Metro-North Railroad

Harmon Yard - OUI/OUII: Off-Site and NAPL Area L1 Monitoring Wells

Metro-North Railroad (MNR) intends to install six (6) off-site monitoring wells (designated Well-A through Well-F) and one (1) on-site monitoring well (designated SP-North) in the approximate locations depicted on the attached figure. This document describes the requirements for the installation of these monitoring wells.

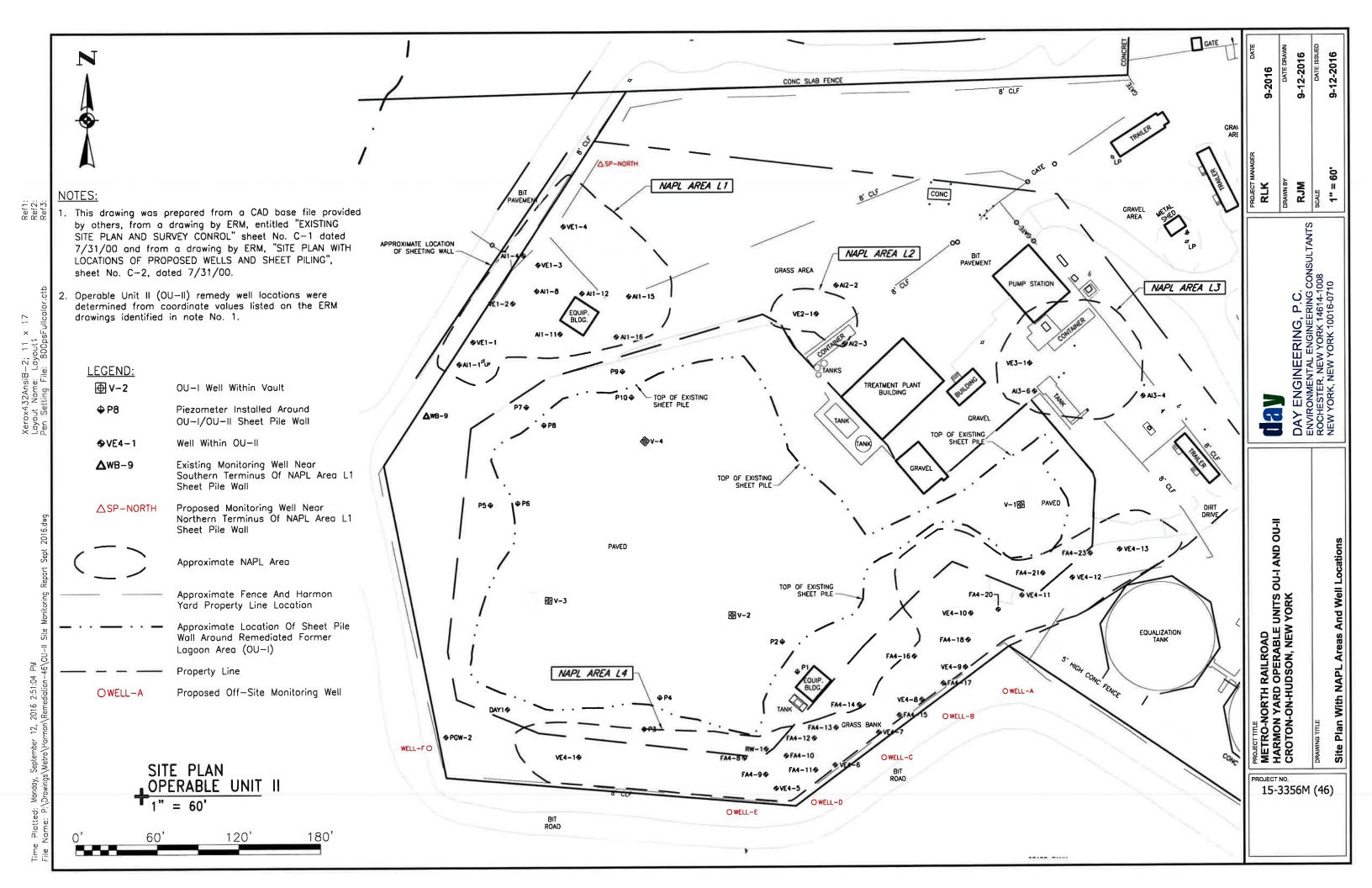
- The locations shown on the attached figure are approximate, but the monitoring wells will be installed as close to the locations shown as possible depending on the location of buried utilities and other obstructions that will be determined at the time of installation. [Note: The off-site monitoring wells are to be installed in the grass area immediately south of the roadway, but as close to the roadway as possible. Monitoring well SP-North, in conjunction with an existing monitoring well designated WB-9, will be used to evaluate the presence of NAPL that could potentially migrate off-site around a sheet pile wall installed in NAPL Area L1. These wells are/will be located near the northern (SP-North) and southern (WB-9) terminus of the sheet pile.]
- As a precaution to preclude damaging unmarked utilities, it is anticipated that a turbo vac will be used to advance the test boring from the ground surface to approximately 5 feet (ft.) below ground surface (bgs). Thereafter a track-mounted Geoprobe 6610DT will be used to complete the test boring and collect samples in consecutive 5-foot long intervals. The samples collected will be observed to evaluate subsurface conditions and evidence of potential environmental impact (e.g., unusual odors, staining, evidence of free product, etc.). A photoionization detector (PID) will be used to screen the soil samples collected. The information collected will be summarized in field books and test boring logs will be prepared for each test boring advanced.
- During the advancement of the test borings, a Community Air Monitoring Plan (CAMP), generally consistent with the requirements outlined in Appendix 1A of DER-10 will be implemented.
- Based on available information, it is anticipated that each monitoring well will be installed to a depth of approximately 20 ft. bgs. The actual depth will be determined in the field by a MNR representative. Copies of select test boring logs/monitoring well installation diagrams for monitoring wells that have been installed by MNR in proximity of the proposed new monitoring wells are included in Attachment A. [Note: An installation log for well WB-9 could not be located. However, this well was evaluated and re-developed on April 23, 2015. During this work, it was determined that this 2-inch diameter well is approximately 17.2 ft. deep. On April 23, 2015, groundwater was measured at a depth 6.37 ft. bgs, and no free product was observed in this well.]

- Following completion of the test borings, a 1-inch diameter flush-coupled PVC monitoring well with 10 ft. to 15 ft. long slotted well screen (10 slot) connected to solid riser pipe extending to the ground surface will be installed within each test boring. The bottom of the well screen should be placed approximately 0.5 ft. above the bottom of the test boring and the screen should be backfilled with a filter sand pack that extends at least 0.5 ft. above the top of the well screen. A minimum 1-foot thick bentonite seal should be installed above the sand pack and a cement/bentonite grout should be placed to within about 1 ft. of the ground surface.
- The off-site monitoring wells Well-A through Well-F will be completed as flush-mount installations with a steel protective gate box installed within a concrete pad that extends from the ground surface to the top of the cement/bentonite seal. The on-site monitoring well SP-North will be completed with a steel stick-up protective casing that is installed within a concrete pad.
- Drill cuttings generated during the installation of the monitoring wells will be containerized and placed in a location designated by MNR.

Following installation, the monitoring wells will be developed by pumping and/or bailing to remove accumulated sediments and to assure the wells are functioning. During development, the purge water will be observed for evidence of free product. The water generated during development will be collected and placed in containers for subsequent characterization testing and disposal by MNR.

The developed wells will be evaluated initially on a weekly basis to assess the presence/thickness of free product (if any) and depth to groundwater. If free product in excess of 0.5 inches is detected, it will be removed by pumping or bailing and placed in a container for subsequent characterization testing and disposal by MNR. Depending on the amount of free product encountered, the monitoring frequency will be adjusted accordingly. For example, if free product in excess of 0.5 ft. is detected and the free product returns following purging daily monitoring may be required. Conversely if free product does not accumulate in a well the monitoring frequency may be increased to monthly.

Following at least six months of monitoring, a report summarizing the results of the work conducted and the results of the monitoring completed will be prepared. This report will include recommendations for additional studies or remedial activities if such work is deemed necessary.





Geologic Log and Well Construction Details Well ID: VE4-9

ENVIROTRAC LTD.

Client:	,	Contract No	.:				to Water	Site Elevation Datum
Metro-North Railroad		9464					neasuring pt.)	
Site Name:		Address:	Same-ranson or a large			Date	DTW	
Harmon Lagoon Area	DU-II		-Hudson, N	Y			1 1	
Drilling Company:	mar to	Method:	www.com				1 -	Measuring Point Elevation
Aquifer Drilling and Tes	sung, inc.		m Augers				1 +	Measuring Point Elevation
Date Started:		Date Com	pietea:				1 1	
07/16/01 Completion Depth:		07/16/01	RAC Geolo	olet:			1 1	
20'		Tom Boss		Rior.			1 1	
MONITORING WELL	DEPTH	Tom boss	SAMPLES					
CONSTRUCTION	(ft below	Reco-	Blow	1	1		OIL DESCRIPTIO	N
(NTS)	grade)	very	per	OVM	(Soil 5			y Using Geoprobe)
(1110)	grade	(ft.)	6 in.	(ppm)) "00"	outilpiou com	2000 001111120001	y come coopiosa,
				T. France				
				-				
	- 0 -				Brush Surface			
	J	<			Digali galigos			
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G-100-100		39	NA	0	0-4' Medium to fine	grained brow	n sana some clay	ary, no odor.
	_	∤			F			
	5							
		42	NA	3	-	_		grey staining beginning
		1 1			at approximatel	y 5', wet at a	pproximately 6', p	etroleum-like odor.
6.5								
	10				[
		1 1		1				
		1 1			-			
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	45	ł I		1				
	15	l 1		1				
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	20							
		1 1						
				1				
		1 1						
V/////////////////////////////////////								
EGEND:					Well Construction De	etails	Wall Developme	ent Details
-VEIID				1		20 ¹	Date:	THE PERSON NAMED IN COLUMN NAM
Cement				1		5'-20'	Method:	
						4" SCH 40	Volume of water	removed:
Bantonite Seal						4" 10 slot		teristics (color/turbidity/odor)
						4'-20'	Before:	
Gravel						6 Bags #1	During:	
pack (morie #1)					Bentonite Seal:	3'-4'	After:	
				1		1 Bag	Comments:	
Screen					Cement Surface:			
V.		1		1	Seal:			
				1	Remarks:	Breathing Zo	ne PID = 0 ppm.	
End/Top Cap						_	• • • • • • • • • • • • • • • • • • • •	

Geologic Log and Well Construction Details Well ID: FA4-17

ENVIROTRAC LTD.

Client:	(Contract No).i				to Water	Site Elevation Datum
Metro-North Railroad		9464					neasuring pl.)	
Site Name:		Address:				Date	DTW	
larmon Lagoon Area	00-11	Contract Con	-Hudson, N	Y		_		
Orilling Company:		Method:					1 4	
Aquifer Drilling and Te	sting, Inc.		em Augers					Measuring Point Elevation
Date Started:		Date Com	pleted:					
7/12/01		07/12/01	**				1	
Completion Depth:		ENVIROT	RAC Geolo	gist:			1 1	
15'		Tom Boss	hard					
MONITORING WELL	DEPTH		SAMPLES					
CONSTRUCTION	(ft below	Reco-	Blow	1		s	OIL DESCRIPTIO	N
(NTS)	grade)	very	рег	OVM	(Soil	Samples Coll	ected Continuous	y Using Geoprobe)
(8.227	(in.)	6 in.	(ppm)	(,
	- 0	35 42	NA NA	7	Brush Surface 0-4' Medium to fine 4-8' Medium to fine approximately	grained brow	n sand; grey stain	
EGEND: Coment Bentonite Seal Gravel pack (morie #1) Screen					Well Construction D Bottom of Well: Screen Zone: Casing material: Screen material: SAND Pack: Amount Sand: Bentonite Seal: Amount Bentonite: Cement Surface: Seal;	etails 15' 5'-15' 2" SCH 40 2" 10 slot 4'-15' 3 Bags #1 3'-4' 1 Bag	Well Developme Date: Method: Volume of water Physical Charact Before: During: After: Comments;	

Geologic Log and Well Construction Details Well ID: VE4-8

ENVIROTRAC LTD.

Date Completed: Ort/16/01	ite Elevation Datum
Additional Legion Area OU-II Crolon-on-Hudson, NY Method:	
Deling company: Medical Medica	
Aguiter Drilling and Testing, Inc. Date Completed: Orthogola Depth: Orthogola Dep	
Date Started: Date Completion Depth: O77/5/01 Dompletion Depth: D	
### Completion Depth: ### Completion Depth	suring Point Elevation
Completion Depth: Completion Depth: ENVIROTRAC Geologist: Tom Bosshard	
MONITORING WELL CONSTRUCTION (NTS) Reco grade) 43 NA 0 A3 NA 0 A6 NA 8 A6 NA 8 A6 NA 8 A6 A6 NA 8 A6 A6 A7 A6 A7 A7 A7 A7 A7 A7	
MONITORING WELL CONSTRUCTION (NTS) The blow grade) Perco (In.) As NA As NA Brush Surface As NA Brush Surface As NA Brush Surface As NA Brush Surface Brush Surf	
CONSTRUCTION (NTS) (It below grade) (In)	With the same of t
(NTS) grade) very per (Pm) (Soll Samples Collected Continuously Using Grade) very per (Pm) (Soll Samples Collected Continuously Using Grade) Per (Pm) (Pm) (Pm) (Pm) (Pm) (Pm) (Pm) (Pm)	
Cement Comment Comme	
GEND: Well Construction Details Brush Surface	eoprobe)
GEND: Vali	
Well Construction Details Well Development Details Bottom of Well: 20' Date: Screen Zone: 5'-20' Method; Casing material: 4" SCH 40 Volume of water removed: Screen material: 4" 10 slot Physical Characteristics (col SAND Pack: 4'-20' Before: Amount Sand: 6 Bags #1 During: Bentonite Seal: 3'-4' After: Amount Bentonite: 1 Bag Comments: Cement Surface: Seal:	ning beginning
Bottom of Well: 20' Date: Screen Zone: 5'-20' Method: Casing material: 4" SCH 40 Volume of water removed: Screen material: 4" 10 slot Physical Characteristics (col SAND Pack: 4'-20' Before: Amount Sand: 6 Bags #1 During: Bentonite Seal: 3'-4' After: Amount Bentonite: 1 Bag Comments: Cement Surface: Seal:	
Cement Screen Zone: 5'-20' Method: Casing material: 4" SCH 40 Volume of water removed: Screen material: 4" 10 slot Physical Characteristics (col SAND Pack: 4'-20' Before: Amount Sand: 6 Bags #1 During: Bentonite Seal: 3'-4' After: Amount Bentonite: 1 Bag Comments: Cement Surface: Seal: Cement Surface: Seal: Cement Surface: Seal: Cement Surface: Cement Surfac	
Casing material: 4" SCH 40 Volume of water removed: Screen material: 4" 10 slot Physical Characteristics (col SAND Pack: 4'-20' Before; Amount Sand: 6 Bags #1 During: Bentonite Seal: 3'-4' After: Amount Bentonite: 1 Bag Comments: Cement Surface: Seal:	
Screen material: 4" 10 slot Physical Characteristics (col SAND Pack: 4'-20' Before; Amount Sand: 6 Bags #1 During: Bentonite Seal: 3'-4' After: Amount Bentonite: 1 Bag Comments: Cement Surface: Seal:	
SAND Pack: 4'-20' Before; Amount Sand: 6 Bags #1 During: Bentonite Seal: 3'-4' After: Amount Bentonite: 1 Bag Comments: Cement Surface: Seal:	lor#urbldits/odes
Amount Sand: 6 Bags #1 During: Bentonite Seal: 3'-4' After: Amount Bentonite: 1 Bag Comments: Cement Surface: Seal:	norturnalty/odor)
pack (morie #1) Bentonite Seal: 3'-4' After: Amount Bentonite: 1 Bag Comments: Cement Surface: Seal:	
Amount Bentonite: 1 Bag Comments: Cement Surface: Seal:	
Screen Cement Surface: Seal:	
Seal;	
F-47 0	
End/Top Cap Remarks: Breathing Zone PID = 0 ppm.	
3 - Not to Scale ND - Not Detected NM - Not Measured	

Geologic Log and Well Construction Details Well ID: FA4-15

ENVIROTRAC LTD.

Client:		Contract No	.:				to Water	Site Elevation Datum
Metro-North Railroad		9464					easuring pt.)	
ite Name:		Address:				Date	DTW	
larmon Lagoon Area	OU-II		-Hudson, N	Υ				
Orilling Company:		Method:				1		
Aquifer Drilling and Te	sting, Inc.	Hollow Ste				4	I .	Measuring Point Elevation
Date Started:		Date Com	pleted:				1 1	
)7/12/01		07/12/01				4	1 1	
Completion Depth:			RAC Geolo	gist:				
15'		Tom Boss						
MONITORING WELL			SAMPLES					
CONSTRUCTION	(ft below	Reco-	Blow				OIL DESCRIPTION	
(NTS)	grade)	very	per	OVM	(Soil	Samples Colle	ected Continuous	ly Using Geoprobe)
		(in.)	6 in.	(ppm)				
	L =	4			L			
	0				Brush Surface			
	_	J I			<u>L</u> .			
		39	NA	0	0-4' Medium to fine	grained brow	n sand little clay;	dry, no odor:
				1				
	Γ -	1			6			
	5 -	42	NA	15	4-8' Medium to fine	grained brown	n sand: orev stell	ning beginning at
	Ĭ	"-	147	"		_		roleum-like odor.
	-	1 1			approximately	o, wet at appi	oximately 7, per	olediti-like odol.
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	10							
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		1 1		1 1				
100								
-	15	i I		1 3				
	15	l I						
EGEND:					Well Construction D		Well Developm	ent Details
					Bottom of Well:	15'	Date:	
Cernent					Screen Zone:	5'-15'	Method:	ar romovod:
= p4					Casing material:	2" SCH 40	Volume of water	
Bentonite Seal					Screen material: SAND Pack:	2" 10 slot 4'-15'	Physical Chara Before:	cteristics (color/turbidity/odor)
Cround							Before: During:	
Gravel					Amount Sand: Bentonite Seal:	3 Bags #1 3'-4'	During: After:	
pack (morie #1)					Amount Bentonite:	3'-4' 1 Bag	Comments:	
Screen					Cement Surface:	Day	Comments.	
JUBBII					Seal:			
End/Top Cap					Remarks:	Breathing Zo	ne PID = 0 ppm.	
		1 1		1 1			FPIII	
l l								

Attachment 2 Geologic Log and Well Construction Details Well ID: VE4-7

ENVIROTRAC LTD.

Client: Metro-North Raifroad	Contract No.: 9464				h to Water measuring pt.)	Site Elevation Datum
Site Name:	Address:	-		Date	DTW	
farmon Lagoon Area OU-II	Croton-on-Hudson, N	IY		Dato		
Orilling Company:	Method:			-	1 1	
Aquifer Drilling and Testing, Inc.	Hollow Stem Augers				1 1	Measuring Point Elevation
Date Started:	Date Completed:				1	
07/17/01	07/17/01				1 1	
Completion Depth:	ENVIROTRAC Geolo	ogist:				
50'	Tom Bosshard	•				
MONITORING WELL DEPTH	SAMPLES	3	T			
CONSTRUCTION (ft below	Reco- Blow	T	1	5	OIL DESCRIPTIO	N
(NTS) grade)	very per	OVM	(Sol			y Using Geoprobe)
(, 0,	(in.) 6 in.	(ppm)	,			
10	41 NA 41 NA	0	-	grained brow	n sand some clay;	dry, no odor. grey staining beginning petroleum-like odor.
EGEND: Cement Bentonite Seal Gravel pack (morie #1) Screen End/Top Cap			Well Construction D Bottom of Well: Screen Zone: Casing material: Screen material: SAND Pack: Amount Sand: Bentonite Seal: Amount Bentonite: Cement Surface: Seal: Remarks:	20' 5'-20' 4" SCH 40 4" 10 slot 4'-20' 6 Bags #1 3'-4' 1 Bag	Wall Developme Date: Method: Volume of water Physical Charact Before: During: After: Comments; ne PID = 0 ppm.	

Geologic Log and Well Construction Details Well ID: VE4-6

ENVIROTRAC LTD.

Client:		Contract No	0.1			Dep	lh to Water	Site Elevation Datum
Metro-North Railroad		9464				(ft. from	measuring pt)	
Site Name:		Address:				Date	DTW	
larmon Lagoon Area	OU-11		-Hudson, N	Y				
Orilling Company:		Method:					1	
Aquifer Drilling and Te	sting, Inc.		em Augers					Measuring Point Elevation
Date Started:		Date Com	pleted:					
07/17/01		07/17/01					1 1	
Completion Depth:		ENVIROT	RAC Geolo	gist:				
20'		Tom Boss	hard					
MONITORING WELL	DEPTH		SAMPLES					
CONSTRUCTION	(ft below	Reco-	Blow		1		SOIL DESCRIPTION	ON
(NTS)	grade)	very	per	OVM	(So	il Samples Co.	lected Continuous	sly Using Geoprobe)
		(in.)	6 in.	(ppm)				
				1				
		1		1				
	0 -				Brush Surface			
	,			1	PLUSH SUITACE			
	_				-			
		35	NA	0	0-4' Medium to fin	e grained brov	vn sand little clay;	dry, no odor.
					L			
000	5				7			
22	-	45	NA	12	4-8' Medium to fin	e grained brov	n sand some clay	; grey staining beginning
				1	-		_	etroleum-like odor.
72.0						., . ,	, pp. 103	and addi.
	40			1 1	- 2			
	10	1		. 0				
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0.1				1 1	ATT.			
	230			1 1				
	15			1 8				
				1 9				
	-							
100 E								
445		- 1						
	20			1 1				
				1 1				
				1 1				
	- 1							
	- 1			/				
A SHEET WAS IN SECTION				1				
				- 3				
	1							
				1				
GEND;		1			Well Construction D	etails	Well Developme	ent Details
					Bottom of Well:	20'	Date:	
Cement					Screen Zone:	5'-20'	Method:	
_		1			Casing material:	4" SCH 40	Volume of water	removed:
Bentonile Seal					Screen material:	4" 10 slot	Physical Charac	teristics (color/turbidity/odor)
	i i				SAND Pack:	4'-20'	Before:	•
Gravel				-	Amount Sand:	6 Bags #1	During:	
pack (morie #1)				1	Bentonite Seal:	3'-4'	After:	
~					Amount Bentonite:	1 Bag	Comments:	
Screen					Cement Surface:			
			- 1	- 1	Seal:			
End/Top Cap					Remarks:	Breathing Zo	ne PID = 0 ppm.	
			- 1					

Geologic Log and Well Construction Details Well ID: FA4-14

ENVIROTRAC LTD.

Client:		Contract No).:			Dept	h to Water	Site Elevation Datum
Metro-North Railroad		9464				(ft from	measuring pt.)	
Site Name:		Address:				Date	DTW	
Harmon Lagoon Area	OU-II	Croton-or	-Hudson, N	Υ				
Drilling Company:		Method:				1		
Aquifer Drilling and Te	sting, Inc.	Hollow St	em Augers				1 1	Measuring Point Elevation
Date Started:		Date Corr	pleted:				1	
07/12/01		07/12/01	•					
Completion Depth:			RAC Geolo	gist:		1		
15'		Tom Boss		•				
MONITORING WELL	DEPTH	T	SAMPLES		-	4		
CONSTRUCTION	(ft below	Reco-	Blow	T	1		OIL DESCRIPTION	ON
(NTS)	grade)	very		OVM	(50)			sly Using Geoprobe)
(1113)	grade)	(in.)	per 6 in.	(ppm)	(30)	Samples Col	lected Continuous	sly Osling Geoprobe)
		(111.)	0 1(1).	(ppm)				
					_			
	0				Brush Surface			
		34	NA	0	0-4' Medium to fine	arained brow	n sand: dry no o	dor.
		"	141	1	, modali to file	. g DION		
					F			
				1				
				1	L			
	5	43	NA	1	4-8' Medium to fine	grained brow	n sand; dry, grey	staining beginning at
					approximately	7' petroleum-	like odor.	1
151	-	1			approximately	, , , , , , , , , , , , , , , , , , , ,		
133				1				
		42	NA	10	8-12' Medium to fin	e grained gre	y stained sand; w	et at approximately 11',
				1	petroleum-lik	e odor.		
	10	1						
				1 1				
402								
	15							
	''							
				1				
		1						
	N I							
						9		
								L
EGEND:					Well Construction D		Well Developm	ent Details
				1	Bottom of Well:	15'	Date:	
Cement		Í			Screen Zone:	5'-15'	Method:	
					Casing material:	2" SCH 40	Volume of water	
Bentonite Seal	1				Screen material:	2" 10 slot	Physical Chara	cteristics (color/turbidity/odor)
	1				SAND Pack:	4'-15'	Before:	
Gravel	1				Amount Sand:	4 Bags #1	During:	
pack (morie #1)					Bentonite Seal:	3'-4'	After:	
		1			Amount Bentonite:	1 Bag	Comments:	
Screen					Cement Surface:			
					Seal:			
End/Top Cap		1		- 1	Remarks:	Breathing 7o	ne PID = 0 ppm,	
- 1.2						_,	• ррин	
				1				

Geologic Log and Well Construction Details Well ID: FA4-12

ENVIROTRAC LTD.

Client:	(Contract No	.:				to Water	Site Elevation Datum
Metro-North Railroad		9464					easuring pt.)	
Site Name:		Address:				Date	DTW	
Harmon Lagoon Area	OU-II		-Hudson, N					
Orilling Company:		Method:						
Aquifer Drilling and Te	sting, Inc.	Hollow Ste						Measuring Point Elevation
Date Started:		Date Com	pleted:					
07/12/01		07/12/01				-		
Completion Depth:			RAC Geolog	gist:				
15'		Tom Boss					1	
MONITORING WELL	DEPTH		SAMPLES					
CONSTRUCTION	(ft below	Reco-	Blow				DIL DESCRIPTI	
(NTS)	grade)	very	per	OVM	(Soil	Samples Colle	cted Continuou	sly Using Geoprobe)
		(in.)	6 in.	(ppm)				
	_				<u></u>			
1000	0				Brush Surface			
		41	NA	0	0-4' Medium to fine	grained brown	sand dry no	odor:
		41	INA	"	0-4 IVICUIUM TO TINE	Rigilied DIOM	i sailu, ury, ilo i	Judii,
	-: :-	1			- :			
		{			-			
	5	46	NA	14	4-8' Medium to fine	-		
					approximately	7', wet at appr	oximately 8', pe	troleum-like odor.
		1 1						
		1 1						
	10	1 1						
	-	1 1						
		1 1						
		- 1						
		1						
	a							
	15	1 1						
EGEND:					Well Construction D	etails	Well Develop	ment Details
DD/****					Bottom of Well:	15'	Date:	
Cement					Screen Zone:	5'-15'	Method:	
8000					Casing material:	2" SCH 40	Volume of wa	ter removed:
Bentonite Seal					Screen material:	2" 10 slot	Physical Char	acteristics (color/turbidity/odor)
					SAND Pack:	4'-15'	Before:	
Gravel					Amount Sand:	3 Bags #1	During:	
pack (morie #1)					Bentonite Seal:	3'-4'	After:	
					Amount Bentonite:	1 Bag	Comments:	
Screen					Cement Surface:			
					Seal:			
End/Top Cap					Remarks:	Breathing Zo	ne PID = 0 ppn	1.
TS - Not to Scale	-	ND - Not I	Detected	•	NM - Not Measured			DTW - Depth to V

Geologic Log and Well Construction Details Well ID: PGW-2

ENVIROTRAC LTD.

Ten Name: Address: Crolon-on-Hudson, NY Method: Measuring Point Elevation Measuring	Client: Metro-North Railroad		Contract No 9464	0.1				th to Water	Site Elevation Datum
A Melacon Area OU-II Croton-on-Hudson, NY Melhod: Method: Measuring Point Elevation Measuring Point Elevatio)					
Method: Measuring Point Elevation Measuring Point El	Olivina and the second and the secon	OU-II			IY		Date	DIW	
Measuring Point Elevation Measuring Point Elevation Measuring Point Elevation Measuring Point Elevation				711111111111111111111111111111111111111	-		-	1 1	
tel Stated: Date Competed: Date Comp		esting, Inc.		em Augers				1 1	Measuring Point Elevation
INTORING WELL CONSTRUCTION (NTS) DEPTH SAMPLES SOIL DESCRIPTION (NTS) Recograde) (NTS) O 42 NA O A1 NA 13 A1 A1 A1 A1 A1 A1 A1 A1 A	ate Started:		Date Com	pleted:				1 1	
Tom Bosshard ONTORING WELL CONSTRUCTION (ITS) O A2 NA O A2 NA O A42 NA O A43 NA O A44 NA O A45 Medium to fine grained brown sand; dry, no odor. Brush Surface O-4' Medium to fine grained brown sand; grey staining at approximately 4.5', wet at approximately 5', petroleum-like odor. Well Construction Details. Bottom of Well: Screen Zone: Screen Soll. DESCRIPTION (Soil Samples Collected Continuously Using Geoprobe) Brush Surface O-4' Medium to fine grained brown sand; grey staining at approximately 4.5', wet at approximately 5', petroleum-like odor. Well Construction Details. Bottom of Well: 15' Date: Screen Jone: Screen Sc	7/19/01		07/19/01						
ONITORING WELL ONSTRUCTION (It slow grade) O 42 NA 0 Grade Frush Surface G-4' Medium to fine grained brown sand; dry, no odor. Brush Surface G-4' Medium to fine grained brown sand; grey staining at approximately 4.5', wet at approximately 5', petroleum-like odor, 10 Well Construction Details Bottom of Well: 15' Screen Zone: 5-15' Method: Cament Screen Well Development Details Bottom of Well: 15' Screen Zone: 5-15' Method: Camental: 2' 10 slot Physical Characteristics (color/turbidity/odor) Screen Screen Scre	ompletion Depth:		ENVIROT	RAC Geolo	ogist:		7		
END: SOIL DESCRIPTION (NTS) Recoperate per (In.) At 2 NA 0 0 OVM (Soil Samples Collected Continuously Using Geoprobe) Brush Surface 0-4' Medium to fine grained brown sand; dry, no odor. 42 NA 13 4-8' Medium to fine grained brown sand; grey staining at approximately 4.5', wet at approximately 5', petroleum-like odor, 10 15 Well Development Details. Bottom of Well: 15' Date: Screen Zone: 5-15' Method: Casing material: 2' 10 slot Physical Characteristics (color/turbidity/odor) Screen Sand: 3 Bags #1 During: Bentonite Seal Screen	5'		Tom Boss	hard		37		1	
(NTS) grade) very per (in.) 6 in. (ppm) (Soil Samples Collected Continuously Using Geoprobe) Brush Surface 0 0-4' Medium to fine grained brown sand; dry, no odor, 42 NA 13 4-8' Medium to fine grained brown sand; grey staining at approximately 4.5', wet at approximately 5', petroleum-like odor, 10 15 Well Construction Details. Bottom of Well: 15' Date: Cement Soreen Zone: 5-15' Method: Casing material: 2' 10 slot spans of water removed: SaND Pack: 4'-15' Before: Amount Sand: 3 Bags #1 During: Bentonite Seal: 3'-4' After: Amount Bentonite: 1 Bag Comments: Cement Bestonite: 1 Bag Comments: Comment Surface: Seal:		DEPTH		SAMPLES	}				
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Well Construction Datails. Bottom of Well: 15' Date: Screen Zone: 5'-15' Method: Casing material: 2" SCH 40 Screen		- :-	1 1			_			
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Bentonite Seal: 3'-4' After: : Amount Bentonite: 1 Bag Comments: Cement Surface: Seal:					1 1				3
Amount Bentonite: 1 Bag Comments: Cement Surface: Seal:							•	_	
Screen Cement Surface: Seal:	pack (morie #1)				1				
Seal:	Screen						1 Bag	Comments:	
	OMOGII							50 E	
Distance of ppin.	End/Top Cap						Breathing 7	ne PID = 0 nnm	
in the second se							Programily 20	o ppill.	
					-				
- Not to Scale ND - Not Detected NM - Not Measured DTW - Depth to W	S - Not to Scale		ID - Not Do	tected		NM - Not Managed			DTM Don't toll

Geologic Log and Well Construction Details Well ID: VE1-4

ENVIROTRAC LTD.

Dient:	Contract No	o.:				to Water	Site Elevation Datum
letro-North Railroad	9464					neasuring pt.)	
Site Name:	Address:				Date	DTW	
farmon Lagoon Area OU-II		n-Hudson, N	Y		-		
Orilling Company:	Method:						
Aquifer Drilling and Testing, Inc		em Augers			4	1	Measuring Point Elevation
ate Started:	Date Con	npleted:			i i	1	
7/02/01	07/02/01				-	1 1	
Completion Depth;		TRAC Geolo	gist:		1	1 1	
0'	Tom Boss				1		
MONITORING WELL DEPTH		SAMPLES					
CONSTRUCTION (ft below	Reco-	Blow				OIL DESCRIPTI	
(NTS) grade)	very	per	OVM	(Soil	Samples Colle	acted Continuous	sly Using Geoprobe)
	(in.)	6 in.	(ppm)				
10 - 15 - 20	36 25 16	NA NA	0	4-8' Medium to fine petroleum-like 8-12' Medium to fin staining, thick	grained dark odor. ne grained dark colly product a	sand and gravel	l and cinders; dark out the sample beginning
EGEND: Cement Bentonite Seal Gravel pack (morie #1) Screen				Well Construction D Bottom of Well: Creen Zone: Casing material: Screen material: SAND Pack: Amount Sand: Bentonite Seal: Amount Bentonite: Cement Surface: Seal:	etails_ 20' 5'-20' 4" SCH 40 4" 10 slot 4'-20' 15 Bags #1 3'-4' 1 Bag	Well Developm Date: Method: Volume of wate Physical Chare Before: During: After: Comments:	