.0 feet bg) were collected for VOC, SVOC, PCB, TPH, pesticide, herbicide, metals and general chemistry analyses.								
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	RCH-5H-ENV-6.1W was collected for VOC, metals and general chemistry analyses.								
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10⁻² Feet/Day			10⁻² – 10 Feet/Day		>10 Feet/Day			
				X					

**New Jersey/New York Expansion Project
Boring Summary Table**

Additional Comments/Notes/ Observations (if applicable)	Borehole backfilled with grout, bentonite chips, black dyed cement and restored to grade.
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**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: RCH-5H-ENV-7

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	Approximately 65 feet southeast of 5.51R							
Location (Latitude/Longitude) – estimated/surveyed	40° 38' 28.1607" N / 74° 10' 30.4914" W – Surveyed							
Site Address	Boring is located on Richmond Terrace, approximately 1,075 feet northwest of the intersection of Richmond Terrace and Holland Avenue in Staten Island, New York (no exact street address available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	A subsurface sewer line is approximately 10 feet south of boring.							
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	Newark Bay is located approximately 715 feet northwest of boring.							
Drilling Date	10/31/11							
Drilling Company	Land Air Water Environmental Services							
Drilling Method	2"-Macrocore / GeoProbe							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A							
Boring Purpose (e.g. geotech/ environmental/geoarchaeological)	Environmental							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
			X					
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed	Seen Only	Floating Product = <6"	Floating Product = >6"				
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material				Anthropogenically-Generated Material			
	Asphalt layer (6" thick), cement and fine to coarse gravel (4" thick), dark brown, fine to medium sand, some fine to coarse, subangular gravel from 0.0 to 1.0 ft bg, underlain by dark brown, fine to medium sand; some fine to coarse, sub-angular gravel, little dimensional wood fragments, trace silt from 1.0 to 4.0 ft bg, underlain by red brown, fine to medium sand; little dimensional wood fragments, trace silt and sub-angular gravel from 4.0 to 5.0 ft bg.							
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
PID/Odors (depth)	No PID. No odor							
Geology	FILL from 0.0 to 5.0 ft bg (see above), underlain by red brown, fine to medium SAND; little silt, trace clay and fine, sub-angular gravel from 5.0 to 9.0 ft bg. Loose at 5.0 to 7.0 ft bg, medium dense 7.0 to 9.0 ft bg, underlain by red brown SILT; some clay from 9.0 to 15 ft bg; trace fine gravel 10 to at least 15 ft bg.							
Soil Permeability	Loose		Intermediate			Tight		
			X					
Total Boring Depth (feet bg)	15							
GW Temporary Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report ID JA90684 and JA90684R.							
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	RCH-5H-ENV-7/3 (3.0 to 3.5 feet bg) and RCH-5H-ENV-7/7.5 (7.5 to 8.0 feet bg) were collected for VOC, SVOC, PCB, TPH, pesticide, herbicide, metals and general chemistry analyses.							

**New Jersey/New York Expansion Project
Boring Summary Table**

GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	N/A		
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10⁻² Feet/Day	10⁻² – 10 Feet/Day	>10 Feet/Day
Additional Comments/Notes/Observations (if applicable)	Borehole backfilled with grout, bentonite chips, black dyed concrete and restored to natural grade.		

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: RCH-6-ARC-MT-11

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	Approximately 30 feet west of 5.66R							
Location (Latitude/Longitude) – estimated/surveyed	40°38'30.47"N / 74°10'23.44"W							
Site Address	Boring is located approximately 680 feet northwest of the intersection of Richmond Terrace and Holland Avenue in Staten Island, New York (no exact street address available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	An underground water pipe is located approximately 410 feet southwest of the test pit.							
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	The Newark Bay is located 310 feet northeast of the test pit.							
Drilling Date	3/07/12							
Drilling Company	The Napp-Grecco Company							
Drilling Method	Excavator							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A							
Boring Purpose (e.g. geotech/environmental/geoarchaeological)	Geoarchaeological							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
		X						
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed	Sheen Only	Floating Product = <6"	Floating Product = >6"				
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material			Anthropogenically-Generated Material				
	Asphalt and concrete sub-base to 0.83 ft bg, underlain by brown, fine to coarse sand; trace silt and sub-angular gravel from 1.58 to 1.83 ft bg, underlain by reddish brown silt and clay; trace sub-angular, fine gravel from 1.83 to 3.33 ft bg.			Dark brown silt and medium to coarse, loose sand; little medium to fine, sub-angular gravel, trace concrete from 0.83 to 1.58 ft bg, underlain by black coal ash, trace fine, sub-angular gravel from 3.33 to 3.5 ft bg, underlain by fine to coarse gravel and gray silt; some fine gray sand, trace concrete, red brick, and debris (glass bottles, scrap metal, glass, and ceramic plates) from 3.5 to at least 5.85 ft bg.				
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
	X	X	X					
PID/Odors (depth)	N/D							
Geology	Fill to at least 5.85 ft bg (see above).							
Soil Permeability	Loose		Intermediate			Tight		
			X					
Total Boring Depth (feet bg)	5.85							
GW Temporary Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report ID JB1033, JB1319 and JB1319R.							
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	RCH-6-ARC/MT-11 WC was collected for TPH and general chemistry analyses. RCH-6-ARC/MT(11+12) COMP WC was collected for VOC TCLP, SVOC TCLP, metals TCLP, pesticide/herbicide TCLP, RCRA characteristics, SVOC, metals, PCBs, TPH, pesticide/herbicide, and general chemistry analyses.							
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	N/A							
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10 ⁻² Feet/Day		10 ⁻² – 10 Feet/Day			>10 Feet/Day		

**New Jersey/New York Expansion Project
Boring Summary Table**

Additional Comments/Notes/ Observations (if applicable)	Location was a test pit used for subsurface evaluation.
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**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: RCH-6-ARC-MT-12

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	5.68R							
Location (Latitude/Longitude) – estimated/surveyed	40°38'30.47"N / 74°10'22.25"W							
Site Address	Boring is located approximately 620 feet northwest of the intersection of Richmond Terrace and Holland Avenue in Staten Island, New York (no exact street address available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	An underground water pipe is located approximately 455 feet southwest of the test pit.							
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	The Newark Bay is located 255 feet northeast of the test pit.							
Drilling Date	3/06/12							
Drilling Company	The Napp-Grecco Company							
Drilling Method	Excavator							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A							
Boring Purpose (e.g. geotech/environmental/geoarchaeological)	Geoarchaeological							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
		X						
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed		Sheen Only		Floating Product = <6"		Floating Product = >6"	
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material				Anthropogenically-Generated Material			
	Asphalt and concrete sub-base to 0.67 ft bg, underlain by brownish-red silt and fine sand, some gravel from 0.67 to 1.25 ft bg.				Black coal ash, brown silt, some fine sand, trace fine gravel, red brick, and debris (timbers, glass bottles, ceramic) from 1.25 to 3.0 ft bg, underlain by gray silt with coarse to medium sub-angular gravel; little medium to coarse, loose sand, trace red brick and timbers from 3.0 to at least 5.0 ft bg.			
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
	X	X	X					
PID/Odors (depth)	N/D							
Geology	Fill to at least 5.0 ft bg (see above).							
Soil Permeability	Loose			Intermediate			Tight	
				X				
Total Boring Depth (feet bg)	5.0							
GW Temporary Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report ID JB1033, JB1319 and JB1319R.							
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	RCH-6-ARC/MT-12 WC was collected for TPH and general chemistry analyses. RCH-6-ARC/MT(11+12) COMP WC was collected for VOC TCLP, SVOC TCLP, metals TCLP, pesticide/herbicide TCLP, RCRA characteristics, SVOC, metals, PCBs, TPH, pesticide/herbicide, and general chemistry analyses.							
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	N/A							
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10⁻² Feet/Day			10⁻² – 10 Feet/Day			>10 Feet/Day	

**New Jersey/New York Expansion Project
Boring Summary Table**

Additional Comments/Notes/ Observations (if applicable)	Location was a test pit used for subsurface evaluation.
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**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: RCH-6-ARC-MT-9

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	Approximately 20 feet west of 5.63R							
Location (Latitude/Longitude) – estimated/surveyed	40°38'30.57"N / 74°10'25.67"W							
Site Address	Boring is located approximately 815 feet northwest of the intersection of Richmond Terrace and Holland Avenue in Staten Island, New York (no exact street address available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	An underground water pipe is located approximately 340 feet south of the test pit.							
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	The Newark Bay is located 405 feet northeast of the test pit.							
Drilling Date	3/08/12							
Drilling Company	The Napp-Grecco Company							
Drilling Method	Excavator							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A							
Boring Purpose (e.g. geotech/environmental/geoarchaeological)	Geoarchaeological							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
		X						
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed			Sheen Only		Floating Product = <6"		Floating Product = >6"
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material				Anthropogenically-Generated Material			
	Asphalt and gray, medium to fine sand and fine sub-angular gravel sub-base to 0.5 ft bg.				Brownish-red silt and medium soft clay; trace sub-angular gravel and red brick from 0.5 to 3.5 ft bg, underlain by gray, fine to coarse, sub-angular gravel; little coarse sand, trace debris (wood timbers, glass bottles, red brick, sea shells, concrete) from 3.5 to at least 8.0 ft bg.			
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
	X	X	X	X				
PID/Odors (depth)	N/D							
Geology	Fill to at least 8.0 ft bg (see above).							
Soil Permeability	Loose			Intermediate		Tight		
				X				
Total Boring Depth (feet bg)	8.0							
GW Temporary Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report ID JB1510, JB1510R, JB1190 and JB1190R.							
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	RCH-6-ARC/MT-9 WC was collected for PCB, TPH and general chemistry analyses. RCH-6-ARC/MT(7+9) COMP WC was collected for VOC TCLP, SVOC TCLP, metals TCLP, pesticide/herbicide TCLP, RCRA characteristics, SVOC, metals, PCBs, TPH, pesticide/herbicide, and general chemistry analyses.							
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	N/A							
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10 ⁻² Feet/Day			10 ⁻² – 10 Feet/Day		>10 Feet/Day		
Additional Comments/Notes/Observations (if applicable)	Location was a test pit used for subsurface evaluation.							

**New Jersey/New York Expansion Project
Boring Summary Table**

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: RCH-6-ENV-1

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	Approximately 14 feet bg northeast of 5.53R							
Location (Latitude/Longitude) – estimated/surveyed	40° 38' 29.7231" N/74° 10' 30.7726" W – Surveyed							
Site Address	Boring is located approximately 215 feet west of a NYDOT parking lot on Richmond Terrace in Staten Island, New York (no exact street address is available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	A subsurface water pipeline is located approximately 165 feet south of boring.							
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	Newark Bay is located approximately 665 feet north of boring. Boring is located within wetlands.							
Drilling Date	7/20/2011							
Drilling Company	Land Air Water Environmental Services							
Drilling Method	2"-Macrocore / GeoProbe (soil samples)							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A							
Boring Purpose (e.g. geotech/environmental/geoarchaeological)	Environmental							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
		X						
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed		Sheen Only		Floating Product = <6"		Floating Product = >6"	
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material				Anthropogenically-Generated Material			
					Brown coarse to fine sand with trace gravel, coal/ash/cinder fragments, and brick pieces from grade to 4 feet bg.			
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
	X	X						
PID/Odors (depth)	3.0 ppm at 4.5 feet bg. No odor detected.							
Geology	Fill from grade to 4 feet bg (see above), underlain by black PEAT from 4 to 5 feet bg, underlain by red brown fine SAND with little silt from 5 to 10 feet bg, underlain by brown PEAT; little silt, trace roots from 10 to 12 feet bg, underlain by red brown CLAY; little medium to fine sand and trace medium to fine, rounded gravel to at least 15 feet bg.							
Soil Permeability	Loose		Intermediate			Tight		
			X					
Total Boring Depth (feet bg)	15							
GW Monitoring Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report IDs JA81439, JA81299R and JA81299.							
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	RCH6ENV1/2 (2.0 to 2.5 feet bg) and RCH6ENV1/7 (7.0 to 7.5 feet bg) were collected for VOC, SVOC, PCB, TPH, pesticide, herbicide, metals (including hexavalent chromium) and general chemistry analyses.							
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	N/A							
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10⁻² Feet/Day			10⁻² – 10 Feet/Day			>10 Feet/Day	
Additional Comments/Notes/Observations (if applicable)	N/A							

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: RCH-6-ENV-2W

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	5.56R							
Location (Latitude/Longitude) – estimated/surveyed	40° 38' 31.1547"N / 74° 10' 30.6348"W – Surveyed							
Site Address	Boring is located approximately 180 feet north of the intersection of Richmond Terrace and a Port Authority access road in Staten Island, New York (no exact street address is available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	A subsurface water pipeline is located approximately 300 feet south of boring							
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	Arthur Kill is located approximately 550 feet northwest of boring. Boring is located in wetlands.							
Drilling Date	7/19/2011							
Drilling Company	Land Air Water Environmental Services							
Drilling Method	2"-Macrocore / GeoProbe (soil samples) Hollow Stem Auger (well installation)							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	Pump Test and Slug Test							
Boring Purpose (e.g. geotech/environmental/geoarchaeological)	Environmental							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
	X							
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed	Sheen Only	Floating Product = <6"	Floating Product = >6"				
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material				Anthropogenically-Generated Material			
	Brown medium to fine sand; some silt, trace gravel from grade to 3.0 feet bg, underlain by gray angular gravel; little brown coarse sand to 5.0 feet bg.				Gray to dark gray medium to fine sand; little medium to fine angular gravel, trace silt, trace coal/cinder fragments from 5.0 to 10 feet bg.			
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
			X	X	X			
PID/Odors (depth)	Elevated PID readings (max = 548 ppm from 12.5 to 13 feet bg, 83.5 ppm at 15.5 feet bg). Odor detected from 10 to 20 feet bg.							
Geology	FILL from grade to 10 feet bg (see above), underlain by brown to dark brown PEAT; little silt, little clay, trace roots to 15 feet bg, underlain by gray medium to fine SAND; little silt, trace clay to at least 20 feet bg.							
Soil Permeability	Loose		Intermediate			Tight		
	X							
Total Boring Depth (feet bg)	20							
GW Temporary Well Installed (Depth, Screen, Riser, Slot Size, Casing)	Well Construction: Grade to 10 feet bg – 3 inch diameter 0.010-slot PVC screen Grade to 10 feet bg – No. 1 sand Next Day Measurements: Total depth of well: 10 feet bg Borehole backfilled to well depth.							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report IDs JA81299 and JA81454.							
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	RCH6ENV2W/1 (1.0 to 1.5 feet bg) and RCH6ENV2W/6 (6.0 to 6.5 feet bg) were collected for VOC, SVOC, PCB, TPH, pesticide, herbicide, metals and general chemistry analyses.							

**New Jersey/New York Expansion Project
Boring Summary Table**

GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	RCH-6-ENV-2W was collected for VOC, metals and general chemistry analyses.		
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10⁻² Feet/Day	10⁻² – 10 Feet/Day	>10 Feet/Day
			X
Additional Comments/Notes/Observations (if applicable)	N/A		

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: RCH-6-ENV-3

Boring Information								
Alternate Boring ID (if applicable)	RCH-6-ARC-3							
Pipeline Mile Marker ID	Approximately 23 feet bg southeast of 5.59R							
Location (Latitude/Longitude) – estimated/surveyed	40° 38' 30.5302" N/74° 10' 28.0339" W – Surveyed							
Site Address	Boring is located approximately 275 feet northwest of the northwest corner of a NYDOT parking lot on Richmond Terrace in Staten Island, New York (no exact street address is available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	A subsurface water pipeline is located approximately 290 feet south of the boring.							
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	Newark Bay is located approximately 680 feet northwest of boring. Boring is located in the wetlands.							
Drilling Date	7/20/2011							
Drilling Company	Land Air Water Environmental Services							
Drilling Method	2"-Macrocore / GeoProbe (soil samples)							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A							
Boring Purpose (e.g. geotech/environmental/geoarchaeological)	Environmental							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
		X						
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed	Sheen Only	Floating Product = <6"	Floating Product = >6"				
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material			Anthropogenically-Generated Material				
				Brown, medium to fine sand; some coarse to fine gravel, little silt, trace metal/brick fragments, sub-angular to sub-rounded, dry, loose from grade to 3 feet bg; concrete fragments at 1 foot bg and coal fragments at 2 feet bg; underlain by dark brown medium to fine sand with some coarse to fine gravel, little gray/brown clay, trace silt, wood material, cinders, coal and ceramic fragments, sub-rounded, and loose from 3 feet bg to 5 feet bg, underlain by dark gray to black medium to fine sand with some medium to fine, sub-rounded gravel, trace silt, and coal/cinders from 5 feet bg to 11 feet bg; shell fragments and wood material at 11 feet bg.				
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
	X	X	X	X	X	X		
PID/Odors (depth)	168 ppm at 14.0 feet bg. No odor detected.							
Geology	FILL to 11 feet bg (see above), underlain by brown PEAT; little silt, trace roots to at least 15 feet bg.							
Soil Permeability	Loose		Intermediate			Tight		
	X							
Total Boring Depth (feet bg)	15							
GW Monitoring Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report ID JA81439							

**New Jersey/New York Expansion Project
Boring Summary Table**

Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	RCH6ENV3/4 (4.0 to 4.5 feet bg) and RCH6ENV3/6 (6.0 to 6.5 feet bg) were collected for VOC, SVOC, PCB, pesticide, herbicide, metals (including hexavalent chromium) and general chemistry analyses.		
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	N/A		
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10⁻² Feet/Day	10⁻² – 10 Feet/Day	>10 Feet/Day
Additional Comments/Notes/Observations (if applicable)	N/A		

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: RCH-6-ENV-4

Boring Information								
Alternate Boring ID (if applicable)	RCH-6-ARC-4							
Pipeline Mile Marker ID	Approximately 20 feet bg southeast of 5.64R							
Location (Latitude/Longitude) – estimated/surveyed	40° 38' 30.4242" N/ 74° 10' 24.6928" W – Surveyed							
Site Address	Boring is located approximately 50 feet north of the northwest corner of a NYDOT parking lot on Richmond Terrace in Staten Island, New York (no exact street address is available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	A subsurface water pipeline is located approximately 390 feet south of boring.							
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	Newark Bay is located approximately 380 feet northeast of boring. Boring is located 60 feet west of wetlands.							
Drilling Date	7/18/2011							
Drilling Company	Land Air Water Environmental Services							
Drilling Method	2"-Macrocore / GeoProbe (soil samples)							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A							
Boring Purpose (e.g. geotech/environmental/geoarchaeological)	Environmental							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
		X						
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed	Seen Only	Floating Product = <6"	Floating Product = >6"				
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material				Anthropogenically-Generated Material			
	Asphalt surface with gravel grade to 0.3 feet bg.				Brown clay; little medium to fine gravel and sand; trace coal fragments, wood, and metal materials from 0.3 to 3.0 ft bg. Gray to black medium to fine sand; little medium to fine gravel, trace cinders from 3.0 to 11 ft bg. Trace wood material from 5.0 to 11 ft bg.			
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
	X	X	X	X	X	X		
PID/Odors (depth)	12.9 ppm at 13.0 feet bg. No odor detected.							
Geology	Asphalt and gravel surface from grade to 0.3 feet bg, underlain by FILL to 11 feet bg (see above), underlain by dark brown PEAT; little silt, trace roots to at least 15 feet bg.							
Soil Permeability	Loose		Intermediate			Tight		
	X							
Total Boring Depth (feet bg)	15							
GW Monitoring Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report IDs JA81299R and JA81299.							
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	RCH6ENV4/2 (2.0 to 2.5 feet bg) and RCH6ENV4/8 (8.0 to 8.5 feet bg) were collected for VOC, SVOC, PCB, TPH, pesticide, herbicide, metals (including hexavalent chromium) and general chemistry analyses.							
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	N/A							
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10⁻² Feet/Day			10⁻² – 10 Feet/Day		>10 Feet/Day		

**New Jersey/New York Expansion Project
Boring Summary Table**

Additional Comments/Notes/ Observations (if applicable)	N/A
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**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: RCH-6-ENV-5W

Boring Information									
Alternate Boring ID (if applicable)	N/A								
Pipeline Mile Marker ID	5.68R								
Location (Latitude/Longitude) – estimated/surveyed	40° 38' 30.3747"N / 74° 10' 22.1555"W – Surveyed								
Site Address	Boring is located approximately 50 feet north of the northeast corner of a NYDOT parking lot on Richmond Terrace in Staten Island, New York (no exact street address is available).								
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	A subsurface water pipeline is located approximately 450 feet southwest of boring.								
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	Newark Bay is located approximately 330 feet northeast of boring. Boring is located in wetlands.								
Drilling Date	7/19/2011								
Drilling Company	Land Air Water Environmental Services								
Drilling Method	2"-Macrocore / GeoProbe (soil samples) Hollow Stem Auger (well installation)								
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	Slug Test								
Boring Purpose (e.g. geotech/environmental/geoarchaeological)	Environmental								
Boring Observations									
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20	
	X								
PRODUCT									
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No								
- Product in GW – Check where applicable	None Observed		Sheen Only		Floating Product = <6"		Floating Product = >6"		
	X								
HISTORIC FILL MATERIAL									
- Composition, other observations – complete, as applicable	Reworked Material				Anthropogenically-Generated Material				
	Brown medium to fine sand; little medium to fine sub-rounded gravel, trace silt from 0.8 to 1.5 feet bg				Gray to black medium to fine sand; some medium to fine sub-rounded gravel, trace silt, trace coal/cinder fragments from 1.5 to 10 feet bg. Trace wood material from 5.0 to 10 feet bg.				
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1		
	X	X	X	X	X				
PID/Odors (depth)	Elevated PID readings (max = 79.3 ppm from 15.5 to 16 feet bg). Odor at 15 feet bg.								
Geology	Asphalt and gravel surface from grade to 0.8 feet bg, underlain by FILL to 10 feet bg (see above), underlain by brown PEAT; little silt, trace roots to 16.5 feet bg, underlain by gray medium to fine SAND; little clay, trace fine sub-rounded gravel to at least 20 feet bg.								
Soil Permeability	Loose		Intermediate			Tight			
	X								
Total Boring Depth (feet bg)	20								
GW Temporary Well Installed (Depth, Screen, Riser, Slot Size, Casing)	Well Construction: Grade to 15 feet bg – 3 inch diameter 0.010-slot PVC screen Grade to 15 feet bg – No. 1 sand Next Day Measurements: Total depth of well: 15 feet bg Borehole backfilled to well depth.								
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report IDs JA81454 and JA81299.								
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	RCH6ENV5W/2 (2.0 to 2.5 feet bg) and RCH6ENV5W/6 (6.0 to 6.5 feet bg) were collected for VOC, SVOC, PCB, TPH, pesticide, herbicide, metals and general chemistry analyses.								
GW Samples Collected - Sample ID(s) and	RCH-6-ENV-5W was collected for VOC, metals and general chemistry analyses.								

**New Jersey/New York Expansion Project
Boring Summary Table**

Sampling Parameter(s)			
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10⁻² Feet/Day	10⁻² – 10 Feet/Day	>10 Feet/Day
		X	
Additional Comments/Notes/Observations (if applicable)	N/A		

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: RCH-6-HDD-1

Boring Information									
Alternate Boring ID (if applicable)	B-29 (SI)								
Pipeline Mile Marker ID	5.67R								
Location (Latitude/Longitude) – estimated/surveyed	40°38'30.73"N / 74°10'22.08"W - Surveyed								
Site Address	3551 Richmond Terrace Road, Staten Island, New York.								
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	Boring is located in the back storage lot of NYDOT property.								
Nearby Hydraulic Features (Distance and Direction from wetlands, piping, etc.)	Boring is located approximately 390 feet west of the mouth of the Arthur Kill – Newark Bay.								
Drilling Date	11/8/2010								
Drilling Company	Warren George, Inc.								
Drilling Method	Mud Rotary / Tri-cone Roller Bit								
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A								
Boring Purpose (e.g. geotech/ environmental/geoarchaeological)	Geotechnical (HDD entry point)								
Boring Observations									
Depth to saturation (feet bg) – Check where applicable	0.0 - 2.0	2.1 - 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20	
	X								
PRODUCT									
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No								
- Product in GW – Check where applicable	None Observed	Sheen Only	Floating Product = <6"	Floating Product = >6"					
	X								
HISTORIC FILL MATERIAL									
- Composition, other observations – complete, as applicable	Reworked Material				Anthropogenically-Generated Material				
	Dark gray fine to coarse SAND, some fine gravel, trace silt, trace shells from 1.0 to 2.0 feet bg.				Brick and pottery pieces from 2.0 to 7.0 feet bg.				
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1		
	*	X	X	X					
PID/Odors (depth)	ND								
Geology	Asphalt from grade to 1.0 foot bg, underlain by FILL to 7.0 feet bg (see above), underlain by PEAT (decomposing plant matter and organic silt) to at least 17.0 feet bg. Reddish-brown medium to coarse SAND was encountered in a core recovered from 20.0 to 22.0 feet bg. Continuous drilling from 9.0 to 10.0 feet bg, 14.0 to 15.0 feet bg and 17.0 to 20.0 feet bg – no cores were collected.								
Soil Permeability	Loose		Intermediate			Tight			
	X								
Total Boring Depth (feet bg)	22								
GW Monitoring Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A								
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	N/A								
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	N/A								
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	N/A								
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10⁻² Feet/Day			10⁻² – 10 Feet/Day			>10 Feet/Day		
Additional Comments/Notes/Observations (if applicable)	Abundant water and loose fill right below asphalt—drillers had to drive casing in order to keep the bore hole open from grade to 7.0 feet bg.								

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: RCH-MM-ENV-10W

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	Approximately 385 feet south of 5.37							
Location (Latitude/Longitude) – estimated/surveyed	40° 38' 23.8068" N/74° 10' 40.2699" W– Surveyed							
Site Address	Boring is located in a wooded area, approximately 635 feet east of the intersection of Richmond Terrace and Holland Avenue in Staten Island, New York (no exact street address available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	Utility easements are located approximately 305 feet west of boring.							
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	An unnamed pond is located approximately 80 feet east of boring.							
Drilling Date	11/29/11							
Drilling Company	Land Air Water Environmental Services							
Drilling Method	Hand Auger/2"-Macrocore/Hollow Stem Auger							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	Pump test							
Boring Purpose (e.g. geotech/environmental/geoarchaeological)	Environmental							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
			X					
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed	Sheen Only	Floating Product = <6"	Floating Product = >6"				
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material				Anthropogenically-Generated Material			
	brown sand; some silt, little reddish-brown soft clay, trace fine to medium gravel from 2.0 to 5.0 ft bg.				Brown sand; some silt, trace fine to coarse gravel, trace ceramic tile, trace glass, trace cobble to 2.0 ft bg.			
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
	X							
PID/Odors (depth)	Highest PID – 2.2 at 0.5 ft bg. No odor.							
Geology	FILL (see above) to 5.0 ft bg, underlain by reddish-brown CLAY; some silt, trace fine, subangular gravel from 5.0 to 6.0 ft bg, underlain by brown, fine to medium SAND; little silt. from 6.0 to 7.0 ft bg, underlain by reddish-brown CLAY; some silt, trace fine, subangular gravel from 7.0 to 12.5 ft bg, underlain by reddish-brown fine SAND, little silt, trace fine, subangular gravel from 12.5 to 17.5 ft bg, underlain by reddish-brown CLAY; trace silt, trace fine, subangular gravel from 17.5 to at least 20 ft bg.							
Soil Permeability	Loose		Intermediate			Tight		
						X		
Total Boring Depth (feet bg)	20							
GW Temporary Well Installed (Depth, Screen, Riser, Slot Size, Casing)	0.5 to 15.44 ft below surface - 3" diameter 0.010 slot PVC screen							
Laboratory Name and Report No. (if samples collected)	Accutest Laboratories, Lab Report ID JA93237, JA93099, and JA93099A.							
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	RCH-MM-ENV-10W/0.5 (0.5 to 1.0 feet bg) and RCH-MM-ENV-10W/7.5 (7.5 to 8.0 feet bg) were collected for VOC, SVOC, PCB, TPH, pesticide, herbicide, metals and general chemistry analyses.							
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	RCH-MM-ENV-10W was collected for SPDES, VOC, SVOC, PCB, TPH, pesticide, herbicide, metals and general chemistry analyses.							
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10⁻² Feet/Day		10⁻² – 10 Feet/Day			>10 Feet/Day		
			X					

New Jersey/New York Expansion Project
Boring Summary Table

Additional Comments/Notes/ Observations (if applicable)	N/A
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**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: RCH-MM-ENV-11

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	Approximately 250 feet south of 5.37							
Location (Latitude/Longitude) – estimated/surveyed	40° 38' 25.0316" N/74° 10' 40.2767" W– Surveyed							
Site Address	Boring is located in a wooded area, approximately 575 feet southeast of the intersection of Richmond Terrace and Western Avenue in Staten Island, New York (no exact street address available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	A subsurface sewer line is approximately 265 feet north of boring.							
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	An unnamed pond is located approximately 190 feet southeast of boring.							
Drilling Date	11/28/11							
Drilling Company	Land Air Water Environmental Services							
Drilling Method	Hand Auger/2"-Macrocore / GeoProbe							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A							
Boring Purpose (e.g. geotech/ environmental/geoarchaeological)	Environmental							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
		X						
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed	Sheen Only	Floating Product = <6"	Floating Product = >6"				
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material				Anthropogenically-Generated Material			
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
PID/Odors (depth)	No PID. No odors.							
Geology	Brown SILT; and organics (roots) from 0.0 to 0.5 ft bg, underlain by light brown, fine to coarse SAND; some silt and fine to coarse gravel, trace clay from 0.5 to 6.0 ft bg, underlain by red CLAY; some silt, trace fine to coarse gravel from 6.0 to 7.0 ft bg, underlain by Red brown SILT and CLAY, some fine to coarse gravel from 7.0 to 11 ft bg, underlain by brown, fine SAND from 11 to at least 15 ft bg.							
Soil Permeability	Loose		Intermediate			Tight		
			X					
Total Boring Depth (feet bg)	15							
GW Temporary Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report ID JA93029.							
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	RCH-MM-ENV-11/3 (3.0 to 3.5 feet bg) and RCH-MM-ENV-11/6 (6.0 to 6.5 feet bg) were collected for VOC, SVOC, PCB, TPH, pesticide, herbicide, metals and general chemistry analyses.							
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	N/A							
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10⁻² Feet/Day		10⁻² – 10 Feet/Day			>10 Feet/Day		
Additional Comments/Notes/Observations (if applicable)	N/A							

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: RCH-MM-ENV-12

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	Approximately 152 feet south of 5.37							
Location (Latitude/Longitude) – estimated/surveyed	40° 38' 26.1616" N/74° 10' 40.2003" W– Surveyed							
Site Address	Boring is located in a wooded area, approximately 555 feet southeast of the intersection of Richmond Terrace and Western Avenue in Staten Island, New York (no exact street address available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	A subsurface sewer line is approximately 150 feet north of boring.							
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	An unnamed pond is located approximately 260 feet southeast of boring.							
Drilling Date	11/28/11							
Drilling Company	Land Air Water Environmental Services							
Drilling Method	Hand Auger/2"-Macrocore / GeoProbe							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A							
Boring Purpose (e.g. geotech/environmental/geoarchaeological)	Environmental							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
		X						
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed		Sheen Only		Floating Product = <6"		Floating Product = >6"	
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material				Anthropogenically-Generated Material			
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
PID/Odors (depth)	No PID. No odors.							
Geology	Dark brown, fine to medium SAND; trace silt and fine to medium, sub-angular gravel from 0.0 to 1.0 ft bg, underlain by light orange brown, fine to medium SAND; little silt, trace natural wood fragments from 1.0 to 6.0 ft bg, underlain by orange brown, fine to medium SAND; trace silt from 6.0 to 10 ft bg, underlain by red brown CLAY; trace silt and fine, sub-angular gravel from 10 to 15 ft bg, underlain by red brown CLAY; trace silt and fine, sub-angular gravel from 15 to at least 20 ft bg. Red brown, fine sand lens at 17 ft bg.							
Soil Permeability	Loose			Intermediate		Tight		
				X				
Total Boring Depth (feet bg)	20							
GW Temporary Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report ID JA93029.							
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	RCH-MM-ENV-12/3.5 (3.5 to 4.0 feet bg) and RCH-MM-ENV-12/7.5 (7.5 to 8.0 feet bg) were collected for VOC, SVOC, PCB, TPH, pesticide, herbicide, metals and general chemistry analyses.							
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	N/A							
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10⁻² Feet/Day			10⁻² – 10 Feet/Day		>10 Feet/Day		
Additional Comments/Notes/Observations (if applicable)	N/A							

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: RCH-MM-ENV-13W

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	Approximately 80 feet southeast of 5.39							
Location (Latitude/Longitude) – estimated/surveyed	40° 38' 26.7713" N/74° 10' 39.8191" W – Surveyed							
Site Address	Boring is located in a wooded area, approximately 680 feet east of the intersection of Richmond Terrace and Holland Avenue in Staten Island, New York (no exact street address available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	A subsurface sewer line is approximately 90 feet north of boring.							
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	A wetland area is located approximately 400 feet northeast of boring.							
Drilling Date	11/28/11							
Drilling Company	Land Air Water Environmental Services							
Drilling Method	Hand Auger/2"-Macrocore/Hollow Stem Auger							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	Pump test							
Boring Purpose (e.g. geotech/environmental/geoarchaeological)	Environmental							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
			X					
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed		Sheen Only		Floating Product = <6"		Floating Product = >6"	
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material				Anthropogenically-Generated Material			
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
PID/Odors (depth)	Highest PID – 182 at 2.0 ft bg. No odor.							
Geology	Dark brown, fine to medium SAND; little fine to coarse, sub-angular gravel, trace silt from 0.0 to 1.0 ft bg, underlain by light brown, fine to medium SAND; trace silt and fine to coarse, sub-angular gravel from 1.0 to 2.0 ft bg, underlain by orange brown, fine to medium SAND; trace silt from 2.0 to 6.0 ft bg, underlain by light brown, fine to medium SAND; trace silt from 6.0 to 10 ft bg, underlain by Red brown CLAY, trace silt and fine sub-angular gravel from 10 to at least 20 ft bg. Fine sand lens at 18 ft bg.							
Soil Permeability	Loose			Intermediate		Tight		
				X				
Total Boring Depth (feet bg)	20							
GW Temporary Well Installed (Depth, Screen, Riser, Slot Size, Casing)	0.0 to 14.76 ft below surface - 3" diameter 0.010 slot PVC screen							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report ID JA93029, JA93110, and JA93133.							
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	RCH-MM-ENV-13W/2.0 (2.0 to 2.5 feet bg) and RCH-MM-ENV-13W/7.5 (7.5 to 8.0 feet bg) were collected for VOC, SVOC, PCB, TPH, pesticide, herbicide, metals and general chemistry analyses.							
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	RCH-MM-ENV-13W was collected for SPDES, VOC, SVOC, PCB, TPH, pesticide, herbicide, metals and general chemistry analyses							
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10⁻² Feet/Day			10⁻² – 10 Feet/Day		>10 Feet/Day		
				X				
Additional Comments/Notes/Observations (if applicable)	N/A							

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: RCH-MM-ENV-14

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	Approximately 75 feet south of 5.43							
Location (Latitude/Longitude) – estimated/surveyed	40° 38' 27.0829" N/74° 10' 37.4256" W– Surveyed							
Site Address	Boring is located in a wooded area, approximately 855 feet east of the intersection of Richmond Terrace and Western Avenue in Staten Island, New York (no exact street address available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	A subsurface sewer line is approximately 70 feet north of boring.							
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	An unnamed pond is located approximately 475 feet southwest of boring.							
Drilling Date	11/17/11							
Drilling Company	Land Air Water Environmental Services							
Drilling Method	Hand Auger							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A							
Boring Purpose (e.g. geotech/ environmental/geoarchaeological)	Environmental							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
		X						
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed		Seen Only		Floating Product = <6"		Floating Product = >6"	
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material				Anthropogenically-Generated Material			
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
PID/Odors (depth)	No PID. No odors.							
Geology	Brown, fine SAND and silt from 0.0 to 2.0 ft bg, underlain by light brown/orange, fine SAND from 2.0 to at least 6.0 ft bg.							
Soil Permeability	Loose			Intermediate			Tight	
	X							
Total Boring Depth (feet bg)	6							
GW Temporary Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report ID JA92420.							
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	RCH-MM-ENV-14/3 (3.0 to 3.5 feet bg), RCH-MM-ENV-14/3A (duplicate), and RCH-MM-ENV-14/5 (5.0 to 5.5 feet bg) were collected for VOC, SVOC, PCB, TPH, pesticide, herbicide, metals and general chemistry analyses.							
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	N/A							
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10⁻² Feet/Day			10⁻² – 10 Feet/Day			>10 Feet/Day	
Additional Comments/Notes/Observations (if applicable)	N/A							

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: RCH-MM-ENV-15

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	Approximately 80 feet south of 5.48							
Location (Latitude/Longitude) – estimated/surveyed	40° 38' 27.6543" N / 74° 10' 32.4707" W – Surveyed							
Site Address	Boring is located in a wooded area, approximately 1,120 feet east of the intersection of Richmond Terrace and Western Avenue in Staten Island, New York (no exact street address available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	A subsurface sewer line is approximately 66 feet north of boring.							
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	Newark Bay is located approximately 615 feet northwest of boring.							
Drilling Date	11/17/11							
Drilling Company	Land Air Water Environmental Services							
Drilling Method	Han Auger/2"-Macrocore / GeoProbe							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A							
Boring Purpose (e.g. geotech/ environmental/geoarchaeological)	Environmental							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
	X							
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed	Sheen Only	Floating Product = <6"	Floating Product = >6"				
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material				Anthropogenically-Generated Material			
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
PID/Odors (depth)	No PID. No odors.							
Geology	Brown, fine SAND and SILT; some fine to coarse gravel, little organic roots from 0.0 to 3.5 ft bg, underlain by red brown CLAY and fine SAND from 3.5 to 4.0 ft bg, underlain by red brown, fine to medium SAND and CLAY; trace fine to medium gravel from 4.0 to 10 ft bg, underlain by red brown CLAY; trace sub-angular gravel from 10 to 14 ft bg, underlain by red brown SILT; little clay, trace fine to medium gravel from 14 to 18 ft bg, underlain by red brown, fine SAND; trace silt from 18 to at least 20 ft bg.							
Soil Permeability	Loose		Intermediate			Tight		
			X					
Total Boring Depth (feet bg)	20							
GW Temporary Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report ID JA92264.							
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	RCH-MM-ENV-15/3 (3.0 to 3.5 feet bg) and RCH-MM-ENV-15/6 (6.0 to 6.5 feet bg) were collected for VOC, SVOC, PCB, TPH, pesticide, herbicide, metals and general chemistry analyses.							
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	N/A							
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10⁻² Feet/Day			10⁻² – 10 Feet/Day		>10 Feet/Day		
Additional Comments/Notes/	N/A							

New Jersey/New York Expansion Project
Boring Summary Table

Observations (if applicable)	
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**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: RCH-MM-ENV-16W

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	Approximately 110 feet southeast of 5.5R							
Location (Latitude/Longitude) – estimated/surveyed	40° 38' 27.3719" N/74° 10' 30.6865" W– Surveyed							
Site Address	Boring is located in a wooded area, approximately 1,095 feet east of the intersection of Richmond Terrace and Holland Avenue in Staten Island, New York (no exact street address available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	A subsurface sewer line is approximately 70 feet north of boring.							
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	A wetland area is located approximately 115 feet north of boring.							
Drilling Date	11/17/11							
Drilling Company	Land Air Water Environmental Services							
Drilling Method	Hand Auger/2"-Macrocore/Hollow Stem Auger							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A							
Boring Purpose (e.g. geotech/ environmental/geoarchaeological)	Environmental							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
				X				
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed	Sheen Only	Floating Product = <6"	Floating Product = >6"				
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material				Anthropogenically-Generated Material			
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
PID/Odors (depth)	Highest PID – 19.1 at 8.5 ft bg. No odor.							
Geology	Red brown, fine to medium SAND; trace silt, trace natural wood fragments from 0.0 to 4.0 ft bg, underlain by red brown SILT; some red brown, fine to medium sand, trace fine to coarse, subangular gravel from 4.0 to 6.0 ft bg, underlain by red brown CLAY; some to little silt, trace fine, subangular gravel from 6.0 to 18 ft bg, underlain by red brown, fine SAND from 18 to at least 20 ft bg.							
Soil Permeability	Loose		Intermediate			Tight		
								X
Total Boring Depth (feet bg)	20							
GW Temporary Well Installed (Depth, Screen, Riser, Slot Size, Casing)	0.0 to 5.0 ft. below surface - 3" diameter PVC riser 5.0 to 19.25 ft. below surface - 3" diameter 0.010 slot PVC screen							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report ID JA92420 and JA92552.							
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	RCH-MM-ENV-16W/3.5 (3.5 to 4.0 feet bg) and RCH-MM-ENV-16W/7 (7.0 to 7.5 feet bg) were collected for VOC, SVOC, PCB, TPH, pesticide, herbicide, metals and general chemistry analyses.							
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	RCH-MM-ENV-16W was collected for SPDES, VOC, SVOC, PCB, TPH, pesticide, herbicide, metals and general chemistry analyses							
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10⁻² Feet/Day			10⁻² – 10 Feet/Day		>10 Feet/Day		
				X				
Additional Comments/Notes/Observations (if applicable)	N/A							

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: RCH-MM-ENV-1W

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	Approximately 820 feet south of 4.97R							
Location (Latitude/Longitude) – estimated/surveyed	40° 38' 10.1421" N/ 74° 10' 40.3284" W– Surveyed							
Site Address	Boring is located approximately 1,695 feet northeast of the intersection of a railroad crossing and Western Avenue in Staten Island, New York (no exact street address is available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	Utility easements are located approximately 290 feet west of boring.							
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	An unnamed pond is located approximately 415 feet northeast of boring.							
Drilling Date	12/05/11							
Drilling Company	Land Air Water Environmental Services							
Drilling Method	Hand Auger/2"-Macrocore/Hollow Stem Auger							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	Pump test/slug test							
Boring Purpose (e.g. geotech/environmental/geoarchaeological)	Environmental							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
		X						
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed	Sheen Only	Floating Product = <6"	Floating Product = >6"				
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material			Anthropogenically-Generated Material				
	N/A			N/A				
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
PID/Odors (depth)	No PID. No odor.							
Geology	Dark to light brown, fine to medium SAND and SILT to 4.0 ft bg; trace vegetation roots from 0.0 to 0.5 ft bg, underlain by light brown, fine to medium SAND from 4.0 to 10 ft bg, underlain by red CLAY; some silt from 10 to 15.5 ft bg, underlain by red, fine to medium SAND from 15.5 ft bg to at least 20 ft bg.							
Soil Permeability	Loose		Intermediate			Tight		
			X					
Total Boring Depth (feet bg)	20							
GW Temporary Well Installed (Depth, Screen, Riser, Slot Size, Casing)	0.2 to 15.06 ft. below surface - 3" diameter 0.010 slot PVC screen							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report ID JA93845, JA93850 and JA93685.							
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	RCH-MM-ENV-1W/2 (2.0 to 2.5 feet bg) and RCH-MM-ENV-1W/5 (5.0 to 5.5 feet bg) were collected for VOC, SVOC, PCB, TPH, pesticide, herbicide, metals and general chemistry analyses.							
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	RCH-MM-ENV-1W was collected for NYCDEP Sewer Use Discharge, SPDES, VOC, PCB, and metals analyses.							
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10⁻² Feet/Day	10⁻² – 10 Feet/Day	>10 Feet/Day					
		X						
Additional Comments/Notes/Observations (if applicable)	N/A							

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: RCH-MM-ENV-2

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	Approximately 745 feet southeast of 5.04R							
Location (Latitude/Longitude) – estimated/surveyed	40° 38' 11.6351" N/ 74° 10' 40.2689" W– Surveyed							
Site Address	Boring is located in a wooded area, approximately 1,650 feet southeast of the intersection of Richmond Terrace and Western Avenue in Staten Island, New York (no exact street address available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	Procter and Gamble utility easements are located approximately 290 feet west of boring.							
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	An unnamed pond is located approximately 255 feet northeast of boring.							
Drilling Date	12/05/2011							
Drilling Company	Land Air Water Environmental Services							
Drilling Method	Hand Auger / Macrocore / 2"							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	None							
Boring Purpose (e.g. geotech/ environmental/geoarchaeological)	Environmental							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
		X						
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed	Sheen Only	Floating Product = <6"	Floating Product = >6"				
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material			Anthropogenically-Generated Material				
	N/A			N/A				
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
PID/Odors (depth)	No PID. No odors.							
Geology	Brown, fine to medium SAND; little fine to medium, sub-rounded gravel, little silt from 0.0 to 1.0 ft bg, underlain by orange brown fine SAND; trace fine, rounded gravel, trace silt from 1.0 to 7.0 ft bg, Large cobble at 1.0 to 2.0 ft bg, underlain by red brown CLAY; trace fine to medium sand, trace silt from 7.0 to 8.0 ft bg, underlain by red brown, fine to medium SAND; little fine, rounded gravel, trace silt from 8.0 to 9.5 ft bg, underlain by red brown CLAY; little fine, sub-rounded gravel, trace fine sand, trace silt from 9.5 to at least 15 ft bg.							
Soil Permeability	Loose		Intermediate			Tight		
			X					
Total Boring Depth (feet bg)	15							
GW Temporary Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report ID JA93685							
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	RCH-MM-ENV-2/0.5 (0.5 to 1.0 feet bg) and RCH-MM-ENV-2/5 (5.0 to 5.5 feet bg) were collected for VOC, SVOC, PCB, TPH, pesticide, herbicide, metals and general chemistry analyses.							
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	N/A							
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10⁻² Feet/Day			10⁻² – 10 Feet/Day			>10 Feet/Day	

**New Jersey/New York Expansion Project
Boring Summary Table**

Additional Comments/Notes/ Observations (if applicable)	Borehole backfilled with soil cuttings and restored to grade.
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**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: RCH-MM-ENV-3

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	Approximately 690 feet southeast of 5.06R							
Location (Latitude/Longitude) – estimated/surveyed	40° 38' 13.2530" N/74° 10' 40.2204" W– Surveyed							
Site Address	Boring is located in a wooded area, approximately 1,500 feet southeast of the intersection of Richmond Terrace and Western Avenue in Staten Island, New York (no exact street address available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	Procter and Gamble utility easements are located approximately 290 feet west of boring.							
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	An unnamed pond is located approximately 125 feet northeast of boring.							
Drilling Date	12/02/2011							
Drilling Company	Land Air Water Environmental Services							
Drilling Method	Hand Auger / Macrocore / 2"							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	None							
Boring Purpose (e.g. geotech/ environmental/geoarchaeological)	Environmental							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
	X							
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed	Sheen Only	Floating Product = <6"	Floating Product = >6"				
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material				Anthropogenically-Generated Material			
	N/A				N/A			
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
PID/Odors (depth)	No PID. No odors.							
Geology	Orange brown, fine to medium SAND; trace silt from grade to 2.5 feet bg, underlain by red brown CLAY; little silt to at least 15 feet bg. Trace fine, sub-angular gravel from 6.0 to 15 ft bg.							
Soil Permeability	Loose			Intermediate		Tight		
				X				
Total Boring Depth (feet bg)	15							
GW Temporary Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report ID JA93504							
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	RCH-MM-ENV-3/3.5 (3.5 to 4.0 feet bg) and RCH-MM-ENV-3/6 (6.0 to 6.5 feet bg) were collected for VOC, SVOC, PCB, TPH, pesticide, herbicide, metals and general chemistry analyses.							
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	N/A							
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10⁻² Feet/Day			10⁻² – 10 Feet/Day		>10 Feet/Day		
				X				
Additional Comments/Notes/Observations (if applicable)	Borehole backfilled with soil cuttings and restored to grade.							

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: RCH-MM-ENV-7W

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	Approximately 585 feet east of 5.13R							
Location (Latitude/Longitude) – estimated/surveyed	40° 38' 19.3425" N/74° 10' 40.2764" W – Surveyed							
Site Address	Boring is located in a wooded area, approximately 945 feet southeast of the intersection of Richmond Terrace and Western Avenue in Staten Island, New York (no exact street address available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	Utility easements are located approximately 295 feet west of boring.							
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	An unnamed pond is located approximately 90 feet east of boring.							
Drilling Date	12/01/11							
Drilling Company	Land Air Water Environmental Services							
Drilling Method	Hand Auger/2"-Macrocore							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	None							
Boring Purpose (e.g. geotech/environmental/geoarchaeological)	Environmental							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
	Water Not Encountered							
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed	Sheen Only	Floating Product = <6"	Floating Product = >6"				
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material				Anthropogenically-Generated Material			
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
PID/Odors (depth)	No PID. No odor.							
Geology	Dark brown SILT and fine to coarse SAND, little fine to coarse gravel, trace cobble, trace roots from 0.0 to 1.0 ft bg, underlain by reddish brown SILT; little fine to coarse, sub-angular gravel, trace fine to medium sand, trace cobble from 1.0 to 6.0 ft bg, underlain by reddish-brown CLAY; trace silt, trace fine, sub-angular gravel from 6.0 to 15 ft bg, underlain by reddish-brown CLAY; trace silt, trace fine, sub-angular gravel from 15 to at least 20 ft bg.							
Soil Permeability	Loose		Intermediate			Tight		
			X					
Total Boring Depth (feet bg)	20							
GW Temporary Well Installed (Depth, Screen, Riser, Slot Size, Casing)	Temporary well not installed due to no water encountered during hand auger or macrocore sampling.							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report ID JA93382.							
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	RCH-MM-ENV-7W/3.5 (3.5 to 4.0 feet bg) and RCH-MM-ENV-7W/7.5 (7.5 to 8.0 feet bg) were collected for VOC, SVOC, PCB, TPH, pesticide, herbicide, metals and general chemistry analyses.							
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	No well installed. No ground water samples collected.							
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10⁻² Feet/Day		10⁻² – 10 Feet/Day			>10 Feet/Day		
Additional Comments/Notes/Observations (if applicable)	N/A							

**New Jersey/New York Expansion Project
Boring Summary Table**

TRC Boring Identification: SI-2

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	4.79R							
Location (Latitude/Longitude) – estimated/surveyed	40°37'49.49"N / 74°11'05.47"W – estimated (no survey data collected)							
Site Address	The boring is located approximately 330 feet east of the intersection of Western Avenue and Goethals Road North in Staten Island, New York (no exact street address available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	The boring is located approximately 320 feet southeast of a subsurface water utility line near Western Avenue.							
Nearby Hydraulic Features (Distance and Direction from wetlands, piping, etc.)	This boring is located approximately 580 feet northeast of Old Place Creek.							
Drilling Date	3/7/2011							
Drilling Company	N/A							
Drilling Method	Hand Auger							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A							
Boring Purpose (e.g. geotech/environmental/geoarchaeological)	Geoarcheological							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
	Water not encountered							
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed	Sheen Only	Floating Product = <6"	Floating Product = >6"				
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material				Anthropogenically-Generated Material			
	N/A				N/A			
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
PID/Odors (depth)	ND							
Geology	0 to 1 foot bg - Brown medium SAND, trace Silt, trace organics (roots), moist.							
Soil Permeability	Loose		Intermediate			Tight		
			X					
Total Boring Depth (feet bg)	1							
GW Monitoring Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report JA69812							
Soil Samples Collected (Parameters, Analytical Results Summary)	SI-2-1 (0.5 to 1.0 foot bg) was analyzed for PCBs.							
GW Samples Collected (Parameters, Analytical Results Summary)	N/A							
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10⁻² Feet/Day		10⁻² – 10 Feet/Day			>10 Feet/Day		
Additional Comments/Notes/Observations (if applicable)	N/A							

**New Jersey/New York Expansion Project
Boring Summary Table**

TRC Boring Identification: SI-3

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	4.77R							
Location (Latitude/Longitude) – estimated/surveyed	40°37'48.42"N / 74°11'04.63"W – estimated (no survey data collected)							
Site Address	The boring is located approximately 450 feet east-southeast of the intersection of Western Avenue and Goethals Road North in Staten Island, New York (no exact street address available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	The boring is located approximately 400 feet east of a subsurface water utility line near Western Avenue.							
Nearby Hydraulic Features (Distance and Direction from wetlands, piping, etc.)	This boring is located approximately 540 feet northeast of Old Place Creek.							
Drilling Date	3/7/2011							
Drilling Company	N/A							
Drilling Method	Hand Auger							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A							
Boring Purpose (e.g. geotech/environmental/geoarchaeological)	Geoarcheological							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 - 2.0	2.1 - 4.0	4.1 - 6.0	6.1 - 8.0	8.1 - 12.0	12.1 - 16.0	16.1 - 20.0	>20
	Water not encountered							
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed	Sheen Only	Floating Product = <6"	Floating Product = >6"				
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material				Anthropogenically-Generated Material			
	N/A				N/A			
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 - 2.0	2.1 - 4.0	4.1 - 6.0	6.1 - 8.0	8.1 - 10.0	10.1 - 12.0	>12.1	
PID/Odors (depth)	N/D							
Geology	0 to 1 foot bg - Light brown medium SAND, some Silt, some organics (roots), moist.							
Soil Permeability	Loose		Intermediate			Tight		
			X					
Total Boring Depth (feet bg)	1							
GW Monitoring Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report JA69812							
Soil Samples Collected (Parameters, Analytical Results Summary)	SI-3-1 (0.5 to 1.0 foot bg) was analyzed for PCBs.							
GW Samples Collected (Parameters, Analytical Results Summary)	N/A							
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10⁻² Feet/Day		10⁻² – 10 Feet/Day			>10 Feet/Day		
Additional Comments/Notes/Observations (if applicable)	N/A							

**New Jersey/New York Expansion Project
Boring Summary Table**

TRC Boring Identification: SI-4

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	4.76R							
Location (Latitude/Longitude) – estimated/surveyed	40°37'49.31"N / 74°11'04.04"W – estimated (no survey data collected)							
Site Address	The boring is located approximately 460 feet east of the intersection of Western Avenue and Goethals Road North in Staten Island, New York (no exact street address available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	A subsurface water utility line is located approximately 400 feet northwest of the boring location.							
Nearby Hydraulic Features (Distance and Direction from wetlands, piping, etc.)	This boring is located approximately 650 feet northeast of Old Place Creek.							
Drilling Date	3/7/2011							
Drilling Company	N/A							
Drilling Method	Hand Auger							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A							
Boring Purpose (e.g. geotech/environmental/geoarchaeological)	Geoarcheological							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 - 2.0	2.1 - 4.0	4.1 - 6.0	6.1 - 8.0	8.1 - 12.0	12.1 - 16.0	16.1 - 20.0	>20
	Water not encountered							
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed	Sheen Only	Floating Product = <6"	Floating Product = >6"				
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material				Anthropogenically-Generated Material			
	N/A				N/A			
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
PID/Odors (depth)	N/D							
Geology	0 to 1 foot bg - Brown medium SAND, some Silt, trace organics (roots), wet at 1 foot bg.							
Soil Permeability	Loose		Intermediate			Tight		
			X					
Total Boring Depth (feet bg)	1							
GW Monitoring Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report JA69812							
Soil Samples Collected (Parameters, Analytical Results Summary)	SI-4-1 (0.5 to 1.0 foot bg) was analyzed for PCBs.							
GW Samples Collected (Parameters, Analytical Results Summary)	N/A							
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10⁻² Feet/Day		10⁻² – 10 Feet/Day			>10 Feet/Day		
Additional Comments/Notes/Observations (if applicable)	N/A							

**New Jersey/New York Expansion Project
Boring Summary Table**

TRC Boring Identification: SI-5

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	4.69R							
Location (Latitude/Longitude) – estimated/surveyed	40°37'47.59"N / 74°11'04.17"W – estimated (no surveyed coordinates available)							
Site Address	The boring is located approximately 510 feet southeast of the intersection of Western Avenue and Goethals Road North in Staten Island, New York (no exact street address available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	A subsurface water utility line running along Western Avenue is located approximately 390 feet northwest of boring.							
Nearby Hydraulic Features (Distance and Direction from wetlands, piping, etc.)	Old Place Creek is located approximately 500 feet southwest of boring.							
Drilling Date	3/7/2011							
Drilling Company	N/A							
Drilling Method	Hand Auger							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A							
Boring Purpose (e.g. geotech/environmental/geoarchaeological)	Geoarcheological							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 - 2.0	2.1 - 4.0	4.1 - 6.0	6.1 - 8.0	8.1 - 12.0	12.1 - 16.0	16.1 - 20.0	>20
	Water not encountered							
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed	Sheen Only	Floating Product = <6"	Floating Product = >6"				
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material			Anthropogenically-Generated Material				
	N/A			N/A				
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 - 2.0	2.1 - 4.0	4.1 - 6.0	6.1 - 8.0	8.1 - 10.0	10.1 - 12.0	>12.1	
PID/Odors (depth)	N/D							
Geology	Light brown medium SAND, some Silt, some organics (roots), moist from grade to 1.0 foot bg.							
Soil Permeability	Loose		Intermediate			Tight		
			X					
Total Boring Depth (feet bg)	1.0							
GW Monitoring Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report JA69812.							
Soil Samples Collected (Parameters, Analytical Results Summary)	SI-5-1 (0.5 feet to 1.0 foot bg) was analyzed for PCBs.							
GW Samples Collected (Parameters, Analytical Results Summary)	N/A							
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10⁻² Feet/Day		10⁻² – 10 Feet/Day			>10 Feet/Day		
Additional Comments/Notes/Observations (if applicable)	N/A							

**New Jersey/New York Expansion Project
Boring Summary Table**

TRC Boring Identification: SI-6

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	4.72R							
Location (Latitude/Longitude) – estimated/surveyed	40°37'48.60"N / 74°11'03.012"W – estimated (no survey data collected)							
Site Address	The boring is located approximately 550 feet southeast of the intersection of Western Avenue and Goethals Road North in Staten Island, New York (no exact street address available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	The boring is located approximately 490 feet southeast of a subsurface water utility line near Western Avenue.							
Nearby Hydraulic Features (Distance and Direction from wetlands, piping, etc.)	This boring is located approximately 630 feet northeast of Old Place Creek.							
Drilling Date	3/7/2011							
Drilling Company	N/A							
Drilling Method	Hand Auger							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A							
Boring Purpose (e.g. geotech/environmental/geoarchaeological)	Geoarcheological							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 - 2.0	2.1 - 4.0	4.1 - 6.0	6.1 - 8.0	8.1 - 12.0	12.1 - 16.0	16.1 - 20.0	>20
	X							
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed	Sheen Only	Floating Product = <6"	Floating Product = >6"				
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material				Anthropogenically-Generated Material			
	N/A				N/A			
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 - 2.0	2.1 - 4.0	4.1 - 6.0	6.1 - 8.0	8.1 - 10.0	10.1 - 12.0	>12.1	
PID/Odors (depth)	N/D							
Geology	0 to 1 foot bg- Light brown medium SAND, some Silt, some organics (roots), wet at 1 foot bg.							
Soil Permeability	Loose		Intermediate			Tight		
			X					
Total Boring Depth (feet bg)	1							
GW Monitoring Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report JA69812							
Soil Samples Collected (Parameters, Analytical Results Summary)	SI-6-1 (0.5 feet to 1.0 foot bg) was analyzed for PCBs.							
GW Samples Collected (Parameters, Analytical Results Summary)	N/A							
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10⁻² Feet/Day		10⁻² – 10 Feet/Day			>10 Feet/Day		
Additional Comments/Notes/Observations (if applicable)	N/A							

**New Jersey/New York Expansion Project
Boring Summary Table**

TRC Boring Identification: SI-7

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	4.74R							
Location (Latitude/Longitude) – estimated/surveyed	40°37'49.82"N / 74°11'02.90"W – estimated (no survey data collected)							
Site Address	The boring is located approximately 570 feet east of the intersection of Western Avenue and Goethals Road North in Staten Island, New York (no exact street address available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	The boring is located approximately 310 feet east-southeast of a subsurface water utility line near Western Avenue.							
Nearby Hydraulic Features (Distance and Direction from wetlands, piping, etc.)	This boring is located approximately 750 feet northeast of Old Place Creek.							
Drilling Date	3/7/2011							
Drilling Company	N/A							
Drilling Method	Hand Auger							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A							
Boring Purpose (e.g. geotech/environmental/geoarchaeological)	Geoarcheological							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 - 2.0	2.1 - 4.0	4.1 - 6.0	6.1 - 8.0	8.1 - 12.0	12.1 - 16.0	16.1 - 20.0	>20
	X							
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed	Sheen Only	Floating Product = <6"	Floating Product = >6"				
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material				Anthropogenically-Generated Material			
	N/A				N/A			
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 - 2.0	2.1 - 4.0	4.1 - 6.0	6.1 - 8.0	8.1 - 10.0	10.1 - 12.0	>12.1	
PID/Odors (depth)	N/D							
Geology	0 to 1 foot bg - Light brown medium SAND, some Silt, some organics (roots), wet at 1 foot bg.							
Soil Permeability	Loose		Intermediate			Tight		
			X					
Total Boring Depth (feet bg)	1							
GW Monitoring Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report JA69812							
Soil Samples Collected (Parameters, Analytical Results Summary)	SI-7-1 (0.5 feet to 1.0 foot bg) was analyzed for PCBs.							
GW Samples Collected (Parameters, Analytical Results Summary)	N/A							
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10⁻² Feet/Day		10⁻² – 10 Feet/Day			>10 Feet/Day		
Additional Comments/Notes/Observations (if applicable)	N/A							

**New Jersey/New York Expansion Project
Boring Summary Table**

TRC Boring Identification: SI-8

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	4.69R							
Location (Latitude/Longitude) – estimated/surveyed	40°37'47.22"N / 74°11'03.30"W – estimated (no survey data collected)							
Site Address	This boring is located approximately 315 feet east-southeast of the intersection of Western Avenue and Goethals Road North in Staten Island, New York (no exact street address available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	The boring is located approximately 500 feet southeast of a subsurface water utility line along Western Avenue.							
Nearby Hydraulic Features (Distance and Direction from wetlands, piping, etc.)	This boring is located approximately 525 feet northeast of Old Place Creek.							
Drilling Date	3/7/2011							
Drilling Company	N/A							
Drilling Method	Hand Auger							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A							
Boring Purpose (e.g. geotech/environmental/geoarchaeological)	Geoarcheological							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 - 2.0	2.1 - 4.0	4.1 - 6.0	6.1 - 8.0	8.1 - 12.0	12.1 - 16.0	16.1 - 20.0	>20
	X							
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed	Sheen Only	Floating Product = <6"	Floating Product = >6"				
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material				Anthropogenically-Generated Material			
	N/A				N/A			
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 - 2.0	2.1 - 4.0	4.1 - 6.0	6.1 - 8.0	8.1 - 10.0	10.1 - 12.0	>12.1	
PID/Odors (depth)	N/D							
Geology	0 to 1 foot bg - Light brown medium SAND, some Silt, some organics (roots), wet at 1 foot bg.							
Soil Permeability	Loose		Intermediate			Tight		
			X					
Total Boring Depth (feet bg)	1							
GW Monitoring Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report JA69812							
Soil Samples Collected (Parameters, Analytical Results Summary)	SI-8-1 (0.5 to 1.0 foot bg) was analyzed for PCBs.							
GW Samples Collected (Parameters, Analytical Results Summary)	N/A							
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10⁻² Feet/Day		10⁻² – 10 Feet/Day			>10 Feet/Day		
Additional Comments/Notes/Observations (if applicable)	N/A							

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: VC-1

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	18.76R							
Location (Latitude/Longitude) – estimated/surveyed	40°44'0.63" N / 74° 1'47.15" W - Surveyed							
Site Address	Boring located in the Hudson River approximately 250 feet east of Jersey City Long Slip floating dock and approximately 120 feet south of the Hudson Ferry Terminal train tracks (no exact street address available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	N/A							
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	Boring located in the Hudson River.							
Drilling Date	4/4/2011							
Drilling Company	Aqua Survey, Inc.							
Drilling Method	Vibracore							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A							
Boring Purpose (e.g. geotech/ environmental/geoarchaeological)	Environmental							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
	N/A – boring installed in Hudson River							
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed	Sheen Only	Floating Product = <6"	Floating Product = >6"				
	x							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material				Anthropogenically-Generated Material			
	N/A				N/A			
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
PID/Odors (depth)	N/A							
Geology	Dark gray to black SILT from grade to at least 20.0 feet bg.							
Soil Permeability	Loose		Intermediate			Tight		
	x							
Total Boring Depth (feet bg)	20							
GW Monitoring Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report ID JA72338.							
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	VC-1/2 (2.0 to 2.5 feet bg), VC-1/7 (7.0 to 7.5 feet bg), and VC-1/14 (14.0 to 14.5 feet bg) collected for TCL VOC+10, TCL SVOC+10, EPH, TAL Metals, cyanide, total phenols, PCBs, dioxins, furans, pesticides, TOC (Lloyd Kahn), total solids, grain size distribution, water content, specific gravity, and acid-volatile sulfide analyses.							
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	N/A							
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10⁻² Feet/Day		10⁻² – 10 Feet/Day			>10 Feet/Day		
Additional Comments/Notes/Observations (if applicable)	N/A							

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: VC-2

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	In between 18.81R and 18.82R							
Location (Latitude/Longitude) – estimated/surveyed	40°44'0.50"N / 74° 1'43.47"W - Surveyed							
Site Address	Boring located in the Hudson River approximately 540 feet east of Jersey City Long Slip and approximately 290 feet south of the Hudson Ferry Terminal train tracks (no exact street address available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	N/A							
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	Boring located in the Hudson River.							
Drilling Date	4/4/2011							
Drilling Company	Aqua Survey, Inc.							
Drilling Method	Vibracore							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A							
Boring Purpose (e.g. geotech/ environmental/geoarchaeological)	Environmental							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
	N/A – boring installed in Hudson River							
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed	Sheen Only	Floating Product = <6"	Floating Product = >6"				
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material			Anthropogenically-Generated Material				
	N/A			N/A				
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
PID/Odors (depth)	PID = N/D. Organic-like odor throughout boring.							
Geology	Dark gray to black SILT from grade to at least 21.0 feet bg.							
Soil Permeability	Loose		Intermediate			Tight		
	x							
Total Boring Depth (feet bg)	21							
GW Monitoring Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report ID JA72338.							
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	VC-2/2 (2.0 to 2.5 feet bg), VC-2/7 (7.0 to 7.5 feet bg), and VC-2/15 (15.0 to 15.5 feet bg) collected for TCL VOC+10, TCL SVOC+10, EPH, TAL Metals, cyanide, total phenols, PCBs, dioxins, furans, pesticides, TOC (Lloyd Kahn), total solids, grain size distribution, water content, specific gravity, and acid-volatile sulfide analyses.							
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	N/A							
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10⁻² Feet/Day		10⁻² – 10 Feet/Day			>10 Feet/Day		
Additional Comments/Notes/Observations (if applicable)	N/A							

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: VC-3

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	In between 18.86R and 18.87R							
Location (Latitude/Longitude) – estimated/surveyed	40°44'0.08"N / 74° 1'39.83"W - Surveyed							
Site Address	Boring located in the Hudson River approximately 460 feet east of the Jersey City Long Slip dock and approximately 220 feet south of the Hudson Ferry Terminal dock (no exact street address available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	N/A							
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	Boring located in the Hudson River.							
Drilling Date	4/4/2011							
Drilling Company	Aqua Survey, Inc.							
Drilling Method	Vibracore							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A							
Boring Purpose (e.g. geotech/environmental/geoarchaeological)	Environmental							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
	N/A – boring installed in Hudson River							
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed	Sheen Only	Floating Product = <6"	Floating Product = >6"				
	x							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material				Anthropogenically-Generated Material			
	N/A				N/A			
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
PID/Odors (depth)	PID = N/D. Organic-like odor throughout boring.							
Geology	Dark gray to black SILT from grade to at least 10.0 feet bg.							
Soil Permeability	Loose		Intermediate			Tight		
	x							
Total Boring Depth (feet bg)	10							
GW Monitoring Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report ID JA72338.							
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	VC-3/2 (2.0 to 2.5 feet bg) and VC-3/7 (7.0 to 7.5 feet bg) collected for TCL VOC+10, TCL SVOC+10, EPH, TAL Metals, cyanide, total phenols, PCBs, dioxins, furans, pesticides, TOC (Lloyd Kahn), total solids, grain size distribution, water content, specific gravity, and acid-volatile sulfide analyses.							
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	N/A							
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10⁻² Feet/Day		10⁻² – 10 Feet/Day			>10 Feet/Day		
Additional Comments/Notes/Observations (if applicable)	N/A							

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: VC-4

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	In between 19.83R and 19.84R							
Location (Latitude/Longitude) – estimated/surveyed	40°44'20.81"N / 74° 0'42.46"W - Surveyed							
Site Address	Boring located in the Hudson River approximately 220 feet south of the Western Manhattan Sanitation Pier and approximately 420 feet west of the Hudson River Greenway bike path (no exact street address available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	N/A							
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	Boring located in the Hudson River.							
Drilling Date	4/4/2011							
Drilling Company	Aqua Survey, Inc.							
Drilling Method	Vibracore							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A							
Boring Purpose (e.g. geotech/ environmental/geoarchaeological)	Environmental							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
	N/A – boring installed in Hudson River							
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed	Sheen Only	Floating Product = <6"	Floating Product = >6"				
	x							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material			Anthropogenically-Generated Material				
	N/A			N/A				
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
PID/Odors (depth)	PID = 5.1 ppm at 2.0 feet bg, and 1.7 ppm at 7.0 feet bg. Organic-like odor throughout boring.							
Geology	Dark gray to black SILT from grade to at least 10.0 feet bg.							
Soil Permeability	Loose		Intermediate			Tight		
	x							
Total Boring Depth (feet bg)	10							
GW Monitoring Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report ID JA72338.							
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	VC-4/2 (2.0 to 2.5 feet bg) and VC-4/7 (7.0 to 7.5 feet bg) collected for TCL VOC+10, TCL SVOC+10, EPH, TAL Metals, cyanide, total phenols, PCBs, dioxins, furans, pesticides, TOC (Lloyd Kahn), total solids, grain size distribution, water content, specific gravity, and acid-volatile sulfide analyses.							
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	N/A							
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10⁻² Feet/Day		10⁻² – 10 Feet/Day			>10 Feet/Day		
Additional Comments/Notes/Observations (if applicable)	N/A							

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: VC-5

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	In between 19.84R and 19.85R							
Location (Latitude/Longitude) – estimated/surveyed	40°44'21.12"N / 74° 0'41.84"W - Surveyed							
Site Address	Boring located in the Hudson River approximately 25 feet south of the embankment of the Western Manhattan Sanitation Pier Parking lot and approximately 370 feet west of the Hudson River Greenway bike path (no exact street address available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	N/A							
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	Boring located in the Hudson River.							
Drilling Date	4/4/2011							
Drilling Company	Aqua Survey, Inc.							
Drilling Method	Vibracore							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A							
Boring Purpose (e.g. geotech/environmental/geoarchaeological)	Environmental							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
	N/A – boring installed in Hudson River							
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed	Sheen Only	Floating Product = <6"	Floating Product = >6"				
	x							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material				Anthropogenically-Generated Material			
	N/A				N/A			
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
PID/Odors (depth)	PID = 1.2 ppm at 7.0 feet bg. Organic-like odor throughout boring.							
Geology	Dark gray to black SILT from grade to at least 10.0 feet bg.							
Soil Permeability	Loose		Intermediate			Tight		
	x							
Total Boring Depth (feet bg)	10							
GW Monitoring Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report ID JA72338.							
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	VC-5/2 (2.0 to 2.5 feet bg) and VC-5/7 (7.0 to 7.5 feet bg) collected for TCL VOC+10, TCL SVOC+10, EPH, TAL Metals, cyanide, total phenols, PCBs, dioxins, furans, pesticides, TOC (Lloyd Kahn), total solids, grain size distribution, water content, specific gravity, and acid-volatile sulfide analyses.							
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	N/A							
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10⁻² Feet/Day		10⁻² – 10 Feet/Day			>10 Feet/Day		
Additional Comments/Notes/Observations (if applicable)	N/A							



Environmental Corporation

57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

SOIL BORING LOG

BORING NUMBER

SI-1

PROJECT NAME: Spectra NJ-NY Expansion **LOCATION:** Staten Island, NY

PROJECT NO.: 168217 **CONTRACTOR:** N/A

SAMPLER TYPE/DIA.: 3 1/8" SS Hand Auger **DEPTH TO WATER:** Not Encountered

BORING METHOD: Hand Auger **TOTAL DEPTH DRILLED:** 1.0'

DATE DRILLED: 03/07/11

DRILLER: N/A

LOGGED BY: C. Nichol

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
0						Unpaved.
1			ND ND	SI-1-1	SM	0 to 1' - Light brown medium SAND, some silt, some roots, moist.
2						End of boring at 1.0'
3						
4						
5						



Environmental Corporation

57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

SOIL BORING LOG

BORING NUMBER

SI-2

PROJECT NAME: Spectra NJ-NY Expansion LOCATION: Staten Island, NY

PROJECT NO.: 168217 CONTRACTOR: N/A

SAMPLER TYPE/DIA.: 3 1/8" SS Hand Auger DEPTH TO WATER: Not Encountered

BORING METHOD: Hand Auger TOTAL DEPTH DRILLED: 1'

DATE DRILLED: 03/07/11

DRILLER: N/A

LOGGED BY: C. Nichol

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
0						Unpaved.
1			ND ND	SI-2-1	SM	0 to 1' -Brown medium SAND, trace silt, trace roots, moist.
2						End of boring at 1.0'
3						
4						
5						



Environmental Corporation

57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

SOIL BORING LOG

BORING NUMBER

SI-3

PROJECT NAME: Spectra NJ-NY Expansion LOCATION: Staten Island, NY

PROJECT NO.: 168217 CONTRACTOR: N/A

DATE DRILLED: 03/07/11

DRILLER: N/A

SAMPLER TYPE/DIA.: 3 1/8" SS Hand Auger DEPTH TO WATER: Not Encountered

BORING METHOD: Hand Auger TOTAL DEPTH DRILLED: 1.0'

LOGGED BY: C. Nichol

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
0						Unpaved.
1			ND ND	SI-3-1	SM	0 to 1' - Light brown medium SAND, some silt, some roots, moist.
2						End of boring at 1.0'
3						
4						
5						



Environmental Corporation

57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

SOIL BORING LOG

BORING NUMBER

SI-4

PROJECT NAME: Spectra NJ-NY Expansion LOCATION: Staten Island, NY

PROJECT NO.: 168217 CONTRACTOR: N/A

SAMPLER TYPE/DIA.: 3 1/8" SS Hand Auger DEPTH TO WATER: Not Encountered

BORING METHOD: Hand Auger TOTAL DEPTH DRILLED: 1.0'

DATE DRILLED: 03/07/11

DRILLER: N/A

LOGGED BY: C. Nichol

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
0						Unpaved.
1			ND ND	SI-4-1	SM	0 to 1' - Brown medium SAND, some silt, trace roots, wet @ 1'.
2						End of boring at 1.0'
3						
4						
5						



Environmental Corporation

57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

SOIL BORING LOG

BORING NUMBER

SI-5

PROJECT NAME: Spectra NJ-NY Expansion LOCATION: Staten Island, NY

PROJECT NO.: 168217 CONTRACTOR: N/A

SAMPLER TYPE/DIA.: 3 1/8" SS Hand Auger DEPTH TO WATER: Not Encountered

BORING METHOD: Hand Auger TOTAL DEPTH DRILLED: 1.0'

DATE DRILLED: 03/07/11

DRILLER: N/A

LOGGED BY: C. Nichol

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
0						Unpaved.
1			ND ND	SI-5-1	SM	0 to 1' - Light brown medium SAND, some silt, some roots, moist.
2						End of boring at 1.0'
3						
4						
5						



Environmental Corporation

57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

SOIL BORING LOG

BORING NUMBER

SI-6

PROJECT NAME: Spectra NJ-NY Expansion LOCATION: Staten Island, NY

PROJECT NO.: 168217 CONTRACTOR: N/A

SAMPLER TYPE/DIA.: 3 1/8" SS Hand Auger DEPTH TO WATER: Not Encountered

BORING METHOD: Hand Auger TOTAL DEPTH DRILLED: 1.0'

DATE DRILLED: 03/07/11

DRILLER: N/A

LOGGED BY: C. Nichol

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
0						Unpaved.
1			ND ND	SI-6-1	SM	0 to 1' - Light brown medium SAND, some silt, some roots, wet @ 1'.
2						End of boring at 1.0'
3						
4						
5						



Environmental Corporation

57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

SOIL BORING LOG

BORING NUMBER

SI-7

PROJECT NAME: Spectra NJ-NY Expansion LOCATION: Staten Island, NY

PROJECT NO.: 168217 CONTRACTOR: N/A

SAMPLER TYPE/DIA.: 3 1/8" SS Hand Auger DEPTH TO WATER: Not Encountered

BORING METHOD: Hand Auger TOTAL DEPTH DRILLED: 1.0'

DATE DRILLED: 03/07/11

DRILLER: N/A

LOGGED BY: C. Nichol

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
0						Unpaved.
1			ND ND	SI-7-1	SM	0 to 1' - Light brown medium SAND, some silt, some roots, wet @ 1'.
2						End of boring at 1.0'
3						
4						
5						



Environmental Corporation

57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

SOIL BORING LOG

BORING NUMBER

SI-8

PROJECT NAME: Spectra NJ-NY Expansion LOCATION: Staten Island, NY

PROJECT NO.: 168217

CONTRACTOR: N/A

DATE DRILLED: 03/07/11

SAMPLER TYPE/DIA.: 3 1/8" SS Hand Auger

DEPTH TO WATER: 1.0'

DRILLER: N/A

BORING METHOD: Hand Auger

TOTAL DEPTH DRILLED: 1.0'

LOGGED BY: C. Nichol

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
0						Unpaved.
1			ND ND	SI-8-1	SM	0 to 1' - Light brown medium SAND, some silt, some roots, wet @ 1'.
2						End of boring at 1.0'
3						
4						
5						



Environmental Corporation

57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

SOIL BORING LOG

BORING NUMBER

RCH-6-ENV-4

PROJECT NAME: Spectra NJ-NY Expansion

LOCATION: Staten Island, New York

PROJECT NO.: 168217

CONTRACTOR: Land Air Water Environmental Services

DATE DRILLED: 07/18/11

SAMPLER TYPE/DIA.: Macrocore/2"

DEPTH TO WATER: 3.0 feet

DRILLER: K. McGourty

BORING METHOD: Direct Push

TOTAL DEPTH DRILLED: 15 feet

LOGGED BY: B. Chaky

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
0						
1						0 to 0.3' - Asphalt surface with gravel top.
2						0.3 to 3.0' - FILL: Brown to dark brown clay; little medium to fine gravel, little medium to fine sand, trace coal fragments, trace wood and metal material. Sub-angular, moist, dense.
3		44	ND	RCH6ENV4/2		
4						3.0 to 11' - FILL: Gray to black, medium to fine sand; little medium to fine sand, trace cinders, sub-angular, wet, loose. Trace wood material from 5.0 to 11'.
5						
6						
7						
8		40	ND	RCH6ENV4/8		
9						
10						
11			ND			
12			7.6 4.5		PT	11 to 15' - Dark brown PEAT; little silt, trace roots. Wet, loose.
13		34	12.9 1.0			
14						
15			ND			End of Boring at 15'



Environmental Corporation

57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

SOIL BORING LOG

BORING NUMBER

RCH-5H-ENV-4

PROJECT NAME: Spectra NJ-NY Expansion

LOCATION: Staten Island, New York

PROJECT NO.: 168217

CONTRACTOR: Land Air Water Environmental Services

DATE DRILLED: 09/20/11

SAMPLER TYPE/DIA.: Hand Auger/
Macrocore/2"
BORING METHOD: Direct Push

DEPTH TO WATER: 2 feet
TOTAL DEPTH DRILLED: 15 feet

DRILLER: E. Santiago

LOGGED BY: L. Greenbaum

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
0						
1		Hand Cleared		RCH-5H-ENV-4/3		0.0 to 2.0' - Asphalt layer (5" thick) and concrete with coarse gravel layer (19" thick). 2.0 to 7.0' - FILL: Light brown, fine to medium sand; little fine to medium, sub-angular gravel, little intermittent clumps of red clay, trace silt. Wet, medium dense. Trace pieces of brick and slight creosote-like odor from 3.0 to 4.0'. Trace pieces of glass from 4.0 to 5.0'. Trace pieces of plastic from 5.0 to 6.0'.
2						
3			13.0			
4			13.0			
5			14.0			
6			9.0			
7			6.4			
8			6.0			
9			8.3			
10			8.9			
11		1.0	RCH-5H-ENV-4/7		7.0 to 8.0' - FILL: Reddish brown clay; little fine sand, little silt. Wet, dense. Trace pieces of glass. 8.0 to 13' - Red CLAY; little fine gravel, trace silt. Wet, very stiff. Fine sand lens (2" thick) at 9'.	
12		1.8				
13		4.5				
14		4.0				
15		2.4				
16		4				
17		4.8				
18		6.2				
19		8.2				
20		8.4				
21		0.5	ML		13 to 15' - Red SILT; little fine to coarse, sub-angular gravel, trace fine sand. Wet, stiff.	
22		ND				
23		ND				
24		ND				
25		ND				
26		ND				
27		ND				
28		ND				
29		ND				
30		ND				
31		ND			End of Boring @ 15'	

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: RCH-5H-ENV-8

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	5.5R							
Location (Latitude/Longitude) – estimated/surveyed	N/A							
Site Address	Boring is located in a vegetated area approximately 980 feet east of the Richmond Terrace and Catherine Place in Staten Island, New York (no exact street address is available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	NY 15 - Mariners Marsh Park - Water Pipe is located 4.0 feet south of boring.							
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	A wetland is located 5.0 feet north of boring.							
Drilling Date	9/19/2012							
Drilling Company	Land Air Water Environmental Services							
Drilling Method	Hand Auger							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A							
Boring Purpose (e.g. geotech/environmental/geoarchaeological)	Environmental							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
			X					
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed	Sheen Only	Floating Product = <6"	Floating Product = >6"				
	X							
HISTORIC FILL MATERIAL								
-	Reworked Material				Anthropogenically-Generated Material			
					Asphalt from 0.0 to 0.5 feet bg, underlain by concrete from 0.5 to 1.0 feet bg, underlain by Brown, medium to coarse sand; little sub-angular gravel, concrete from 1.0 to 2.0 feet bg.			
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
	X							
PID/Odors (depth)	No PIDs. No odors.							
Geology	Fill from 0 to 2.0 feet bg (see above), underlain by red-brown, fine to medium sand from 2.0 to 5.0 feet bg, underlain by red-brown silt; little clay, trace sub-angular gravel from 5.0 to 8.0 feet bg.							
Soil Permeability	Loose		Intermediate			Tight		
			X					
Total Boring Depth (feet bg)	8.0							
GW Monitoring Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A							
Laboratory Name and Report No. (if samples collected)	Accutest Laboratories, Lab Report ID JB16823							
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	RCH-5H-ENV-8-WC was collected for metal (including hexavalent chromium), Metals TCLP, RCRA Characteristics, general chemistry analyses and composited for waste characterization analyses. RCH-5H-ENV-8-WC/1 (1.0 to 1.5 feet bg), RCH-5H-ENV-8-WC/2 (2.0 to 2.5 feet bg), RCH-5H-ENV-8-WC/3 (3.0 to 3.5 feet bg), and RCH-5H-ENV-8-WC/4 (4.0 to 4.5 feet bg) were collected for TPHC and general chemistry analyses.							
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	N/A							
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10⁻² Feet/Day			10⁻² – 10 Feet/Day		>10 Feet/Day		
Additional Comments/Notes/Observations (if applicable)	Borehole backfilled with bentonite chips and soil cuttings to restore to grade.							

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: 1R-22.1-ENV-17

Boring Information									
Alternate Boring ID (if applicable)	N/A								
Pipeline Mile Marker ID	4.1R								
Location (Latitude/Longitude) – estimated/surveyed	40° 37' 15.73" N/ 74° 11' 49.38" W- Estimated, surveyed coordinates forthcoming.								
Site Address	Boring is located along the vegetated area between River Road and Lambert Avenue in Staten Island, New York (no exact street address available).								
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	A subsurface water line is located 1,900 feet north of the boring								
Nearby Hydraulic Features (Distance and Direction from wetlands, piping, etc.)	Boring is located in wetlands. An unnamed pond is located 1,200 feet northeast of boring location.								
Drilling Date	09/19/12								
Drilling Company	Land Air Water Environmental Services								
Drilling Method	Hand Auger								
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A								
Boring Purpose (e.g. geotech/ environmental/geoarcheological)	Environmental								
Boring Observations									
Depth to saturation (feet bg) – Check where applicable	0.0 - 2.0	2.1 - 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20	
		X							
PRODUCT									
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No								
- Product in GW – Check where applicable	None Observed		Seen Only		Floating Product = <6"		Floating Product = >6"		
	X								
HISTORIC FILL MATERIAL									
- Composition, other observations – complete, as applicable	Reworked Material				Anthropogenically-Generated Material				
					None				
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1		
PID/Odors (depth)	PID concentrations from 0.0 to 8.0 feet bg; highest PID of 3.5 ppm at 7 feet bg; Odor present.								
Geology	Brown, fine to medium SAND, some medium to coarse rounded gravel from 0.0 to 3.0 feet bg; underlain by brown to dark-brown, fine to medium SAND, little silt to 4.0 feet bg; underlain by dark brown, fine SAND, little silt, little fine to medium rounded gravel to 5.0 feet bg; underlain by dark brown SAND and SILT to at least 8.0 feet bg.								
Soil Permeability	Loose		Intermediate			Tight			
			X						
Total Boring Depth (feet bg)	8								
GW Monitoring Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A								
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report JB16942 and JB17083.								
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	1R-22.1-ENV-17/0-4 (0.0 to 4.0 feet bg) and 1R-22.1-ENV-17/4-8 (4.0 to 8.0 feet bg) were collected for VOC, SVOC, metals, PCB, pesticide, herbicide, and general chemistry analyses. 1R-22.1-ENV-17-WC was collected for waste characterization analysis. 1R-22.1-ENV-17-WC/2, 1R-22.1-ENV-17-WC/4, 1R-22.1-ENV-17-WC/6, and 1R-22.1-ENV-17-WC/8 were collected for TPHC analyses.								
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	N/A								
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10⁻² Feet/Day			10⁻² – 10 Feet/Day			>10 Feet/Day		
Additional Comments/Notes/Observations (if applicable)	Borehole backfilled with bentonite chips and soil cuttings and restored to grade.								

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: 1R-22.1-ENV-18

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	4.14R							
Location (Latitude/Longitude) – estimated/surveyed	40° 37' 16.62" N/ 74° 11' 47.26" W- Estimated, surveyed coordinates forthcoming.							
Site Address	Boring is located along the vegetated area between River Road and Lambert Avenue in Staten Island, New York (no exact street address available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	A subsurface water line is located 1,900 feet north of the boring							
Nearby Hydraulic Features (Distance and Direction from wetlands, piping, etc.)	Boring is located in wetlands. An unnamed pond is located 1,000 feet northeast of boring location.							
Drilling Date	09/25/12							
Drilling Company	Land Air Water Environmental Services							
Drilling Method	Hand Auger							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A							
Boring Purpose (e.g. geotech/ environmental/geoarcheological)	Environmental							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 - 2.0	2.1 - 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
		X						
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed		Seen Only		Floating Product = <6"		Floating Product = >6"	
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material				Anthropogenically-Generated Material			
					None			
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
PID/Odors (depth)	PID concentrations from 3.0 to 8.0 feet bg; highest PID of 2.4 ppm at 3 feet bg; Odor present.							
Geology	Brown, fine to medium SAND, some silt, little small rounded gravel, trace organics from 0.0 to 2.0 feet bg; underlain by dark brown, fine to medium SAND and SILT, trace organics to 3.0 feet bg; underlain by dark brown, SILT and SAND to at least 8.0 feet bg.							
Soil Permeability	Loose		Intermediate			Tight		
			X					
Total Boring Depth (feet bg)	8							
GW Monitoring Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report JB17083.							
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	1R-22.1-ENV-18/0 - 4 (0.0 to 4.0 feet bg) and 1R-22.1-ENV-18/4- 8 (4.0 to 8.0 feet bg) were collected for VOC, SVOC, metals, PCB, pesticide, herbicide, and general chemistry analyses. 1R-22.1-ENV-18-WC was collected for waste characterization analysis. 1R-22.1-ENV-18-WC/2, 1R-22.1-ENV-18-WC/4, 1R-22.1-ENV-18-WC/6, and 1R-22.1-ENV-18-WC/8 were collected for TPHC analyses.							
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	N/A							
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10⁻² Feet/Day			10⁻² – 10 Feet/Day			>10 Feet/Day	
Additional Comments/Notes/Observations (if applicable)	Borehole backfilled with bentonite chips and soil cuttings and restored to grade.							

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: 1R-22.1-ENV-19

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	4.18R							
Location (Latitude/Longitude) – estimated/surveyed	40° 37' 17.61" N/ 74° 11' 45.46" W- Estimated, surveyed coordinates forthcoming							
Site Address	Boring is located along the vegetated area between River Road and Lambert Avenue in Staten Island (no exact street address available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	A subsurface water line is located 1,700 feet north of the boring. An area of free phase product and petroleum impacted soil is located approximately 1,100 feet northeast of the boring location; an area of petroleum impacted soil is located approximately 1,620 feet east of the boring location.							
Nearby Hydraulic Features (Distance and Direction from wetlands, piping, etc.)	Arthur Kill is located approximately 1,445 feet west of boring.							
Drilling Date	09/25/12							
Drilling Company	Land Air Water Environmental Services							
Drilling Method	Hand Auger							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A							
Boring Purpose (e.g. geotech/ environmental/geoarcheological)	Environmental							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 - 2.0	2.1 - 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
			X					
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed		Seen Only		Floating Product = <6"		Floating Product = >6"	
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material				Anthropogenically-Generated Material			
					None			
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
PID/Odors (depth)	PID concentrations from 0.0 to 8.0 feet bg; highest PID of 4.2 ppm at 4 feet bg; Odor present.							
Geology	From 0.0 to 3.0 feet bg; brown, fine to medium SAND, little small rounded gravel, trace to little organics; underlain by dark-brown, SILT and SAND 3.0 to at least 8.0 feet bg.							
Soil Permeability	Loose			Intermediate		Tight		
				X				
Total Boring Depth (feet bg)	8							
GW Monitoring Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report JB17339 and JB17339A.							
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	1R-22.1-ENV-19/3 (3.0 to 3.5 feet bg) and 1R-22.1-ENV-19/7 (7.0 to 7.5 feet bg) were collected for VOC, SVOC, metals, PCB, pesticide, herbicide, and general chemistry analyses. 1R-22.1-ENV-19-WC was collected for waste characterization analysis. 1R-22.1-ENV-19-WC/2, 1R-22.1-ENV-19-WC/4, 1R-22.1-ENV-19-WC/6, and 1R-22.1-ENV-19-WC/8 were collected for TPHC analyses.							
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	N/A							
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10⁻² Feet/Day			10⁻² – 10 Feet/Day		>10 Feet/Day		
Additional Comments/Notes/Observations (if applicable)	Borehole backfilled with bentonite chips and soil cuttings and restored to grade.							

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: 1R-22.1-ENV-20

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	4.2R							
Location (Latitude/Longitude) – estimated/surveyed	40° 37' 17.40" N/ 74° 11' 44.12" W- Estimated, surveyed coordinates forthcoming							
Site Address	Boring is located along the vegetated area between River Road and Lambert Avenue in Staten Island (no exact street address available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	A subsurface water line is located 1,645 feet north of the boring. An area of free phase product and petroleum impacted soil is located approximately 985 feet northeast of the boring location; an area of petroleum impacted soil is located approximately 1,500 feet east of the boring location.							
Nearby Hydraulic Features (Distance and Direction from wetlands, piping, etc.)	Arthur Kill is located approximately 1,550 feet west of boring.							
Drilling Date	09/25/12							
Drilling Company	Land Air Water Environmental Services							
Drilling Method	Hand Auger							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A							
Boring Purpose (e.g. geotech/ environmental/geoarcheological)	Environmental							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 - 2.0	2.1 - 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
		X						
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed		Sheen Only		Floating Product = <6"		Floating Product = >6"	
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material				Anthropogenically-Generated Material			
					None			
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
PID/Odors (depth)	PID concentrations from 0.0 to 8.0 feet bg; highest PID of 4.2 ppm at 4 feet bg; Odor present.							
Geology	From 0.0 to 3.0 feet bg; brown, fine to medium SAND, little small rounded gravel, little organics; underlain by dark-brown, SILT and SAND from 3.0 to at least 8.0 feet bg.							
Soil Permeability	Loose			Intermediate		Tight		
				X				
Total Boring Depth (feet bg)	8							
GW Monitoring Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report JB17339 and JB17339A.							
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	1R-22.1-ENV-20/3 (3.0 to 3.5 feet bg) and 1R-22.1-ENV-20/5 (5.0 to 5.5 feet bg) were collected for VOC, SVOC, metals, PCB, pesticide, herbicide, and general chemistry analyses. 1R-22.1-ENV-20-WC was collected for waste characterization analysis. 1R-22.1-ENV-20-WC/2, 1R-22.1-ENV-20-WC/4, 1R-22.1-ENV-20-WC/6, and 1R-22.1-ENV-20-WC/8 were collected for TPHC analyses.							
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	N/A							
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10⁻² Feet/Day			10⁻² – 10 Feet/Day		>10 Feet/Day		
Additional Comments/Notes/Observations (if applicable)	Borehole backfilled with bentonite chips and soil cuttings and restored to grade.							

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: 1R-22.1-HDD-4

Boring Information								
Alternate Boring ID (if applicable)								
Pipeline Mile Marker ID	4.31R							
Location (Latitude/Longitude) – estimated/surveyed	40° 37' 34.9618"N / 74° 11' 25.2817"W – Surveyed							
Site Address	Boring is located approximately 150 feet southeast of the intersection of 6 th Avenue and 3 rd Street in Staten Island, New York (no exact street address available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	A subsurface water pipeline is located approximately 1,050 feet northwest of the boring.							
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	Old Place Creek is located approximately 800 feet northwest of the boring.							
Drilling Date	2/24/12 through 2/27/12							
Drilling Company	Warren George, Inc.							
Drilling Method	Hand Auger/Mud Rotary / Tri-cone Roller Bit							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A							
Boring Purpose (e.g. geotech/environmental/geoarchaeological)	Geotechnical							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
		X						
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed	Sheen Only	Floating Product = <6"	Floating Product = >6"				
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material				Anthropogenically-Generated Material			
	N/A				N/A			
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
PID/Odors (depth)	Highest PID – 24.3 at 16 ft bg. Sulfur-like odor from 9.0 to 11 ft bg.							
Geology	No cores collected from 11 to 15 feet bg, 17 to 20 feet bg, 22 to 25 feet bg, 27 to 30 feet bg, 32 to 35 feet bg, 37 to 40 feet bg, 40 to 42 feet bg, and 47 to 48.7 feet bg. Brown SILT and little fine to coarse gravel to 4.0 feet bg, underlain by dark brown/black CLAY and from 4.0 to 7.0 feet bg, underlain by black CLAY and fine to coarse GRAVEL from 7.0 to 7.5 ft bg, underlain by gray/black organic PEAT from 7.5 to 9.0 ft bg, underlain by gray CLAY and PEAT; slight sulfur-like odor from 9.0 to 11 ft bg, underlain by gray CLAY from 15 to 16.5 ft bg, underlain by brown PEAT from 16.5 to 17 ft bg, underlain by gray fine SAND, some organics (vegetation) from 20 to 22 ft bg, underlain by brown, fine SAND and fine to coarse GRAVEL from 25 to 27 ft bg, 30 to 32 ft bg, and 35 to 37 ft bg, underlain by Red/brown CLAY and SILT; trace coarse sand from 40 to 42 ft bg, underlain by red/brown CLAY and SILT; some fine to coarse sand, little fine gravel from 45 to 47 ft bg, underlain by red/brown shale – bedrock from 48.7 to at least 117 ft bg.							
Soil Permeability	Loose			Intermediate		Tight		
				X				
Total Boring Depth (feet bg)	117							
GW Monitoring Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	N/A							
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	N/A							

**New Jersey/New York Expansion Project
Boring Summary Table**

GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	N/A		
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10⁻² Feet/Day	10⁻² – 10 Feet/Day	>10 Feet/Day
Additional Comments/Notes/Observations (if applicable)	N/A		

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: RCH-3-ENV-1

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	4.71R							
Location (Latitude/Longitude) – estimated/surveyed	40° 38' 04.00" N/74° 10' 55.10" W – Estimated, surveyed coordinates forthcoming							
Site Address	Boring is located along Western Avenue, approximately 70 feet east of the intersection of Western Avenue and the driveway to Arlington Rail Yard in Staten Island, New York (no exact street address is available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	Utility easements and other pipelines for Proctor and Gamble are located approximately 65 feet northwest of the boring.							
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	A wetland area surrounds the boring. An unnamed stream is located approximately 125 feet northwest of boring.							
Drilling Date	09/05/2012							
Drilling Company	Land Air Water Environmental Services							
Drilling Method	Hand Auger/ 2" Macrocore							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A							
Boring Purpose (e.g. geotech/ environmental/geoarcheological)	Environmental and Geoarcheological							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
		X						
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed		Sheen Only		Floating Product = <6"		Floating Product = >6"	
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material				Anthropogenically-Generated Material			
					Asphalt roadway and gravel sub-base, from 0.0 to 2.0 feet bg; underlain by dark brown, medium to coarse sand, some sub-angular gravel, processed wood, glass, to 10.5 feet bg.			
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
	X	X	X	X	X	X		
PID/Odors (depth)	No PID. No odors							
Geology	FILL from 0.0 to 10.5 feet bg (see above); underlain by yellowish brown CLAY, some organics (roots), to 15 feet bg; underlain by yellowish orange PEAT, to 16 feet bg; underlain by greenish gray CLAY, little medium to coarse sand, trace organics (roots), to 17 feet bg; underlain by greenish gray, fine to medium SAND, to at least 20 feet bg.							
Soil Permeability	Loose			Intermediate		Tight		
				X				
Total Boring Depth (feet bg)	20							
GW Monitoring Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report IDs JB15520, JB15520A, and JB15520R.							
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	RCH-3-ENV-1/3 (3.0 to 3.5 feet bg) and RCH-3-ENV-1/7 (7.0 to 7.5 feet bg) were collected for VOC, SVOC, PCB, pesticide, herbicide, metals (including hexavalent chromium) and general chemistry analyses. RCH-3-ENV-1-WC was collected for waste characterization analysis. RCH-3-ENV-1-WC/2, RCH-3-ENV-1-WC/4, RCH-3-ENV-1-WC/6, and RCH-3-ENV-1-WC/8 collected for TPHC analyses.							
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	N/A							
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug)	<10⁻² Feet/Day			10⁻² – 10 Feet/Day		>10 Feet/Day		

**New Jersey/New York Expansion Project
Boring Summary Table**

test/packer test)			
Additional Comments/Notes/ Observations (if applicable)	Borehole backfilled with grout and restored to grade.		

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: RCH-3-ENV-2W

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	4.763R							
Location (Latitude/Longitude) – estimated/surveyed	40° 37' 59.40" N/74° 10' 54.59" W – Estimated, surveyed coordinates forthcoming							
Site Address	Boring is located on the Arlington Rail Yard property in Staten Island, New York (no exact street address is available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	Utility easements and other pipelines for Proctor and Gamble are located approximately 265 feet northwest of the boring.							
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	A wetland area surrounds the boring. An unnamed stream is located approximately 320 feet northwest of boring.							
Drilling Date	09/04/2012							
Drilling Company	Land Air Water Environmental Services							
Drilling Method	Hand Auger/ 2" Macrocore / Hollow Stem Auger							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A							
Boring Purpose (e.g. geotech/ environmental/geoarcheological)	Environmental							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
						X		
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed	Sheen Only	Floating Product = <6"	Floating Product = >6"				
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material			Anthropogenically-Generated Material				
				Asphalt from 0.0 to 0.5 feet bg; underlain by dark gray brown, fine to coarse sand and fine to medium sub-angular gravel, trace silt, brick, cinders, ash, ceramics, glass, metal, coal, to 3.0 feet bg; underlain by light gray brown, fine to coarse sand, some fine to medium sub-angular gravel, trace silt, slag, cinders, ash, ceramics, coal, processed wood (from 15 to 20 feet), to at least 20 feet bg.				
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
	X	X	X	X	X	X	X	X
PID/Odors (depth)	PID concentrations from 0.0 to 6.0 feet bg; highest PID of 19.3 ppm at 4 feet. No odors.							
Geology	FILL from 0.0 to at least 20 feet bg (see above).							
Soil Permeability	Loose		Intermediate			Tight		
			X					
Total Boring Depth (feet bg)	20							
GW Monitoring Well Installed (Depth, Screen, Riser, Slot Size, Casing)	0.0 to 20 ft. below surface – 3" diameter, 10 feet 0.10 slot PVC screen, and 10 feet PVC riser.							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report IDs JB15509, JB15520, JB15520A, and JB15630.							
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	RCH-3-ENV-2W/3 (3.0 to 3.5 feet bg) and RCH-3-ENV-2W/5 (5.0 to 5.5 feet bg) were collected for VOC, SVOC, PCB, pesticide, herbicide, metals (including hexavalent chromium) and general chemistry analyses. RCH-3-ENV-2W-WC was collected for waste characterization analysis. RCH-3-ENV-2W-WC/4 and RCH-3-ENV-2W-WC/8 collected for TPHC analyses.							
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	RCH-3-ENV-2W was collected for VOCs, SVOCs, PCBs, EPH, pesticide, herbicide, metal (including hexavalent chromium), and general chemistry analyses.							
Additional Hydro/Geological Test –	<10⁻² Feet/Day		10⁻² – 10 Feet/Day			>10 Feet/Day		

**New Jersey/New York Expansion Project
Boring Summary Table**

Permeability Results (e.g. pump test/slug test/packer test)			
Additional Comments/Notes/ Observations (if applicable)	Borehole backfilled with grout and restored to grade.		

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: RCH-3-ENV-4

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	4.753R							
Location (Latitude/Longitude) – estimated/surveyed	40° 37' 59.47" N/74° 10' 55.26" W – Estimated, surveyed coordinates forthcoming							
Site Address	Boring is located along the driveway to Arlington Rail Yard, approximately 230 feet east of Western Avenue in Staten Island, New York (no exact street address is available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	Utility easements and other pipelines for Proctor and Gamble are located approximately 200 feet northwest of the boring.							
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	A wetland area surrounds the boring. An unnamed stream is located approximately 400 feet north of boring.							
Drilling Date	09/04/2012							
Drilling Company	Land Air Water Environmental Services							
Drilling Method	Hand Auger/ 2" Macrocore							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A							
Boring Purpose (e.g. geotech/ environmental/geoarcheological)	Environmental and Geoarcheological							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
					X			
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed	Sheen Only	Floating Product = <6"	Floating Product = >6"				
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material				Anthropogenically-Generated Material			
					Asphalt, from 0.0 to 0.5 feet bg; underlain by gray brown, fine to medium sand, some fine to medium sub-angular gravel, trace silt, concrete, carbon rod, to 2.0 feet bg; underlain by gray brown, fine to coarse sand, some fine to medium sub-angular gravel, trace silt, brick, cinders, ash, glass, concrete, to 17 feet bg.			
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
	X	X	X	X	X	X	X	X
PID/Odors (depth)	No PID. No odors							
Geology	FILL from 0.0 to 17 feet bg (see above); underlain by PEAT, to at least 20 feet bg.							
Soil Permeability	Loose			Intermediate		Tight		
				X				
Total Boring Depth (feet bg)	20							
GW Monitoring Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report IDs JB15520, JB15520A, JB15629, and JB15629A.							
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	RCH-3-ENV-4/1 (1.0 to 1.5 feet bg) and RCH-3-ENV-4/6 (6.0 to 6.5 feet bg) were collected for VOC, SVOC, PCB, pesticide, herbicide, metals (including hexavalent chromium) and general chemistry analyses. RCH-3-ENV-4-WC was collected for waste characterization analysis. RCH-3-ENV-4-WC/2, RCH-3-ENV-4-WC/4, RCH-3-ENV-4-WC/6, and RCH-3-ENV-4-WC/8 collected for TPHC analyses.							
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	N/A							
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10⁻² Feet/Day			10⁻² – 10 Feet/Day		>10 Feet/Day		

**New Jersey/New York Expansion Project
Boring Summary Table**

Additional Comments/Notes/ Observations (if applicable)	Borehole backfilled with grout and restored to grade.
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**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: RCH-4-ENV-21.1

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	Approximately 85 feet west of 4.83R							
Location (Latitude/Longitude) – estimated/surveyed	40° 38' 2.6209" N / 74° 10' 53.8799" W - Surveyed							
Site Address	Boring is located approximately 830 feet northeast of a bridge crossing a small creek on Western Avenue in Staten Island, New York (no exact street address is available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	Utility easements and other pipelines for Proctor and Gamble are located approximately 35 feet southwest of the boring.							
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	A wetland area surrounds the boring. An unnamed stream is located approximately 215 feet southwest of boring.							
Drilling Date	04/16/2012							
Drilling Company	Land Air Water Environmental Services							
Drilling Method	Hand Auger/ 2" Macrocore/Mud Rotary							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A							
Boring Purpose (e.g. geotech/ environmental/geoarchaeological)	Environmental							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
			X					
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed	Sheen Only	Floating Product = <6"	Floating Product = >6"				
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material			Anthropogenically-Generated Material				
				Gray brown, medium to fine sand, some coarse to fine, angular to rounded gravel, little silt, cobbles, concrete, brick, asphalt, metal, processed wood, glass, and plastic, trace clay to 4.0 ft bg, underlain by dark gray to black, medium to fine sand, little medium to fine, sub-angular to rounded gravel, little silt, coal, cinders, and slag from 4.0 to 6.0 ft bg.				
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
	X	X	X					
PID/Odors (depth)	Highest PID – 123 ppm at 4.0 ft bg. No odors.							
Geology	FILL (see above) to 6.0 ft bg, underlain by brown PEAT, little clay, trace silt from 6.0 to 8.0 ft bg, underlain by brown to gray, medium to fine SAND, little silt, trace clay and root material from 8.0 to 22 ft bg, underlain by Red brown, fine SAND and SILT from 25 to at least 27 ft bg. Continuous drilling from 22 to 25 ft bg – no spoons collected.							
Soil Permeability	Loose		Intermediate			Tight		
			X					
Total Boring Depth (feet bg)	27							
GW Monitoring Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report ID JB4278, and JB4278T.							
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	RCH-4-ENV-21.1/3 (3.0 to 3.5 feet bg) and RCH-4-ENV-21.1/4 (4.0 to 4.5 feet bg) were collected for VOC, SVOC, PCB, pesticide, TPH, metals (including hexavalent chromium) and general chemistry analyses. RCH-4-ENV-21.1-WC, RCH-4-ENV-21.1-WC/2 (2.0 to 2.5 ft bg), RCH-4-ENV-21.1-WC/4 (4.0 to 4.5 ft bg), and RCH-4-ENV-21.1-WC/8 (8.0 to 8.5 ft bg) were collected for TPH and general chemistry analyses. RCH-4-ENV-19+20W+21-WC-COMP was collected for metals TCLP, RCRA characteristics, SVOC, PCB, pesticide, TPH, metals (including hexavalent chromium) and general chemistry analyses.							

**New Jersey/New York Expansion Project
Boring Summary Table**

GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	N/A		
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10⁻² Feet/Day	10⁻² – 10 Feet/Day	>10 Feet/Day
Additional Comments/Notes/Observations (if applicable)	Borehole grouted in accordance with N.J.A.C. 7:9D-3.1.		

**New Jersey/New York Expansion Project
Boring Summary Table**

TRC Boring Identification: SI-1

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	4.78R							
Location (Latitude/Longitude) – estimated/surveyed	40°37'48.52"N / 74°11'06.06"W – estimated (no survey data collected)							
Site Address	The boring is located approximately 300 feet southeast of the intersection of Western Avenue and Goethals Road North in Staten Island, New York (no exact street address available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	The boring is located approximately 310 feet southeast of a subsurface water utility line near Western Avenue.							
Nearby Hydraulic Features (Distance and Direction from wetlands, piping, etc.)	This boring is located approximately 475 feet northeast of Old Place Creek.							
Drilling Date	3/7/2011							
Drilling Company	N/A							
Drilling Method	Hand Auger							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A							
Boring Purpose (e.g. geotech/environmental/geoarchaeological)	Geoarcheological							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 - 2.0	2.1 - 4.0	4.1 - 6.0	6.1 - 8.0	8.1 - 12.0	12.1 - 16.0	16.1 - 20.0	>20
	Water not encountered							
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed	Sheen Only	Floating Product = <6"	Floating Product = >6"				
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material			Anthropogenically-Generated Material				
	N/A			N/A				
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 - 2.0	2.1 - 4.0	4.1 - 6.0	6.1 - 8.0	8.1 - 10.0	10.1 - 12.0	>12.1	
PID/Odors (depth)	N/D							
Geology	0 to 1 foot bg - Light brown medium SAND, some Silt, some organics (roots), moist.							
Soil Permeability	Loose		Intermediate			Tight		
			X					
Total Boring Depth (feet bg)	1							
GW Monitoring Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report JA69812							
Soil Samples Collected (Parameters, Analytical Results Summary)	SI-1-1 (0.5 to 1.0 foot bg) was analyzed for PCBs.							
GW Samples Collected (Parameters, Analytical Results Summary)	N/A							
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10⁻² Feet/Day		10⁻² – 10 Feet/Day			>10 Feet/Day		
Additional Comments/Notes/Observations (if applicable)	N/A							

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: RCH-6-ARC-MT-1

Boring Information									
Alternate Boring ID (if applicable)	N/A								
Pipeline Mile Marker ID	Approximately 40 feet west of 5.51R								
Location (Latitude/Longitude) – estimated/surveyed	Waiting for GE								
Site Address	Boring is located approximately 1,090 feet northwest of the intersection of Richmond Terrace and Holland Avenue in Staten Island, New York (no exact street address available).								
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	An underground water pipe is located approximately 60 feet south of the test pit.								
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	The Newark Bay is located 790 feet northwest of the test pit. A wetland area surrounds the test pit.								
Drilling Date	3/14/12								
Drilling Company	The Napp-Grecco Company								
Drilling Method	Excavator								
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A								
Boring Purpose (e.g. geotech/environmental/geoarchaeological)	Geoarchaeological								
Boring Observations									
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20	
			X						
PRODUCT									
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No								
- Product in GW – Check where applicable	None Observed		Sheen Only		Floating Product = <6"		Floating Product = >6"		
	X								
HISTORIC FILL MATERIAL									
- Composition, other observations – complete, as applicable	Reworked Material				Anthropogenically-Generated Material				
	N/A				N/A				
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1		
PID/Odors (depth)	N/D								
Geology	Brown top soil; some roots to 0.5 ft bg, underlain by brown, medium to coarse, loose SAND; little brown silt, trace fine to coarse, sub-angular gravel from 0.5 to 5.0 ft bg, underlain by black SILT and medium to coarse, loose SAND; some down vegetation (tree), trace roots from 5.0 to 6.5 ft bg, underlain by reddish-brown SILT; some medium soft clay, trace medium to coarse, loose sand and fine, sub-angular gravel from 6.5 to at least 8.0 ft bg; layer of gray, medium soft CLAY; trace silt and medium to coarse sand at uppermost 1".								
Soil Permeability	Loose		Intermediate			Tight			
			X						
Total Boring Depth (feet bg)	8.0								
GW Temporary Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A								
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report ID JB1690 and JB1690R.								
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	RCH-6-ARC/MT-1 WC was collected for VOC, SVOC, PCB, TPH, metals pesticide/herbicide, and general chemistry analyses.								
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	N/A								
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10⁻² Feet/Day			10⁻² – 10 Feet/Day			>10 Feet/Day		
Additional Comments/Notes/Observations (if applicable)	Location was a test pit used for subsurface evaluation.								

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: RCH-6-ARC-MT-2

Boring Information									
Alternate Boring ID (if applicable)	N/A								
Pipeline Mile Marker ID	Approximately 40 feet west of 5.52R								
Location (Latitude/Longitude) – estimated/surveyed	Waiting for GE								
Site Address	Boring is located approximately 1,110 feet northwest of the intersection of Richmond Terrace and Holland Avenue in Staten Island, New York (no exact street address available).								
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	An underground water pipe is located approximately 125 feet south of the test pit.								
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	The Newark Bay is located 705 feet northwest of the test pit. A wetland area surrounds the test pit.								
Drilling Date	3/13/12								
Drilling Company	The Napp-Grecco Company								
Drilling Method	Excavator								
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A								
Boring Purpose (e.g. geotech/environmental/geoarchaeological)	Geoarchaeological								
Boring Observations									
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20	
		X							
PRODUCT									
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No								
- Product in GW – Check where applicable	None Observed		Sheen Only		Floating Product = <6"		Floating Product = >6"		
	X								
HISTORIC FILL MATERIAL									
- Composition, other observations – complete, as applicable	Reworked Material				Anthropogenically-Generated Material				
	N/A				Black coal ash and reddish-brown silt; some medium to coarse sand and fine to coarse, sub-angular gravel, trace roots, red brick, scrap metal and glass bottles to 5.0 ft bg,				
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1		
	X	X							
PID/Odors (depth)	N/D								
Geology	Fill to 5.0 ft bg (see above), underlain by brown, fine to coarse SAND and SILT; trace fine gravel from 5.0 to 5.5 ft bg, underlain by PEAT from 5.5 to 6.5 ft bg, underlain by reddish-brown SILT and fine SAND; trace soft clay from 6.5 tp at least 8.5 ft bg.								
Soil Permeability	Loose		Intermediate			Tight			
			X						
Total Boring Depth (feet bg)	8.5								
GW Temporary Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A								
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report ID JB1510 and JB1510R.								
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	RCH-6-ARC/MT-2 WC was collected for VOC, TPH, and general chemistry analyses. RCH-6-ARC/MT(2+3) COMP WC was collected for VOC TCLP, SVOC TCLP, metals TCLP, pesticide/herbicide TCLP, RCRA characteristics, SVOC, metals, PCBs, TPH, pesticide/herbicide, and general chemistry.								
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	N/A								
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10⁻² Feet/Day			10⁻² – 10 Feet/Day			>10 Feet/Day		
Additional Comments/Notes/Observations (if applicable)	Location was a test pit used for subsurface evaluation.								

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: RCH-6-ARC-MT-3

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	Approximately 30 feet west of 5.54R							
Location (Latitude/Longitude) – estimated/surveyed	Waiting for GE							
Site Address	Boring is located approximately 1,140 feet northwest of the intersection of Richmond Terrace and Holland Avenue in Staten Island, New York (no exact street address available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	An underground water pipe is located approximately 195 feet south of the test pit.							
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	The Newark Bay is located 630 feet northwest of the test pit. A wetland area surrounds the test pit.							
Drilling Date	3/12/12							
Drilling Company	The Napp-Grecco Company							
Drilling Method	Excavator							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A							
Boring Purpose (e.g. geotech/environmental/geoarchaeological)	Geoarchaeological							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
		X						
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed		Sheen Only		Floating Product = <6"		Floating Product = >6"	
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material				Anthropogenically-Generated Material			
	Brownish-red silt and coarse sand; some roots, trace fine, sub-angular gravel and medium soft clay to 1.0 ft bg,				Black coal ash and dark brown, coarse sand; little silt, trace red brick and wooden planks; strong odor from 1.0 to 2.5 ft bg, underlain by light gray coal ash and dark brown silt; little medium to coarse, loose sand, trace red brick, concrete and miscellaneous debris (ceramics, plates, glass bottles, scrap metal, wood timbers, wooden planks); strong odor from 2.5 to 5.0 ft bg, underlain by dark brown, medium to coarse sand and silt; some black coal ash, little fine to coarse, sub-angular gravel, trace red brick, concrete and miscellaneous debris (same as above); strong odor from 5.0 to 6.0 ft bg.			
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
	X	X	X					
PID/Odors (depth)	Highest PID – 1.8 ppm at 5.5 ft bg. Strong odors from 1.0 to 6.0 ft bg.							
Geology	Fill to 6.0 ft bg (see above), underlain by Brown PEAT from 6.0 to at least 8.5 ft bg.							
Soil Permeability	Loose			Intermediate		Tight		
				X				
Total Boring Depth (feet bg)	8.5							
GW Temporary Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report ID JB1510 and JB1510R.							
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	RCH-6-ARC/MT-3 WC was collected for TPH and general chemistry analyses. RCH-6-ARC/MT(2+3) COMP WC was collected for VOC TCLP, SVOC TCLP, metals TCLP, pesticide/herbicide TCLP, RCRA characteristics, SVOC, metals, PCBs, TPH, pesticide/herbicide, and general chemistry.							
GW Samples Collected - Sample ID(s) and	N/A							

**New Jersey/New York Expansion Project
Boring Summary Table**

Sampling Parameter(s)			
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10⁻² Feet/Day	10⁻² – 10 Feet/Day	>10 Feet/Day
Additional Comments/Notes/Observations (if applicable)	Location was a test pit used for subsurface evaluation.		

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: RCH-6-ARC-MT-5

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	Approximately 25 feet west of 5.57R							
Location (Latitude/Longitude) – estimated/surveyed	Waiting for GE location to be finalized							
Site Address	Boring is located approximately 1,090 feet northwest of the intersection of Richmond Terrace and Holland Avenue in Staten Island, New York (no exact street address available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	An underground water pipe is located approximately 290 feet south of the test pit.							
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	The Newark Bay is located 580 feet northwest of the test pit. A wetland area surrounds the test pit.							
Drilling Date	3/15/12							
Drilling Company	The Napp-Grecco Company							
Drilling Method	Excavator							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A							
Boring Purpose (e.g. geotech/environmental/geoarchaeological)	Geoarchaeological							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
		X						
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No, but sheen on ground water from 2.5 to 4.0 ft bg.							
- Product in GW – Check where applicable	None Observed		Sheen Only		Floating Product = <6"		Floating Product = >6"	
			X					
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material				Anthropogenically-Generated Material			
					Brown silt and medium to coarse, loose sand; some red brick, trace roots and fine to coarse, sub-angular gravel to 2.5 ft bg, underlain by black coal ash and medium to coarse, loose sand; some fine to coarse, sub-angular gravel, little silt, trace belgium blocks, red brick and glass bottles; sheen on ground water; no staining on soil from 2.5 to 4.0 ft bg, underlain by light gray, medium to coarse, loose sand and fine to coarse, sub-angular gravel; little black coal ash, trace silt, glass bottles, scrap metal and ceramics from 4.0 to at least 8.0 ft bg.			
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
	X	X	X	X				
PID/Odors (depth)	N/D							
Geology	Fill to at least 8.0 ft bg (see above).							
Soil Permeability	Loose			Intermediate			Tight	
				X				
Total Boring Depth (feet bg)	8.0							
GW Temporary Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report ID JB1768 and JB1768R.							
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	RCH-6-ARC/MT-5 WC was collected for RCRA characteristics, SVOC, metals, PCBs, TPH, pesticide/herbicide, and general chemistry analyses.							
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	N/A							

**New Jersey/New York Expansion Project
Boring Summary Table**

Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10 ⁻² Feet/Day	10 ⁻² – 10 Feet/Day	>10 Feet/Day
Additional Comments/Notes/ Observations (if applicable)	Location was a test pit used for subsurface evaluation.		

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: RCH-6-ARC-MT-7

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	Approximately 25 feet west of 5.6R							
Location (Latitude/Longitude) – estimated/surveyed	Waiting for GE							
Site Address	Boring is located approximately 950 feet northwest of the intersection of Richmond Terrace and Holland Avenue in Staten Island, New York (no exact street address available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	An underground water pipe is located approximately 320 feet south of the test pit.							
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	The Newark Bay is located 575 feet northeast of the test pit.							
Drilling Date	3/09/12							
Drilling Company	The Napp-Grecco Company							
Drilling Method	Excavator							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A							
Boring Purpose (e.g. geotech/environmental/geoarchaeological)	Geoarchaeological							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
		X						
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed		Sheen Only		Floating Product = <6"		Floating Product = >6"	
			X					
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material				Anthropogenically-Generated Material			
	Asphalt and concrete pad to 0.5 ft bg.				Brown silt and fine to coarse sand; little fine to coarse, sub-angular gravel, trace concrete, red brick and miscellaneous debris (aluminum scrap metal, glass bottles, electrical conduit, rebar, glass, plastic sheeting, wooden boards) to 3.0 ft bg, underlain by black coal ash; some fine to coarse, sub-angular gravel, little brown, medium to coarse sand, trace red brick, concrete and miscellaneous debris; slight odor; sheen observed on ground water from northwest corner from 3.0 to at least 8.0 ft bg.			
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
	X	X	X	X				
PID/Odors (depth)	Slight odor from 3.0 to 8.0 ft bg.							
Geology	Fill to at least 8.0 ft bg (see above).							
Soil Permeability	Loose			Intermediate			Tight	
				X				
Total Boring Depth (feet bg)	8.0							
GW Temporary Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report ID JB1510, JB1510R, JB1319 and JB1319R.							
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	RCH-6-ARC/MT-7 WC was collected for PCB, TPH and general chemistry analyses. RCH-6-ARC/MT(7+9) COMP WC was collected for VOC TCLP, SVOC TCLP, metals TCLP, pesticide/herbicide TCLP, RCRA characteristics, SVOC, metals, PCBs, TPH, pesticide/herbicide, and general chemistry analyses.							
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	N/A							

**New Jersey/New York Expansion Project
Boring Summary Table**

Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10 ⁻² Feet/Day	10 ⁻² – 10 Feet/Day	>10 Feet/Day
Additional Comments/Notes/ Observations (if applicable)	Location was a test pit used for subsurface evaluation.		

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: RCH-MM-ARC-7

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	PENDING with Mariner's Marsh reroute							
Location (Latitude/Longitude) – estimated/surveyed	40° 38' 21.8696" N / 74° 10' 40.2559" W – Surveyed							
Site Address	Boring is located in Mariner's Marsh, approximately 98 feet southeast of Omaha Street in Staten Island, New York (no exact street address available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	A concrete wall is located approximately 185 feet east of boring.							
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	Newark Bay is located approximately 1,150 feet north of boring.							
Drilling Date	11/29/2011							
Drilling Company	Land Air Water Environmental Services							
Drilling Method	Hand Auger/ Macrocore /2"/ Direct Push							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A							
Boring Purpose (e.g. geotech/ environmental/geoarchaeological)	Geoarchaeological							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed	Sheen Only	Floating Product = <6"	Floating Product = >6"				
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material				Anthropogenically-Generated Material			
	N/A				N/A			
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
PID/Odors (depth)	N/D							
Geology	Red brown SILT and CLAY, trace fine to coarse gravel, organic roots from grade to at least 6.0 feet bg.							
Soil Permeability	Loose		Intermediate			Tight		
			X					
Total Boring Depth (feet bg)	20							
GW Temporary Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	N/A							
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	N/A							
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	N/A							
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10 ⁻² Feet/Day		10 ⁻² – 10 Feet/Day			>10 Feet/Day		
Additional Comments/Notes/Observations (if applicable)	No lithology recorded from 6.0 to 20' due to macrocore samples remaining unopened for further investigation by archaeologist (GRA). Borehole backfilled with soil cuttings and restored to natural grade.							



Environmental Corporation

57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

SOIL BORING LOG

BORING NUMBER

RCH-6-ENV-3

PROJECT NAME: Spectra NJ-NY Expansion

LOCATION: Staten Island, New York

PROJECT NO.: 168217

CONTRACTOR: Land Air Water Environmental Services

DATE DRILLED: 07/20/11

SAMPLER TYPE/DIA.: Hand Auger/
Macrocore/2"

DEPTH TO WATER: 4.0 feet

DRILLER: K. McGourty

BORING METHOD: Direct Push

TOTAL DEPTH DRILLED: 15 feet

LOGGED BY: B. Chaky

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
0						
1		Hand Cleared	ND	RCH6ENV3/4		0 to 3.0' - FILL: Brown, medium to fine sand; some coarse to fine gravel, little silt, trace metal/brick fragments. Sub-angular to sub-rounded, dry, loose. Concrete fragments at 1'. Coal fragments at 2'.
2						
3						
4						
5		21	ND	RCH6ENV3/6		3.0 to 5.0' - FILL: Dark brown, medium to fine sand; some coarse to fine gravel, little gray/brown clay, trace silt, trace wood material, trace cinders, trace coal fragments, trace ceramic fragments. Sub-rounded, loose, wet at 4'.
6						
7						
8						
9		27	ND			5.0 to 11' -FILL: Dark gray to black, medium to fine sand; some medium to fine, sub-rounded gravel, trace silt, trace coal/cinders. Wet, loose. Shell fragments and wood material at 11'.
10						
11						
12						
13						11 to 15' - Brown PEAT; little silt, trace roots. Moist, loose.
14			50.9 168			
15			20.7			End of Boring @ 15'

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: RCH-MM-ARC-1

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	PENDING with Mariner's Marsh reroute							
Location (Latitude/Longitude) – estimated/surveyed	40° 38' 10.1421" N / 74° 10' 40.3284" W – Surveyed							
Site Address	Boring is located in Mariner's Marsh, approximately 1,300 feet southeast of the intersection of Omaha Street and Catherine Place in Staten Island, New York (no exact street address available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	Underground utility easements are located approximately 285 feet west of boring.							
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	A wetland area is located approximately 125 feet north of boring.							
Drilling Date	11/30/2011							
Drilling Company	Land Air Water Environmental Services							
Drilling Method	Hand Auger/ Macrocore /2"							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A							
Boring Purpose (e.g. geotech/ environmental/geoarchaeological)	Geoarchaeological							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
	X							
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed	Sheen Only	Floating Product = <6"	Floating Product = >6"				
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material				Anthropogenically-Generated Material			
	N/A				N/A			
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
PID/Odors (depth)	N/D							
Geology	Brown to light brown, fine to coarse SAND; little silt to 6.0 ft bg, trace organic roots from 0.0 to 1.5 ft bg, underlain by brown, fine to coarse SAND from 6.0 to 11 ft bg, underlain by red brown SILT and CLAY from 11 to 14.5 ft bg, underlain by brown, fine SAND from 14.5 to at least 20 ft bg.							
Soil Permeability	Loose		Intermediate			Tight		
			X					
Total Boring Depth (feet bg)	20							
GW Temporary Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	N/A							
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	N/A							
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	N/A							
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10 ⁻² Feet/Day		10 ⁻² – 10 Feet/Day			>10 Feet/Day		
Additional Comments/Notes/Observations (if applicable)	Borehole backfilled with soil cuttings and restored to grade.							

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: RCH-MM-ARC-5

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	PENDING with Mariner's Marsh reroute							
Location (Latitude/Longitude) – estimated/surveyed	40° 38' 18.0615" N / 74° 10' 40.2764" W – Surveyed							
Site Address	Boring is located in Mariner's Marsh, approximately 480 feet southeast of Omaha Street in Staten Island, New York (no exact street address available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	A concrete wall is located approximately 255 feet northeast of boring.							
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	Newark Bay is located approximately 1,550 feet north of boring.							
Drilling Date	11/30/2011							
Drilling Company	Land Air Water Environmental Services							
Drilling Method	Hand Auger/ Macrocore /2"/ Direct Push							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A							
Boring Purpose (e.g. geotech/ environmental/geoarchaeological)	Geoarchaeological							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
		X						
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed		Seen Only		Floating Product = <6"		Floating Product = >6"	
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material				Anthropogenically-Generated Material			
	N/A				N/A			
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
PID/Odors (depth)	N/D							
Geology	Brown SILT and fine to coarse GRAVEL; some clay from grade to 3.0 feet bg, underlain by brown to light brown CLAY and SILT; some fine to coarse gravel to at least 6.0 feet bg.							
Soil Permeability	Loose			Intermediate		Tight		
				X				
Total Boring Depth (feet bg)	20							
GW Temporary Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	N/A							
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	N/A							
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	N/A							
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10 ⁻² Feet/Day			10 ⁻² – 10 Feet/Day		>10 Feet/Day		
Additional Comments/Notes/Observations (if applicable)	No lithology recorded from 6.0 to 20' due to macrocore samples remaining unopened for further investigation by archaeologist (GRA). Borehole backfilled with soil cuttings and restored to natural grade.							

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: RCH-MM-ENV-8

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	PENDING with Mariner's Marsh reroute							
Location (Latitude/Longitude) – estimated/surveyed	40° 38' 20.3071" N / 74° 10' 40.3148" W – Surveyed							
Site Address	Boring is located in Mariner's Marsh, approximately 245 feet southeast of Omaha Street in Staten Island, New York (no exact street address available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	A concrete wall is located approximately 245 feet northeast of boring.							
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	Newark Bay is located approximately 1,325 feet north of boring.							
Drilling Date	11/30/2011							
Drilling Company	Land Air Water Environmental Services							
Drilling Method	Hand Auger/ Macrocore /2"/ Direct Push							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A							
Boring Purpose (e.g. geotech/ environmental/geoarchaeological)	Environmental							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
	Water Not Encountered							
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed	Sheen Only	Floating Product = <6"	Floating Product = >6"				
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material			Anthropogenically-Generated Material				
	N/A			Trace cinder block pieces from grade to 1.0 foot bg. Wood and plastic fill from 1.0 to 3.0 feet bg. Trace wood fill material from 4.0 to 6.0 feet bg.				
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
	X	X	X					
PID/Odors (depth)	Max PID = 10.6 ppm from 3.0 to 3.5 feet bg. No odor.							
Geology	FILL (see above) from grade to 6.0 feet bg, underlain by red brown SILT; some clay, trace to little fine to coarse gravel to at least 15 feet bg.							
Soil Permeability	Loose		Intermediate			Tight		
			X					
Total Boring Depth (feet bg)	15							
GW Temporary Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report ID JA93246							
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	RCH-MM-ENV-8/3 (3.0 to 3.5 feet bg) and RCH-MM-ENV-8/5 (5.0 to 5.5 feet bg) were collected for VOC, SVOC, PCB, TPH, pesticide, herbicide, metals and general chemistry analyses.							
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	N/A							
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10⁻² Feet/Day		10⁻² – 10 Feet/Day			>10 Feet/Day		
Additional Comments/Notes/Observations (if applicable)	Borehole backfilled with soil cuttings and restored to grade.							

**New Jersey/New York Expansion Project
Boring Summary Table**

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: 1R-22.1-ENV-10

Boring Information									
Alternate Boring ID (if applicable)	N/A								
Pipeline Mile Marker ID	Approximately 845 feet south of 3.69R								
Location (Latitude/Longitude) – estimated/surveyed	40° 37' 18.1708"N / 74° 11' 59.4195"W – Surveyed								
Site Address	Boring is located approximately 1,320 feet south of the intersection of Water Street and 7 th Street in Staten Island, New York (no exact street address is available).								
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	A subsurface water pipeline is located approximately 1,630 feet southeast of boring.								
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	Arthur Kill is located approximately 370 feet west of boring.								
Drilling Date	3/8/2012								
Drilling Company	Land Air Water Environmental Services								
Drilling Method	Hand Auger/2"-Macrocore								
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A								
Boring Purpose (e.g. geotech/environmental/geoarchaeological)	Environmental								
Boring Observations									
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20	
			X						
PRODUCT									
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No								
- Product in GW – Check where applicable	None Observed	Sheen Only	Floating Product = <6"	Floating Product = >6"					
	X								
HISTORIC FILL MATERIAL									
- Composition, other observations – complete, as applicable	Reworked Material			Anthropogenically-Generated Material					
	Brown silt and coarse to fine sand; little coarse to fine gravel to 3.0 ft bg, underlain by brown, coarse to fine sand; little silt, trace coarse to fine gravel from 3.0 to 4.0 ft bg.			Brown, coarse to fine sand; little coarse to fine gravel, trace coal from 4.0 to 6.0 ft bg.					
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1		
			X						
PID/Odors (depth)	Highest PID – 5.5 ppm at 19 feet. Sulfur-like odor from 19 to 20 ft bg.								
Geology	Fill to 6.0 ft bg (see above), underlain by brown to gray, coarse to fine SAND; some coarse to fine, rounded gravel from 6.0 to 15 ft bg, underlain by gray, coarse to fine SAND; little fine gravel, trace shells from 15 to 19 ft bg, underlain by gray-black CLAY; trace vegetation; slight sulfur-like odor from 19 to at least 20 ft bg.								
Soil Permeability	Loose		Intermediate			Tight			
			X						
Total Boring Depth (feet bg)	20								
GW Temporary Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A								
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report IDs JB1189.								
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	1R-22.1-10/2 (2.0 to 2.5 feet bg) and 1R-22.1-10/6 (6.0 to 6.5 feet bg) were collected for VOC, SVOC, PCB, TPH, pesticide, herbicide, metals and general chemistry analyses.								
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	N/A								
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10⁻² Feet/Day		10⁻² – 10 Feet/Day			>10 Feet/Day			

**New Jersey/New York Expansion Project
Boring Summary Table**

Additional Comments/Notes/ Observations (if applicable)	N/A
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**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: 1R-22.1-ENV-11

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	Approximately 960 feet south of 3.71R							
Location (Latitude/Longitude) – estimated/surveyed	40° 37' 16.8714" N / 74° 11' 57.3790" W – Surveyed							
Site Address	Boring is located approximately 560 feet northwest of the intersection of Water Street and River Road in Staten Island, New York (no exact street address is available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	No underground utilities are located within approximately .5 mile of the boring.							
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	Arthur Kill is located approximately 400 feet west of boring.							
Drilling Date	3/7/2012							
Drilling Company	Land Air Water Environmental Services							
Drilling Method	Hand Auger/2"-Macrocore							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A							
Boring Purpose (e.g. geotech/environmental/geoarchaeological)	Environmental							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
		X						
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed	Sheen Only	Floating Product = <6"	Floating Product = >6"				
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material			Anthropogenically-Generated Material				
	Red-brown to brown to gray, medium to fine sand; some coarse to fine, sub-angular to rounded gravel, little silt, root materials and cobbles to 8.5 ft bg.							
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
PID/Odors (depth)	Highest PID – 19.8 ppm at 8.5 feet. Petroleum-like odor from 8.5 to 14.5 ft bg.							
Geology	Fill to 8.5 ft bg (see above), underlain by black to gray CLAY; little silt, trace fine sand; petroleum-like odor from 8.5 to 11.5 ft bg, underlain by gray, coarse to fine SAND; little fine, rounded gravel, trace silt from 11.5 to 15 ft bg; two 6" bands of dark gray CLAY, little silt and trace fine sand and petroleum like odor from 12 to 12.5 ft bg and 14 to 14.5 ft bg, underlain by gray, coarse to fine SAND; little fine, rounded gravel, trace silt from 15 to at least 20 ft bg; 3" band of black clay at bottom of interval.							
Soil Permeability	Loose			Intermediate		Tight		
				X				
Total Boring Depth (feet bg)	20							
GW Temporary Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report IDs JB1030.							
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	1R-22.1-11/2 (2.0 to 2.5 feet bg) and 1R-22.1-11/7.5 (7.5 to 8.0 feet bg) were collected for VOC, SVOC, PCB, TPH, pesticide, herbicide, metals and general chemistry analyses.							
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	N/A							
Additional Hydro/Geological Test –	<10⁻² Feet/Day			10⁻² – 10 Feet/Day		>10 Feet/Day		

**New Jersey/New York Expansion Project
Boring Summary Table**

Permeability Results (e.g. pump test/slug test/packer test)			
Additional Comments/Notes/ Observations (if applicable)	N/A		

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: 1R-22.1-ENV-12

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	Approximately 1050 feet south of 3.74R							
Location (Latitude/Longitude) – estimated/surveyed	40° 37' 15.5646" N / 74° 11' 55.3692" W – Surveyed							
Site Address	Boring is located approximately 410 feet northwest of the intersection of Water Street and River Road in Staten Island, New York (no exact street address is available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	No underground utilities are located within approximately .5 mile of the boring.							
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	Arthur Kill is located approximately 610 feet west of boring.							
Drilling Date	3/7/2012							
Drilling Company	Land Air Water Environmental Services							
Drilling Method	Hand Auger/2"-Macrocore							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A							
Boring Purpose (e.g. geotech/environmental/geoarchaeological)	Environmental							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
		X						
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed	Sheen Only	Floating Product = <6"	Floating Product = >6"				
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material				Anthropogenically-Generated Material			
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
PID/Odors (depth)	Highest PID – 1.9 ppm at 19.5 feet. No odor.							
Geology	Brown SILT; some coarse to fine sand, little coarse to fine gravel to 4.0 ft bg, underlain by brown, coarse to fine SAND; little coarse to fine gravel from 4.0 to 6.0 ft bg, underlain by no recovery from 6.0 to 10 ft bg, underlain by gray to gray-black, coarse to fine SAND and CLAY from 10 to 19 ft bg, underlain by black PEAT from 19 to at least 20 ft bg.							
Soil Permeability	Loose		Intermediate			Tight		
			X					
Total Boring Depth (feet bg)	20							
GW Temporary Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report IDs JB1030.							
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	1R-22.1-12/1 (1.0 to 1.5 feet bg) and 1R-22.1-12/5 (5.0 to 5.5 feet bg) were collected for VOC, SVOC, PCB, TPH, pesticide, herbicide, metals and general chemistry analyses.							
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	N/A							
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10⁻² Feet/Day		10⁻² – 10 Feet/Day			>10 Feet/Day		
Additional Comments/Notes/Observations (if applicable)	N/A							

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: 1R-22.1-ENV-13

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	Approximately 1,175 feet south of 3.75R							
Location (Latitude/Longitude) – estimated/surveyed	40° 37' 14.3043" N / 74° 11' 53.4498" W – Surveyed							
Site Address	Boring is located approximately 270 feet northeast of the intersection of Water Street and River Road in Staten Island, New York (no exact street address is available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	No underground utilities are located within approximately .5 mile of the boring.							
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	Arthur Kill is located approximately 590 feet west of boring.							
Drilling Date	3/7/2012							
Drilling Company	Land Air Water Environmental Services							
Drilling Method	Hand Auger/2"-Macrocore							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A							
Boring Purpose (e.g. geotech/environmental/geoarchaeological)	Environmental							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
		X						
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed	Sheen Only	Floating Product = <6"	Floating Product = >6"				
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material			Anthropogenically-Generated Material				
	Dark brown to orange-brown, coarse to fine sand and coarse to fine, angular to sub-rounded gravel; little silt, cobbles to 7.0 ft bg, underlain by black to dark gray clay; little fine sand; petroleum-like odor from 7.0 to 7.5 ft bg.							
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
PID/Odors (depth)	Highest PID – 1.9 ppm at 17 feet. Petroleum-like odor at 7.0 ft bg and 14 to 15 ft bg. Organic-like odor from 18.5 to 20 ft bg.							
Geology	Fill to 7.5 ft bg (see above), underlain by dark brown to dark gray, coarse to fine SAND; little medium to fine, angular to rounded gravel, trace silt from 7.5 to 14 ft bg, underlain by black to dark gray CLAY; little silt and fine sand; petroleum-like odor from 14 to 15 ft bg, underlain by black to dark gray, medium to fine SAND; trace silt and fine, rounded gravel from 15 to 18.5 ft bg, underlain by black to dark gray CLAY; little silt and fine sand, root materials at bottom 4"; organic-like odor from 18.5 to at least 20 ft bg.							
Soil Permeability	Loose			Intermediate		Tight		
				X				
Total Boring Depth (feet bg)	20							
GW Temporary Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report IDs JB1030.							
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	1R-22.1-13/1 (1.0 to 1.5 feet bg) and 1R-22.1-13/7 (7.0 to 7.5 feet bg) were collected for VOC, SVOC, PCB, TPH, pesticide, herbicide, metals and general chemistry analyses.							
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	N/A							

**New Jersey/New York Expansion Project
Boring Summary Table**

Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10 ⁻² Feet/Day	10 ⁻² – 10 Feet/Day	>10 Feet/Day
Additional Comments/Notes/ Observations (if applicable)	N/A		

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: 1R-22.1-ENV-14

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	Approximately 1,230 feet south of 3.75R							
Location (Latitude/Longitude) – estimated/surveyed	40° 37' 14.2831" N / 74° 11' 52.0156" W – Surveyed							
Site Address	Boring is located approximately 275 feet northeast of the intersection of Water Street and River Road in Staten Island, New York (no exact street address is available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	No underground utilities are located within approximately .5 mile of the boring.							
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	Arthur Kill is located approximately 705 feet west of boring. Boring is located in a wetland area.							
Drilling Date	3/7/2012							
Drilling Company	Land Air Water Environmental Services							
Drilling Method	Hand Auger/2"-Macrocore							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A							
Boring Purpose (e.g. geotech/environmental/geoarchaeological)	Environmental							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
		X						
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed		Sheen Only		Floating Product = <6"		Floating Product = >6"	
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material				Anthropogenically-Generated Material			
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
PID/Odors (depth)	Highest PID – 312 ppm at 13 feet. Petroleum-like odor from 10 to 15 ft bg. Sulfur-like odor from 15 to 20 ft bg.							
Geology	Brown SILT; some coarse to fine gravel, trace roots to 0.5 ft bg, underlain by brown, coarse to fine SAND; some coarse to fine gravel from 0.5 to 7.0 ft bg, underlain by brown/gray, coarse to fine SAND; little silt from 7.0 to 10 ft bg, underlain by black, coarse to fine SAND and CLAY; slight petroleum-like odor from 10 to 15 ft bg, underlain by brown PEAT; strong sulfur-like odor from 15 to 18 ft bg, underlain by gray CLAY; trace peat; moderate sulfur-like odor from 18 to at least 20 ft bg.							
Soil Permeability	Loose		Intermediate			Tight		
			X					
Total Boring Depth (feet bg)	20							
GW Temporary Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report IDs JB1030.							
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	1R-22.1-14/2 (2.0 to 2.5 feet bg) and 1R-22.1-14/7 (7.0 to 7.5 feet bg) were collected for VOC, SVOC, PCB, TPH, pesticide, herbicide, metals and general chemistry analyses.							
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	N/A							
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10⁻² Feet/Day			10⁻² – 10 Feet/Day			>10 Feet/Day	
Additional Comments/Notes/Observations (if applicable)	N/A							

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: 1R-22.1-ENV-15

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	Approximately 1,105 feet southeast of 3.75R							
Location (Latitude/Longitude) – estimated/surveyed	40° 37' 15.5055" N / 74° 11' 50.6023" W – Surveyed							
Site Address	Boring is located approximately 480 feet northeast of the intersection of Water Street and River Road in Staten Island, New York (no exact street address is available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	An underground water line is located within 1,980 feet of the boring.							
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	Arthur Kill is located approximately 860 feet west of boring. Boring is located within a wetland area.							
Drilling Date	3/9/2012							
Drilling Company	Land Air Water Environmental Services							
Drilling Method	Hand Auger/2"-Macrocore							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A							
Boring Purpose (e.g. geotech/environmental/geoarchaeological)	Environmental							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
	X							
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	Yes – staining from 7.0 to 10 ft bg.							
- Product in GW – Check where applicable	None Observed	Sheen Only	Floating Product = <6"	Floating Product = >6"				
		X						
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material				Anthropogenically-Generated Material			
	Red-brown to orange-brown, coarse to fine sand; some coarse to fine, sub-rounded to rounded gravel, little silt, roots to 6.0 ft bg, underlain by gray, medium to fine sand; little silt from, 6.0 to 7.0 ft bg, underlain by black to dark gray clay; little silt, trace fine sand; petroleum-like odor; little staining; little sheen from 7.0 to 10 ft bg, underlain by gray, medium to fine sand; trace silt, shell fragments from 10 to 11 ft bg, underlain by black to dark gray clay; little silt and fine sand from 11 to 14 ft bg.							
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
PID/Odors (depth)	Highest PID – 120 ppm at 17.5 feet. Petroleum-like odor from 7.0 to 10 ft bg.							
Geology	Fill to 14 ft bg (see above), underlain by gray-brown PEAT; little clay, trace silt from 14 to 15 ft bg, underlain by gray CLAY; little silt, shell fragments from 15 to at least 20 ft bg.							
Soil Permeability	Loose			Intermediate		Tight		
				X				
Total Boring Depth (feet bg)	20							
GW Temporary Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report IDs JB1327.							
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	1R-22.1-15/1 (1.0 to 1.5 feet bg) and 1R-22.1-14/7.5 (7.5 to 8.0 feet bg) were collected for VOC, SVOC, PCB, TPH, pesticide, herbicide, metals and general chemistry analyses.							
GW Samples Collected - Sample ID(s) and	N/A							

**New Jersey/New York Expansion Project
Boring Summary Table**

Sampling Parameter(s)			
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10⁻² Feet/Day	10⁻² – 10 Feet/Day	>10 Feet/Day
Additional Comments/Notes/Observations (if applicable)	N/A		

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: 1R-22.1-ENV-16

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	Approximately 885 feet southeast of 4.07R							
Location (Latitude/Longitude) – estimated/surveyed	40° 37' 18.4200" N / 74° 11' 42.7073" W – Surveyed							
Site Address	Boring is located approximately 1150 feet northeast of the intersection of Water Street and River Road in Staten Island, New York (no exact street address is available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	An underground water line is located 1,645 feet north of the boring.							
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	An unnamed pond is located approximately 515 feet west of boring. Boring is located within a wetland area.							
Drilling Date	3/9/2012							
Drilling Company	Land Air Water Environmental Services							
Drilling Method	Hand Auger/2"-Macrocore							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A							
Boring Purpose (e.g. geotech/environmental/geoarchaeological)	Environmental							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
		X						
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed	Sheen Only	Floating Product = <6"	Floating Product = >6"				
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material				Anthropogenically-Generated Material			
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
PID/Odors (depth)	Highest PID – 8,605 ppm at 16 feet. Sulfur-like odor from 10 to 20 ft bg.							
Geology	Light brown to brown-gray SILT and CLAY; little coarse to fine sand to 5.0 ft bg, underlain by gray-brown CLAY; little silt, trace vegetation from 5.0 to 10 ft bg, underlain by gray CLAY; some peat; strong sulfur-like odor from 10 to 17 ft bg, underlain by brown PEAT and WOOD; strong sulfur-like odor from 17 to 19 ft bg, underlain by gray, coarse to fine SAND; strong sulfur-like odor from 19 to at least 20 ft bg.							
Soil Permeability	Loose		Intermediate			Tight		
			X					
Total Boring Depth (feet bg)	20							
GW Temporary Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report IDs JB1327.							
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	1R-22.1-16/2 (2.0 to 2.5 feet bg) and 1R-22.1-16/5 (5.0 to 5.5 feet bg) were collected for VOC, SVOC, PCB, TPH, pesticide, herbicide, metals and general chemistry analyses.							
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	N/A							
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10⁻² Feet/Day		10⁻² – 10 Feet/Day			>10 Feet/Day		
Additional Comments/Notes/Observations (if applicable)	N/A							

**New Jersey/New York Expansion Project
Boring Summary Table**

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: 1R-22.1-ENV-7

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	Approximately 235 feet south of 3.71R							
Location (Latitude/Longitude) – estimated/surveyed	40° 37' 24.0040" N / 74° 11' 57.1492" W – Surveyed							
Site Address	Boring is located approximately 760 feet southeast of the intersection of Water Street and 7 th Street in Staten Island, New York (no exact street address is available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	A subsurface water pipeline is located approximately 1,115 feet southeast of boring.							
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	Arthur Kill is located approximately 530 feet west of boring. Boring is located in wetlands.							
Drilling Date	3/8/2012							
Drilling Company	Land Air Water Environmental Services							
Drilling Method	Hand Auger/2"-Macrocore							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A							
Boring Purpose (e.g. geotech/environmental/geoarchaeological)	Environmental							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
	X							
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed		Sheen Only		Floating Product = <6"		Floating Product = >6"	
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material				Anthropogenically-Generated Material			
	Brown, fine to coarse, sand with fine to coarse, sub-angular to rounded gravel and trace silt, cobbles and shell material to 5.0 ft bg.				N/A			
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
PID/Odors (depth)	Elevated PID readings (max = 93.6 ppm from 18 to 19 feet bg). No odor detected.							
Geology	Fill to 5.0 ft bg (see above), underlain by black CLAY; some silt, trace fine sand from 5.0 to 6.5 ft bg, underlain by dark gray/brown, fine SAND; some clay, little silt from 6.5 to 10.5 ft bg, underlain by dark gray to black CLAY; some silt, trace fine sand from 10.5 to 15.5 ft bg, underlain by Gray/brown PEAT; little silt, little clay from 15.5 to at least 20 ft bg.							
Soil Permeability	Loose		Intermediate		Tight			
			X					
Total Boring Depth (feet bg)	20							
GW Temporary Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report IDs JB1030.							
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	1R-22.1-7/2 (2.0 to 2.5 feet bg) and 1R-22.1-7/5 (5.0 to 5.5 feet bg) were collected for VOC, SVOC, PCB, TPH, pesticide, herbicide, metals and general chemistry analyses.							
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	N/A							
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10⁻² Feet/Day		10⁻² – 10 Feet/Day		>10 Feet/Day			
					X			
Additional Comments/Notes/Observations (if applicable)	N/A							

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: 1R-22.1-ENV-8

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	Approximately 415 feet south of 3.71R							
Location (Latitude/Longitude) – estimated/surveyed	40° 37' 22.1089" N / 74° 11' 57.8787" W – Surveyed							
Site Address	Boring is located approximately 915 feet southeast of the intersection of Water Street and 7 th Street in Staten Island, New York (no exact street address is available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	A subsurface water pipeline is located approximately 1,260 feet southeast of boring.							
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	Arthur Kill is located approximately 510 feet west of boring.							
Drilling Date	3/8/2012							
Drilling Company	Land Air Water Environmental Services							
Drilling Method	Hand Auger/2"-Macrocore							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A							
Boring Purpose (e.g. geotech/environmental/geoarchaeological)	Environmental							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
			X					
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed	Sheen Only	Floating Product = <6"	Floating Product = >6"				
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material				Anthropogenically-Generated Material			
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
PID/Odors (depth)	Highest PID – 412 ppm at 18.5 feet. Petroleum-like odor from 10 to 15 ft bg and Sulfur-like odor from 15 to 20 ft bg.							
Geology	Gray-brown SILT and CLAY; some coarse to fine gravel to 3.0 ft bg, underlain by gray-brown to gray-black, coarse to fine SAND; some clay, little coarse to fine, rounded gravel from 3.0 to 6.0 ft bg, underlain by no recovery from 6.0 to 10 ft bg, underlain by black CLAY; little silt, slight petroleum-like odor from 10 to 14.5 ft bg, underlain by black, fine SAND; some silt. Moist; slight petroleum-like odor from 14.5 to 15 ft bg, underlain by gray CLAY; little peat, slight sulfur-like odor from 15 to 16 ft bg, underlain by brown PEAT, slight sulfur-like odor from 16 to at least 20 ft bg.							
Soil Permeability	Loose		Intermediate			Tight		
			X					
Total Boring Depth (feet bg)	20							
GW Temporary Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report IDs JB1189.							
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	1R-22.1-8/4 (4.0 to 4.5 feet bg) and 1R-22.1-8/5.5 (5.5 to 6.0 feet bg) were collected for VOC, SVOC, PCB, TPH, pesticide, herbicide, metals and general chemistry analyses.							
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	N/A							
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10⁻² Feet/Day			10⁻² – 10 Feet/Day			>10 Feet/Day	

**New Jersey/New York Expansion Project
Boring Summary Table**

Additional Comments/Notes/ Observations (if applicable)	N/A
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**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: 1R-22.1-ENV-9

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	Approximately 650 feet south of 3.69R							
Location (Latitude/Longitude) – estimated/surveyed	40° 37' 20.3717" N / 74° 11' 58.5331" W – Surveyed							
Site Address	Boring is located approximately 1,120 feet southeast of the intersection of Water Street and 7 th Street in Staten Island, New York (no exact street address is available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	A subsurface water pipeline is located approximately 1,440 feet southeast of boring.							
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	Arthur Kill is located approximately 400 feet west of boring.							
Drilling Date	3/8/2012							
Drilling Company	Land Air Water Environmental Services							
Drilling Method	Hand Auger/2"-Macrocore							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A							
Boring Purpose (e.g. geotech/environmental/geoarchaeological)	Environmental							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
			X					
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed	Sheen Only	Floating Product = <6"	Floating Product = >6"				
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material				Anthropogenically-Generated Material			
	Gray clay and brown silt; little fine, sub-rounded gravel, fine to medium sand and root material to 6.0 ft bg, underlain by gray clay; little silt; trace fine, rounded gravel; trace fine sand from 6.0 to 8.0 ft bg, 3-inch peat layer at 3.5', underlain by gray, fine to medium clay; little sub-rounded to rounded gravel, trace silt from 8.0 to 10 ft bg, underlain by gray, fine to medium sand; little fine, sub-rounded gravel; trace silt from 10 to 10.5 ft bg, underlain by black clay, little silt; petroleum-like odor from 10.5 to 15 ft bg.							
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
PID/Odors (depth)	Highest PID – 15.1 ppm at 13.5 feet. Sulfur-like odor from 15 to 20 ft bg. Petroleum-like odor from 10.5 to 15 ft bg.							
Geology	Fill to 15 ft bg (see above), underlain by gray, fine to medium SAND; some fine, sub-rounded to rounded gravel, trace silt from 15 to at least 20 ft bg; black clay in tip of Macro-Core, little shell material.							
Soil Permeability	Loose		Intermediate			Tight		
			X					
Total Boring Depth (feet bg)	20							
GW Temporary Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report IDs JB1189.							

**New Jersey/New York Expansion Project
Boring Summary Table**

Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	1R-22.1-9/3 (3.0 to 3.5 feet bg) and 1R-22.1-9/6 (6.0 to 6.5 feet bg) were collected for VOC, SVOC, PCB, TPH, pesticide, herbicide, metals and general chemistry analyses.		
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	N/A		
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10⁻² Feet/Day	10⁻² – 10 Feet/Day	>10 Feet/Day
Additional Comments/Notes/Observations (if applicable)	N/A		

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: RCH-MM-ARC-6

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	PENDING with Mariner's Marsh reroute							
Location (Latitude/Longitude) – estimated/surveyed	40° 38' 20.3071" N / 74° 10' 40.3148" W – Surveyed							
Site Address	Boring is located in Mariner's Marsh, approximately 245 feet southeast of Omaha Street in Staten Island, New York (no exact street address available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	A concrete wall is located approximately 245 feet northeast of boring.							
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	Newark Bay is located approximately 1,325 feet north of boring.							
Drilling Date	11/30/2011							
Drilling Company	Land Air Water Environmental Services							
Drilling Method	Hand Auger/ Macrocore /2"/ Direct Push							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A							
Boring Purpose (e.g. geotech/ environmental/geoarchaeological)	Geoarchaeological							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
		X						
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed		Seen Only		Floating Product = <6"		Floating Product = >6"	
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material				Anthropogenically-Generated Material			
	N/A				Trace wood and plastic pieces from 0.5 to 3.0 feet bg.			
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
PID/Odors (depth)	Max PID = 1.8 ppm from 4.0 to 4.5 feet bg. No odor detected.							
Geology	FILL (see above) from grade to 3.0 feet bg, underlain by red brown SILT and CLAY, some fine to coarse gravel to at least 6.0 feet bg							
Soil Permeability	Loose			Intermediate			Tight	
				X				
Total Boring Depth (feet bg)	20							
GW Temporary Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	N/A							
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	N/A							
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	N/A							
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10⁻² Feet/Day			10⁻² – 10 Feet/Day			>10 Feet/Day	
Additional Comments/Notes/Observations (if applicable)	No lithology recorded from 6.0 to 20' due to macrocore samples remaining unopened for further investigation by archaeologist (GRA). Borehole backfilled with soil cuttings and restored to natural grade.							

**New Jersey/New York Expansion Project
Boring Summary Table**

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: RCH-MM-ARC-8

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	PENDING with Mariner's Marsh reroute							
Location (Latitude/Longitude) – estimated/surveyed	40° 38' 24.0682" N / 74° 10' 40.2656" W – Surveyed							
Site Address	Boring is located in Mariner's Marsh, approximately 125 feet northeast of Omaha Street in Staten Island, New York (no exact street address available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	A concrete wall is located approximately 185 feet east of boring.							
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	Newark Bay is located approximately 980 feet north of boring.							
Drilling Date	11/29/2011							
Drilling Company	Land Air Water Environmental Services							
Drilling Method	Hand Auger/ Macrocore /2"/ Direct Push							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A							
Boring Purpose (e.g. geotech/ environmental/geoarchaeological)	Geoarchaeological							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
		X						
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed	Sheen Only	Floating Product = <6"	Floating Product = >6"				
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material				Anthropogenically-Generated Material			
	N/A				N/A			
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
PID/Odors (depth)	N/D							
Geology	Brown SILT; and fine sand, organic roots from grade to 0.5 feet bg, underlain by brown, fine SAND to 4.0 feet bg, underlain by red SILT and CLAY, little fine sand to at least 6.0 feet bg.							
Soil Permeability	Loose			Intermediate		Tight		
				X				
Total Boring Depth (feet bg)	20							
GW Temporary Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	N/A							
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	N/A							
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	N/A							
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10 ⁻² Feet/Day			10 ⁻² – 10 Feet/Day		>10 Feet/Day		
Additional Comments/Notes/Observations (if applicable)	No lithology recorded from 6.0 to 20' due to macrocore samples remaining unopened for further investigation by archaeologist (GRA). Borehole backfilled with soil cuttings and restored to natural grade.							

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: RCH-MM-ENV-4W

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	Approximately 650 feet south of 5.06R							
Location (Latitude/Longitude) – estimated/surveyed	40° 38' 14.7321" N/74° 10' 40.2735" W– Surveyed							
Site Address	Boring is located in a wooded area, approximately 1,375 feet southeast of the intersection of Richmond Terrace and Western Avenue in Staten Island, New York (no exact street address available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	Utility easements are located approximately 295 feet west of boring.							
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	An unnamed pond is located approximately 80 feet east of boring.							
Drilling Date	12/01/11							
Drilling Company	Land Air Water Environmental Services							
Drilling Method	Hand Auger/2"-Macrocore/Hollow Stem Auger							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	None							
Boring Purpose (e.g. geotech/environmental/geoarchaeological)	Environmental							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
				X				
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed	Sheen Only	Floating Product = <6"	Floating Product = >6"				
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material				Anthropogenically-Generated Material			
	N/A				N/A			
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
PID/Odors (depth)	No PID. No odor.							
Geology	Dark brown SILT and fine to coarse SAND, trace fine to coarse gravel, cobble, and roots from 0.0 to 1.0 ft bg, underlain by brown, fine to medium SAND; some silt, trace fine to medium, subangular gravel. from 1.0 to 3.0 ft bg, underlain by brown, fine to medium SAND; some silt, trace reddish-brown medium soft clay, trace fine to medium gravel from 3.0 to 4.0 ft bg, underlain by reddish-brown CLAY; some fine to medium sand, little silt, trace fine, subangular gravel from 4.0 to 6.0 ft bg, underlain by reddish-brown CLAY; trace silt, trace fine, subangular gravel from 6.0 to at least 20 ft bg.							
Soil Permeability	Loose		Intermediate			Tight		
			X					
Total Boring Depth (feet bg)	20							
GW Temporary Well Installed (Depth, Screen, Riser, Slot Size, Casing)	0.5 to 19.83 ft. below surface - 3" diameter 0.010 slot PVC screen							
Laboratory Name and Report No. (if samples collected)	Accutest Laboratories, Lab Report ID JA93506 and JA93382.							
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	RCH-MM-ENV-4W/3.5 (3.5 to 4.0 feet bg) and RCH-MM-ENV-4W/7.5 (7.5 to 8.0 feet bg) were collected for VOC, SVOC, PCB, TPH, pesticide, herbicide, metals and general chemistry analyses.							
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	RCH-MM-ENV-4W was collected for SPDES, VOC, PCB, metals and general chemistry analyses							
Additional Hydro/Geological Test – Permeability Results	<10⁻² Feet/Day			10⁻² – 10 Feet/Day		>10 Feet/Day		
			X					
Additional Comments/Notes/Observations (if applicable)	N/A							

**New Jersey/New York Expansion Project
Boring Summary Table**

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: RCH-MM-ENV-5

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	PENDING with Mariner's Marsh reroute							
Location (Latitude/Longitude) – estimated/surveyed	40° 38' 15.7902" N / 74° 10' 40.3218" W – Surveyed							
Site Address	Boring is located in Mariner's Marsh, approximately 670 feet southeast of Omaha Street in Staten Island, New York (no exact street address available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	Procter and Gamble utility easements are located approximately 280 feet west of boring.							
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	Wetlands are located approximately 200 feet south of boring.							
Drilling Date	12/1/2011							
Drilling Company	Land Air Water Environmental Services							
Drilling Method	Hand Auger / Macrocore / 2" / Geoprobe							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A							
Boring Purpose (e.g. geotech/ environmental/geoarchaeological)	Environmental							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
				X				
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed	Sheen Only	Floating Product = <6"	Floating Product = >6"				
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material				Anthropogenically-Generated Material			
	N/A				N/A			
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
PID/Odors (depth)	N/D							
Geology	Red brown SILT; little fine to medium sand, trace clay, trace fine to coarse, sub-angular gravel from grade to 10.5 feet bg, underlain by red brown CLAY; little silt to at least 20 feet bg.							
Soil Permeability	Loose			Intermediate			Tight	
							X	
Total Boring Depth (feet bg)	20							
GW Temporary Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report ID JA93382							
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	RCH-MM-ENV-5/3 (3.0 to 3.5 feet bg) and RCH-MM-ENV-5/6 (6.0 to 6.5 feet bg) were collected for VOC, SVOC, PCB, TPH, pesticide, herbicide, metals and general chemistry analyses.							
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	N/A							
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10⁻² Feet/Day			10⁻² – 10 Feet/Day			>10 Feet/Day	
Additional Comments/Notes/Observations (if applicable)	Borehole backfilled with soil cuttings and restored to grade.							

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: RCH-MM-ENV-6

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	PENDING with Mariner's Marsh reroute							
Location (Latitude/Longitude) – estimated/surveyed	40° 38' 15.7902" N / 74° 10' 40.2879" W – Surveyed							
Site Address	Boring is located in Mariner's Marsh, approximately 500 feet southeast of Omaha Street in Staten Island, New York (no exact street address available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	Procter and Gamble utility easements are located approximately 280 feet west of boring.							
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	Wetlands are located approximately 400 feet south of boring.							
Drilling Date	12/1/2011							
Drilling Company	Land Air Water Environmental Services							
Drilling Method	Hand Auger / Macrocore / 2" / Geoprobe							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A							
Boring Purpose (e.g. geotech/ environmental/geoarchaeological)	Environmental							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
		X						
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed		Seen Only		Floating Product = <6"		Floating Product = >6"	
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material				Anthropogenically-Generated Material			
	N/A				N/A			
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
PID/Odors (depth)	N/D							
Geology	Dark brown to red brown SAND; little silt, little fine to coarse, sub-angular gravel from grade to 4.0 feet bg. Red brown CLAY; little silt, trace fine to medium, sub-angular gravel to at least 15 feet bg. Wet at 3.0 feet bg.							
Soil Permeability	Loose			Intermediate			Tight	
				X				
Total Boring Depth (feet bg)	15							
GW Temporary Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report ID JA93382							
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	RCH-MM-ENV-6/3 (3.0 to 3.5 feet bg) and RCH-MM-ENV-6/6.5 (6.5 to 7.0 feet bg) were collected for VOC, SVOC, PCB, TPH, pesticide, herbicide, metals and general chemistry analyses.							
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	N/A							
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10⁻² Feet/Day			10⁻² – 10 Feet/Day			>10 Feet/Day	
Additional Comments/Notes/Observations (if applicable)	Borehole backfilled with soil cuttings and restored to grade.							

**New Jersey/New York Expansion Project
Boring Summary Table**

Boring Identification: RCH-MM-ENV-9

Boring Information								
Alternate Boring ID (if applicable)	N/A							
Pipeline Mile Marker ID	PENDING with Mariner's Marsh reroute							
Location (Latitude/Longitude) – estimated/surveyed	40° 38' 21.8696" N / 74° 10' 40.2559" W – Surveyed							
Site Address	Boring is located in Mariner's Marsh, approximately 98 feet southeast of Omaha Street in Staten Island, New York (no exact street address available).							
Nearby Subsurface Features (Distance and Direction from Utilities, Tanks, Properties, etc.)	A concrete wall is located approximately 185 feet east of boring.							
Nearby Hydraulic Features (Distance and Direction from wetlands, etc.)	Newark Bay is located approximately 1,150 feet north of boring.							
Drilling Date	11/29/2011							
Drilling Company	Land Air Water Environmental Services							
Drilling Method	Hand Auger / Macrocore / 2" / Geoprobe							
Additional Hydro/Geological Tests (e.g. pump test/slug test/packer test)	N/A							
Boring Purpose (e.g. geotech/ environmental/geoarchaeological)	Environmental							
Boring Observations								
Depth to saturation (feet bg) – Check where applicable	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 12.0	12.1 – 16.0	16.1 – 20.0	>20
	Water Not Encountered							
PRODUCT								
- Product in Soil – Yes/No (odor/inches/viscosity, etc.)	No							
- Product in GW – Check where applicable	None Observed	Sheen Only	Floating Product = <6"	Floating Product = >6"				
	X							
HISTORIC FILL MATERIAL								
- Composition, other observations – complete, as applicable	Reworked Material				Anthropogenically-Generated Material			
	N/A				N/A			
- Depth (feet bg) – check more than one depth, if applicable – applies to Anthropogenically-Generated Material only	0.0 – 2.0	2.1 – 4.0	4.1 – 6.0	6.1 – 8.0	8.1 – 10.0	10.1 – 12.0	>12.1	
PID/Odors (depth)	N/D							
Geology	Red brown SILT and CLAY; some fine to coarse gravel, trace organic roots from grade to 11 feet bg, underlain by red brown CLAY; some silt, trace fine to coarse gravel to at least 15 feet bg.							
Soil Permeability	Loose		Intermediate			Tight		
			X					
Total Boring Depth (feet bg)	15							
GW Temporary Well Installed (Depth, Screen, Riser, Slot Size, Casing)	N/A							
Laboratory Name and Report No. (if samples collected) (e.g. "Accutest Laboratories, Lab Report ID JA65410")	Accutest Laboratories, Lab Report ID JA93099							
Soil Samples Collected - Sample ID(s), Sample Depth(s) and Sampling Parameter(s)	RCH-MM-ENV-9/2 (2.0 to 2.5 feet bg) and RCH-MM-ENV-9/6 (6.0 to 6.5 feet bg) were collected for VOC, SVOC, PCB, TPH, pesticide, herbicide, metals and general chemistry analyses.							
GW Samples Collected - Sample ID(s) and Sampling Parameter(s)	N/A							
Additional Hydro/Geological Test – Permeability Results (e.g. pump test/slug test/packer test)	<10⁻² Feet/Day		10⁻² – 10 Feet/Day			>10 Feet/Day		
Additional Comments/Notes/Observations (if applicable)	Borehole backfilled with soil cuttings and restored to grade.							

TRC ENVIRONMENTAL CORP.

57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

TEST PIT LOG

TEST PIT NUMBER

RCH-1-ARC-MT-2PROJECT NAME: Spectra NJ-NY
ExpansionLOCATION: Staten Island, New York
(M&R-058)

DATE COMPLETED: 08/18/11

OPERATOR: R. Degi

PROJECT NO.: 168217

CONTRACTOR: The Napp-Greco Company

LOGGED BY: B. Chaky

DEPTH FROM SURFACE (FEET)	PID (ppm)	SAMPLE DESIGNATION AND DEPTH (feet)	LITHOLOGIC CLASSIFICATION AND COMMENTS
1	ND	No sample collected	0' to 0.1' - Asphalt.
2			0.1' to 2.3' - FILL: Gray-brown fine to coarse sand; some fine to medium angular to sub-rounded gravel; little silt. Dry, dense, gravel base, metal fragments, mica-schist, granitic pieces. Little slag fragments at 1.7'.
3			2.3' to 2.7' - FILL: Orange-brown fine sand; little silt; trace fine sub-rounded gravel. Moist,
4			2.7' to 3.6 - Dark brown to black fine SAND; little silt; trace fine rounded gravel. Moist, medium dense, dark organic staining.
5			3.6' to 5.0' - Brown fine SAND; little silt. wet, medium dense, organic root material.
			End of test pit @ 5.0'.

TRC ENVIRONMENTAL CORP. 57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006	<h2 style="margin: 0;">TEST PIT LOG</h2>	TEST PIT NUMBER RCH-1-ENV-6 (RCH-1-ARC-MT-3)
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PROJECT NAME: Spectra NJ-NY Expansion PROJECT NO.: 168217	LOCATION: Staten Island, New York (M&R-058) CONTRACTOR: The Napp-Greco Company	DATE COMPLETED: 08/15/11 OPERATOR: R. Degi LOGGED BY: B. Chaky
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DEPTH FROM SURFACE (FEET)	PID (ppm)	SAMPLE DESIGNATION AND DEPTH (feet)	LITHOLOGIC CLASSIFICATION AND COMMENTS
1		RCH1ENV6/4	0.0 to 1.0' - FILL: Gray to gray brown, fine to medium gravel; some fine to coarse sand, trace silt, rock fragments, concrete. Dry, dense, sub-angular.
2			1.0 to 1.5' - FILL: Orange brown, fine to medium sand; trace fine gravel.
3	ND		1.5 to 4.0' - FILL: Brown fine to medium sand; some fine to coarse gravel, little silt, concrete, brick. Moist, dense, sub-angular to sub-rounded.
4			4.0 to 5.0' - Dark brown to black, fine SAND; little silt, trace fine gravel, tree root and tree stump material. Moist, medium loose, rounded.
5			5.0 to 6.0' - Tan brown, fine SAND; some silt, little fine gravel. Wet, medium loose.
6			End of test pit @ 6'.

TRC ENVIRONMENTAL CORP.

57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

TEST PIT LOG**TEST PIT NUMBER****RCH-1-ARC/MT-4****PROJECT NAME:** Spectra NJ-NY
Expansion**LOCATION:** Staten Island, New York
(M&R-058)**DATE COMPLETED:** 08/15/11**OPERATOR:** R. Greco**PROJECT NO.:** 168217**CONTRACTOR:** The Napp-Greco Company**LOGGED BY:** B. Chaky

DEPTH FROM SURFACE (FEET)	PID (ppm)	SAMPLE DESIGNATION AND DEPTH (feet)	LITHOLOGIC CLASSIFICATION AND COMMENTS
1	0.4	RCH1ARCMT4/2	0.0 to 1.0' - FILL: Gray brown, fine to coarse sand; some fine to medium, sub-angular to sub-rounded gravel, little silt, brick fragments, granite fragments. Dry, dense.
	0.3		1.0 to 1.5' - FILL: Gray, fine to coarse gravel; some fine to medium sand, little silt, rock fragments. Moist, dense.
2	2.1		1.5 to 4.0' - FILL: Gray brown to red brown, fine to medium sand; some fine to coarse, sub-angular to sub-rounded gravel, little silt, concrete, brick, engineered clay. Wet, dense.
	2.8		
3	15.3		
	12.6		
4	9.7		
	7.2		End of test pit @ 4.0'.

TRC ENVIRONMENTAL CORP.

57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

TEST PIT LOG**TEST PIT NUMBER****RCH-1-ENV-3****PROJECT NAME:** Spectra NJ-NY
Expansion**LOCATION:** Staten Island, New York
(M&R-058)**DATE COMPLETED:** 08/17/11**OPERATOR:** R. Degi**PROJECT NO.:** 168217**CONTRACTOR:** The Napp-Greco Company**LOGGED BY:** B. Chaky

DEPTH FROM SURFACE (FEET)	PID (ppm)	SAMPLE DESIGNATION AND DEPTH (feet)	LITHOLOGIC CLASSIFICATION AND COMMENTS
1	ND	RCH-1-ENV-3/1.5	0.0 to 1.0' - FILL: Gray/brown, fine to coarse sand; some fine to coarse, angular to sub-angular to sub-rounded gravel, trace silt. Dry, dense. Asphalt millings, gravel base.
2			1.0 to 1.5' - FILL: Orange brown, fine to medium sand; little silt. Wet, medium dense.
3			1.5 to 3.0' - FILL: Brown to gray brown, fine to coarse sand; some fine to coarse, sub-angular to sub-rounded gravel, little silt, mica schist and granite cobbles. Wet, medium dense.
4		RCH-1-ENV-3/4	3.0 to 4.0' - Brown to dark brown, fine SAND; little silt. Wet, medium dense, black organic staining.
			End of test pit @ 4.0'.

TRC ENVIRONMENTAL CORP. 57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006		TEST PIT LOG		TEST PIT NUMBER RCH-1-ARC/MT-5
PROJECT NAME: Spectra NY/NJ Expansion		LOCATION: Staten Island, New York		DATE COMPLETED: 08/22/11
PROJECT NO.: 168217		CONTRACTOR: The Napp-Greco Company		OPERATOR: R. Degl LOGGED BY: K. Rillen
DEPTH FROM SURFACE (FEET)	PID (ppm)	SAMPLE DESIGNATION AND DEPTH (feet)	LITHOLOGIC CLASSIFICATION AND COMMENTS	
1	ND	No Samples Collected	0 to 1.0' - Dark brown medium to coarse SAND, gravel throughout. Moist.	
2			1.0 to 1.5' - Light brown medium SAND.	
3			2.0 to 7.0' - Gray fine SAND and SILT, small to large rocks up to 3' in diameter. Encountered water at 3.5'.	
4				
5				
6				
7			7.0 to 8.0' - Brown medium SAND and SILT, inclusions of clay throughout.	
8				
			End of test pit at 8 feet.	

TRC ENVIRONMENTAL CORP. 57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006		TEST PIT LOG		TEST PIT NUMBER RCH-1-ARC/MT-6
PROJECT NAME: Spectra NY/NJ Expansion		LOCATION: Staten Island, New York		DATE COMPLETED: 08/23/11
PROJECT NO.: 168217		CONTRACTOR: The Napp-Greco Company		OPERATOR: R. Degl LOGGED BY: K. Rillen
DEPTH FROM SURFACE (FEET)	PID (ppm)	SAMPLE DESIGNATION AND DEPTH (feet)	LITHOLOGIC CLASSIFICATION AND COMMENTS	
1	ND	No Samples Collected	0 to 0.5' - FILL: Dark brown, medium-coarse sand, gravel throughout.	
2			0.5 to 4.5' - FILL: Brown to dark brown, medium to fine sand and gravel. Some large rocks. Structural and non-structural pieces of wood throughout. Streaks of dark brown clay.	
3				
4				
5			4.5 to 8.0' - Brown medium SAND, some CLAY. Lenses of silty clay throughout.	
6				
7				
8				
			End of test pit at 8 feet.	

TRC ENVIRONMENTAL CORP. 57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006		TEST PIT LOG		TEST PIT NUMBER RCH-1-ARC/MT-7	
PROJECT NAME: Spectra NY/NJ Expansion			LOCATION: Staten Island, New York		DATE COMPLETED: 08/24/11
PROJECT NO.: 168217			CONTRACTOR: The Napp-Greco Company		OPERATOR: R. Degl LOGGED BY: K. Rillen
DEPTH FROM SURFACE (FEET)	PID (ppm)	SAMPLE DESIGNATION AND DEPTH (feet)	LITHOLOGIC CLASSIFICATION AND COMMENTS		
1	ND	No samples collected	0 to 1.0' - FILL: Dark brown, medium to coarse sand, gravel throughout.		
2			1.0 to 2.0' - FILL Light brown-orange, medium sand, some gravel.		
3			2.0 to 5.0' - FILL: Brown and gray, medium sand. Many large rocks, small boulders, large intact bricks throughout. Some gray clay at 5 feet.		
4					
5			5.0 to 6.0' - Dark brown, fine SAND and SILT. Organic material throughout. Moist.		
6			6.0 to 8.0' - Light brown, silty CLAY and fine SAND. Wet.		
7					
8					
			End of test pit at 8 feet.		

TRC ENVIRONMENTAL CORP. 57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006		TEST PIT LOG		TEST PIT NUMBER RCH-1-ARC/MT-8
PROJECT NAME: Spectra NY/NJ Expansion		LOCATION: Staten Island, New York		DATE COMPLETED: 08/25/11
PROJECT NO.: 168217		CONTRACTOR: The Napp-Greco Company		OPERATOR: R. Degl LOGGED BY: K. Rillen
DEPTH FROM SURFACE (FEET)	PID (ppm)	SAMPLE DESIGNATION AND DEPTH (feet)	LITHOLOGIC CLASSIFICATION AND COMMENTS	
1	ND	No Samples Collected	0 to 1.0' - FILL: Dark brown, medium to coarse sand, gravel throughout.	
2			1.0 to 2.0' - FILL: Light brown-orange, medium sand, some small pebbles, some silt.	
3			2.0 to 4.5' -FILL: Brown, medium sand and silt. Some large rocks throughout.	
4				
5			4.5 to 5.0' - FILL: Dark brown, fine sand and silt with organic material throughout.	
6			5.0 to 6.0' - FILL: Light brown, silty clay with fine sand. Moist (Archaeological feature, possibly a fire pit, at 5.5').	
7			6.0 to 9.0' - Light brown, silty CLAY and fine SAND. Wet.	
8				
9				
			End of test pit at 9 feet.	



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57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

SOIL BORING LOG

BORING NUMBER

VC-4

PROJECT NAME: Spectra NJ-NY Expansion

LOCATION: Manhattan, NY

PROJECT NO.: 168217

CONTRACTOR: Aqua Survey, Inc.

DATE DRILLED: 04/04/11

SAMPLER TYPE/DIA.: 4" Core Barrel

DEPTH TO WATER: Not Applicable

DRILLER: B. Rottner

BORING METHOD: Vibracore

TOTAL DEPTH DRILLED: 10 Feet

LOGGED BY: B. Chaky

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (FEET)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
0						
2		8.3	ND	VC-4 / 2'-2.5'	ML	0' to 10' - Dark Gray to Black SILT, plastic, loose, wet, odor
			5.1			
			ND			
4			ND			
			ND	VC-4 / 7'-7.5'		
6			ND			
			1.7			
8			ND			
		ND				
10						End of Boring @ 10 Feet
12						
14						
16						
18						
20						
22						
24						
26						
28						
30						

**Environmental Corporation**

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SOIL BORING LOG**BORING NUMBER****VC-1****PROJECT NAME:** Spectra NJ-NY Expansion**LOCATION:** Jersey City, NJ**PROJECT NO.:** 168217**CONTRACTOR:** Aqua Survey, Inc.**DATE DRILLED:** 04/04/11**SAMPLER TYPE/DIA.:** 4" Core Barrel**DEPTH TO WATER:** Not Applicable**DRILLER:** B. Rottner**BORING METHOD:** Vibracore**TOTAL DEPTH DRILLED:** 20 Feet**LOGGED BY:** B. Chaky

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (FEET)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
0						
2		15.4	ND	VC-1 / 2'-2.5'	ML	0' to 20' - Dark Gray to Black SILT, plastic, loose, wet
			ND			
			ND			
4			ND	VC-1 / 7'-7.5'		
			ND			
			ND			
6			ND	VC-1 / 14'-14.5'		
			ND			
			ND			
8			ND			
			ND			
10			ND			
			ND			
12			ND			
			ND			
14		ND				
		ND				
16		ND				
		ND				
18		ND				
		ND				
20						End of boring @ 20 Feet
22						
24						
26						
28						
30						



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SOIL BORING LOG

BORING NUMBER

VC-2

PROJECT NAME: Spectra NJ-NY Expansion

LOCATION: Jersey City, NJ

PROJECT NO.: 168217

CONTRACTOR: Aqua Survey, Inc.

DATE DRILLED: 04/04/11

SAMPLER TYPE/DIA.: 4" Core Barrel

DEPTH TO WATER: Not Applicable

DRILLER: B. Rottner

BORING METHOD: Vibracore

TOTAL DEPTH DRILLED: 21 Feet

LOGGED BY: B. Chaky

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (FEET)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
0						
2		16.5	ND	VC-2 / 2'-2.5'	ML	0 to 20' - Dark Gray to Black SILT, plastic, loose, wet, odor.
			ND			
4			ND			
			ND			
6			ND	VC-2 / 7'-7.5'		
			ND			
8			ND			
			ND			
10			ND	VC-2 / 15'-15.5'		
			ND			
12			ND			
			ND			
14			ND			
			ND			
16		ND				
		ND				
18		ND				
		ND				
20		ND				
		ND				
22						End of boring @ 21 Feet
24						
26						
28						
30						

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SOIL BORING LOG**BORING NUMBER****VC-3****PROJECT NAME:** Spectra NJ-NY Expansion**LOCATION:** Jersey City, NJ**PROJECT NO.:** 168217**CONTRACTOR:** Aqua Survey, Inc.**DATE DRILLED:** 04/04/11**SAMPLER TYPE/DIA.:** 4" Core Barrel**DEPTH TO WATER:** Not Applicable**DRILLER:** B. Rottner**BORING METHOD:** Vibracore**TOTAL DEPTH DRILLED:** 12 Feet**LOGGED BY:** B. Chaky

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (FEET)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS			
0									
2		8.5	ND	VC-3 / 2'-2.5'	ML	0 to 10' - Dark Gray to Black SILT, plastic, loose, wet, odor.			
4			ND						
6			ND						
8			ND						
10			ND	VC-3 / 7'-7.5'					
12			ND						
14									
16									
18									
20									
22									
24									
26									
28									
30									
						End of Boring @ 10 Feet			

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SOIL BORING LOG**BORING NUMBER****VC-5****PROJECT NAME:** Spectra NJ-NY Expansion**LOCATION:** Manhattan, NY**PROJECT NO.:** 168217**CONTRACTOR:** Aqua Survey, Inc.**DATE DRILLED:** 04/04/11**SAMPLER TYPE/DIA.:** 4" Core Barrel**DEPTH TO WATER:** Not Applicable**DRILLER:** B. Rottner**BORING METHOD:** Vibracore**TOTAL DEPTH DRILLED:** 12 Feet**LOGGED BY:** B. Chaky

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (FEET)	PID (ppm)	SAMPLE DESIGNATION	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
0						
2		8.5	ND	VC-5 / 2'-2.5'	ML	0' to 10' - Dark Gray to Black SILT, plastic, loose, wet, odor
			ND			
4			ND			
			ND			
6			ND	VC-5 / 7'-7.5'		
			1.2			
8			ND			
			ND			
10						End of Boring @ 10 Feet
12						
14						
16						
18						
20						
22						
24						
26						
28						
30						



Environmental Corporation

57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

TEMPORARY WELL AND SOIL BORING LOG

WELL NUMBER

1R-22.1-ENV-3W

PROJECT NAME: Spectra NJ-NY Expansion

LOCATION: Staten Island, New York

PROJECT NO.: 168217

CONTRACTOR: Land Air Water Environmental Services

SAMPLER TYPE/DIA.: Macrocore/2"

TYPE OF WELL: Temporary

DEPTH TO BEDROCK: Not Encountered

DRILLING METHOD: Hollow Stem Auger

TOTAL DEPTH DRILLED: 20 feet

BIT TYPE: Auger Bit

START DATE: 07/05/11

FINISH DATE: 07/05/11

DRILLER: K. McGourty

LOGGED BY: B. Chaky

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	WELL DIAGRAM	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
0							
1		18	ND	1R-22.1-3W/1		SW	0 to 5.0' - Brown, medium to fine SAND; some silt, trace clay, trace roots. Moist.
2							
3							
4		24	ND	1R-22.1-3W/6		SW	5.0 to 10' - Brown to gray, coarse to fine SAND; little silt, trace gravel. Wet @ 6'.
5							
6							
7							
8							
9							
10		48	ND ND ND ND			CL	10 - 11' - Gray CLAY; some medium to fine sand, trace silt. Wet.
11							
12							
13							
14							
15			0.2 2.1 19.8 31.8			PT	11 to 15' - Brown PEAT; trace clay. Moist.

CASING TYPE/DIAMETER (IN.) INNER: <u>PVC/3</u> OUTER: <u>N/A</u>	STATIC WATER LEVEL: <u>2.95 (07/06/11)</u> feet below surface DEPTH WATER ENCOUNTERED: <u>6</u> feet below surface
SCREENED OR OPEN INTERVAL: <u>0 - 20</u> (FEET BELOW SURFACE)	MEASURING POINT ELEVATION: <u>NA</u> ft.msl GROUND SURFACE ELEVATION: <u>NA</u> ft.msl



Environmental Corporation

57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

TEMPORARY WELL AND SOIL BORING LOG

WELL NUMBER

1R-22.1-ENV-3W

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	WELL DIAGRAM	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
16		36	150			PT	15 to 19' - Dark brown PEAT; trace clay. Moist.
			89.2				
17			173				
18			166				
19			53.2			SW	19 to 20' - Dark gray, medium to fine SAND; trace silt. Wet.
20			80.6				
							End of boring at 20'
							<u>Well Construction Details</u> 0 to 20 ft. below surface - 3" diameter 0.010 slot PVC screen 0 to 20 ft. below surface - No. 01 sand



Environmental Corporation

57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

TEMPORARY WELL AND SOIL BORING LOG

WELL NUMBER

RCH-4H-ENV-5W

PROJECT NAME: Spectra NJ-NY Expansion

LOCATION: Staten Island, New York

PROJECT NO.: 168217

CONTRACTOR: Land Air Water Environmental Services

SAMPLER TYPE/DIA.: Macrocore/2" / Hand Auger

TYPE OF WELL: Temporary

DEPTH TO BEDROCK: Not Encountered

DRILLING METHOD: Hollow Stem Auger

TOTAL DEPTH DRILLED: 20 feet

BIT TYPE: Auger Bit

START DATE: 09/19/11

FINISH DATE: 09/19/11

DRILLER: K. McGourty

LOGGED BY: B. Chaky

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	WELL DIAGRAM	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS	
0							Top of casing 14" below surface.	
1							0.0 to 1.5' - Asphalt layer (15" thick) and gravel base.	
2		Hand Cleared	ND	RCH-4H-ENV-5W/3.5			1.5 to 3.5' - FILL: Gray, fine to medium, angular to sub-angular gravel; some fine to coarse sand, trace silt. Dry, dense. Trace brick fragments.	
3								SW 3.5 to 4.5' - Dark brown to black, fine to medium SAND; trace fine to coarse, sub-angular gravel, trace silt. Moist, medium dense, slight petroleum-like odor. Trace organic root material.
4								SP 4.5 to 10' - Light brown to brown, fine to medium SAND; trace silt. Wet, medium dense. Trace fine gravel from 4.5 to 5.0'.
5				RCH-4H-ENV-5W/5.5				
6		39	ND					
7								
8								
9								
10								
11							SP 10 to 20' - Red brown, fine to medium SAND; little silt. Wet, medium dense. Red brown, stiff clay layer with trace fine gravel from 12 to 13'.	
12								
13		47	ND					
14								
15								

CASING TYPE/DIAMETER (IN.) INNER: <u>PVC/3</u> OUTER: <u>N/A</u>	STATIC WATER LEVEL: <u>1.64 (9/20/11)</u> feet below surface DEPTH WATER ENCOUNTERED: <u>4.5</u> feet below surface
SCREENED OR OPEN INTERVAL: <u>6.0 to 16.0</u> (FEET BELOW SURFACE)	MEASURING POINT ELEVATION: <u>NA</u> ft.msl GROUND SURFACE ELEVATION: <u>NA</u> ft.msl



Environmental Corporation

57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

TEMPORARY WELL AND SOIL BORING LOG

WELL NUMBER RCH-4H-ENV-5W

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	WELL DIAGRAM	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
16							
17							
18		37	ND				
19							
20							
							End of boring at 20'
							<p><u>Well Construction Details</u></p> <p>1.0 to 6.0 ft. below surface - 3" diameter PVC riser.</p> <p>6.0 to 16 ft. below surface - 3" diameter 0.010 slot PVC screen</p> <p>1.0 to 16 ft. below surface - No. 01 sand.</p> <p>Total Depth of well = 16.07 feet bg as measured on 9/20/11</p>



Environmental Corporation

57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

TEMPORARY WELL AND SOIL BORING LOG

WELL NUMBER

RCH-5H-ENV-1W

PROJECT NAME: Spectra NJ-NY Expansion

LOCATION: Staten Island, New York

PROJECT NO.: 168217

CONTRACTOR: Land Air Water Environmental Services

SAMPLER TYPE/DIA.: Hand Auger/ Macrocore/2"

TYPE OF WELL: Temporary

DEPTH TO BEDROCK: Not Encountered

DRILLING METHOD: Hollow Stem Auger

TOTAL DEPTH DRILLED: 20 feet

BIT TYPE: Auger Bit

START DATE: 10/25/11

FINISH DATE: 10/25/11

DRILLER: J. Lamprecht

LOGGED BY: J. Lenhart

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	WELL DIAGRAM	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
0							Top of casing to ground surface: -0.58 feet
1		Hand Cleared	ND	RCH-5H-ENV-1W/3.5			0.0 to 1.0' - Asphalt layer (5" thick), Concrete mixed with gravel (7" thick).
2							1.0 to 2.0' - FILL: Orange-brown, fine to medium sand; trace silt, trace fine to coarse, sub-angular gravel. Moist, loose.
3							2.0 to 5.0' - FILL: Orange-brown, fine to medium sand; some silt, trace clay, trace fine to medium, sub-angular gravel. Moist, loose. Cobble @ 3.0'.
4							
5			ND	RCH-5H-ENV-1W/7.0			5.0 to 10' - FILL: Dark brown, fine to medium sand; some silt, little clay, trace fine gravel. Wet, loose, sewage-like odor. Wet @ 5.0'. Clay lens (4" thick) medium stiff @ 8.5'.
6		44.2					
7		26.7					
8		23.2					
9		24	35.7				
10			64.1				
11			45.8				
12			23.4				ML 10 to 20' - Reddish brown SILT; little clay, trace sub-rounded gravel. Dry, stiff.
13		52.1					
14		85.9					
15		34.6					
		48	0.8				
			1.1				
			0.9				
			1.2				
			0.1				
		0.1					
		ND					
			ND				
			ND				
			ND				
			0.4				

CASING TYPE/DIAMETER (IN.) INNER: <u>PVC/3</u> OUTER: <u>N/A</u>	STATIC WATER LEVEL: <u>6.83 (10/26/11)</u> feet below surface DEPTH WATER ENCOUNTERED: <u>5</u> feet below surface
SCREENED OR OPEN INTERVAL: <u>0.58 - 15.58</u> (FEET BELOW SURFACE)	MEASURING POINT ELEVATION: <u>NA</u> ft.msl GROUND SURFACE ELEVATION: <u>NA</u> ft.msl



Environmental Corporation

57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

TEMPORARY WELL AND SOIL BORING LOG

WELL NUMBER

RCH-5H-ENV-1W

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	WELL DIAGRAM	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
16		60	ND				10 to 20' - Reddish brown SILT; little clay, trace sub-rounded gravel. Dry, stiff.
17							
18							
19							
20							
							End of boring @ 20'
							<p><u>Well Construction Details</u></p> <p>0.58 to 15.70 ft. below surface - 3" diameter 0.010 slot PVC screen</p> <p>0.58 to 15.70 ft. below surface - No. 01 sand</p> <p>Total depth of well = 15.70 feet bg as measured on 10/26/11</p> <p>Note: Borehole backfilled with grout, bentonite chips, black dyed cement and restored to grade.</p>



Environmental Corporation

57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

TEMPORARY WELL AND SOIL BORING LOG

WELL NUMBER

RCH-5H-ENV-6.1W

PROJECT NAME: Spectra NJ-NY Expansion

LOCATION: Staten Island, New York

PROJECT NO.: 168217

CONTRACTOR: Land Air Water Environmental Services

SAMPLER TYPE/DIA.: Hand Auger/ Macrocore/2"

TYPE OF WELL: Temporary

DEPTH TO BEDROCK: Not Encountered

DRILLING METHOD: Hollow Stem Auger

TOTAL DEPTH DRILLED: 20 feet

BIT TYPE: Auger Bit

START DATE: 10/27/11

FINISH DATE: 10/27/11

DRILLER: J. Lamprecht

LOGGED BY: J. Lenhart

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	WELL DIAGRAM	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
0							Top of casing to ground surface: -1.0 feet
1		Hand Cleared	ND	RCH-5H-ENV-6.1W/3.5			0.0 to 1.0' - Asphalt layer (4" thick), Concrete mixed with gravel (7" thick).
2							1.0 to 4.0' - FILL: Orange-brown, fine to medium sand; little clay pieces, little fine to coarse, sub-angular gravel, trace silt. Loose, dry. Little concrete pieces (1-4" diameter). Trace organic wood material within clay.
3							4.0 to 10' - FILL: Orange-brown, fine to medium sand; little silt, trace clay pieces, trace fine to medium, sub-angular gravel. Loose, wet @ 5.0'. Trace coal pieces from 8.0 to 10'.
4							
5							
6							
7							
8				RCH-5H-ENV-6.1W/7.5			
9		4	ND				
10							
11						OL	10 to 16' - Reddish-brown SILT, some clay, trace fine, sub-angular gravel. Wet, medium stiff. Trace organic material.
12							
13		45	ND				
14							
15							

CASING TYPE/DIAMETER (IN.) INNER: <u>PVC/3</u> OUTER: <u>N/A</u>	STATIC WATER LEVEL: <u>5.46 (10/28/11)</u> feet below surface DEPTH WATER ENCOUNTERED: <u>5</u> feet below surface
SCREENED OR OPEN INTERVAL: <u>1.0 - 15.95</u> (FEET BELOW SURFACE)	MEASURING POINT ELEVATION: <u>NA</u> ft.msl GROUND SURFACE ELEVATION: <u>NA</u> ft.msl



Environmental Corporation

57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

TEMPORARY WELL AND SOIL BORING LOG

WELL NUMBER

RCH-5H-ENV-6.1W

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	WELL DIAGRAM	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
16		55	ND			SP	16 to 20' - Reddish-brown, fine SAND. Wet, loose.
17							
18							
19							
20							
							End of boring @ 20'
							<u>Well Construction Details</u> 1.0 to 15.95 ft. below surface - 3" diameter 0.010 slot PVC screen 1.0 to 15.95 ft. below surface - No. 01 sand Total depth of well = 15.95 feet bg as measured on 10/28/11 Note: Borehole backfilled with grout, bentonite chips, black dyed cement and restored to grade.



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TEMPORARY WELL AND SOIL BORING LOG

WELL NUMBER

RCH-6-ENV-2W

PROJECT NAME: Spectra NJ-NY Expansion

LOCATION: Staten Island, New York

PROJECT NO.: 168217

CONTRACTOR: Land Air Water Environmental Services

SAMPLER TYPE/DIA.: Hand Auger/Macrocore/2"

TYPE OF WELL: Temporary

DEPTH TO BEDROCK: Not Encountered

DRILLING METHOD: Hollow Stem Auger

TOTAL DEPTH DRILLED: 20 feet

BIT TYPE: Auger Bit

START DATE: 07/19/11

FINISH DATE: 07/19/11

DRILLER: K. McGourty

LOGGED BY: B. Chaky / P. Narea

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	WELL DIAGRAM	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS				
0											
1		Hand cleared	ND	RCH6ENV2W/1			0 to 3.0' - FILL: Brown, medium to fine sand; some silt, trace gravel. Dry.				
2											Wet at 2'
3											3.0 to 5.0' - FILL: Gray, angular gravel; little brown coarse sand. Wet.
4											
5											
6		12	ND	RCH6ENV2W/6			5.0 to 10' - FILL: Gray to dark gray, medium to fine sand; little medium to fine angular gravel, trace silt, trace coal/cinder fragments. Wet, loose.				
7											
8											
9											
10											
11		54	173			PT	10 to 15' - Brown to dark brown PEAT; little silt, little clay, trace roots. Wet, loose, odor.				
12			71.9								
13			168								
14			305								
15			548								
			230								
			488								
			336								
CASING TYPE/DIAMETER (IN.)					STATIC WATER LEVEL: <u>2.30 (07/20/11)</u> feet below surface						
INNER: <u>PVC/3</u> OUTER: <u>N/A</u>					DEPTH WATER ENCOUNTERED: <u>2</u> feet below surface						
SCREENED OR OPEN INTERVAL: <u>0 - 10</u> (FEET BELOW SURFACE)					MEASURING POINT ELEVATION: <u>NA</u> ft.msl						
					GROUND SURFACE ELEVATION: <u>NA</u> ft.msl						

**Environmental Corporation**

57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

TEMPORARY WELL AND SOIL BORING LOG

WELL NUMBER

RCH-6-ENV-2W

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	WELL DIAGRAM	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
16		24	83.5			SW	15 to 20' - Gray, medium to fine SAND; little silt, trace clay. Wet, loose, slight odor.
17			38.3				
18			0.9				
19			0.2				
20							
							End of boring @ 20'
							<u>Well Construction Details</u> 0 to 10 ft. below surface - 3" diameter 0.010 slot PVC screen 0 to 10 ft. below surface - No. 01 sand Total depth of well = 10 feet bg as measured on 7/20/11.

**Environmental Corporation**

57 E. Willow Street, Millburn, NJ 07041 (973) 564-6006

TEMPORARY WELL AND SOIL BORING LOG

WELL NUMBER

RCH-6-ENV-5W

PROJECT NAME: Spectra NJ-NY Expansion

LOCATION: Staten Island, New York

PROJECT NO.: 168217

CONTRACTOR: Land Air Water Environmental Services

SAMPLER TYPE/DIA.: Hand Auger/ Macrocore/2"

TYPE OF WELL: Temporary

DEPTH TO BEDROCK: Not Encountered

DRILLING METHOD: Hollow Stem Auger

TOTAL DEPTH DRILLED: 20 feet

BIT TYPE: Auger Bit

START DATE: 07/19/11

FINISH DATE: 07/19/11

DRILLER: K. McGourty

LOGGED BY: B. Chaky

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	WELL DIAGRAM	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
0							0 to 0.8' - Asphalt and Gravel surface.
1							0.8 to 1.5' - FILL: Brown, medium to fine sand; little medium to fine, sub-rounded gravel, trace silt. Dry, dense.
2		54	ND	RCH6ENV5W/2			1.5 to 10.0' - FILL: Gray to black, medium to fine sand; some medium to fine, sub-rounded gravel, trace silt, trace coal/cinder fragments. Wet, loose. Trace wood material from 5.0 to 10'.
3							
4							
5							
6				RCH6ENV5W/6			
7		20	ND				
8							
9							
10							
11						PT	10 to 16.5' - Brown PEAT; little silt, trace roots. Wet, loose. Odor @ 15'.
12							
13		3	ND				
14							
15							

CASING TYPE/DIAMETER (IN.)

INNER: PVC/3 OUTER: N/A

STATIC WATER LEVEL: 1.64 (07/20/11) feet below surface

DEPTH WATER ENCOUNTERED: 1.5 feet below surface

SCREENED OR OPEN INTERVAL: 0 - 15 feet
(FEET BELOW SURFACE)

MEASURING POINT ELEVATION: NA ft.msl

GROUND SURFACE ELEVATION: NA ft.msl



Environmental Corporation

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TEMPORARY WELL AND SOIL BORING LOG

WELL NUMBER

RCH-6-ENV-5W

DEPTH FROM SURFACE (FEET)	BLOW COUNT PER 6 IN.	RECOVERY (INCHES)	PID (ppm)	SAMPLE DESIGNATION	WELL DIAGRAM	UNIFIED	LITHOLOGIC CLASSIFICATION AND COMMENTS
16		48	2.4 79.3			SW	16.5 to 20' - Gray, medium to fine SAND; little clay, trace fine, sub-rounded gravel. Wet, loose.
17			24.4 1.3				
18			ND				
19			ND ND				
20			ND				
							End of boring @ 20'
							<u>Well Construction Details</u> 0 to 15 ft. below surface - 3" diameter 0.010 slot PVC screen 0 to 15 ft. below surface - No. 01 sand