



INDEPENDENT ENVIRONMENTAL ENGINEERS, SCIENTISTS & CONSULTANTS

December 9, 2003

Dr. Jin Park RealCo, Inc. P.O. Box 9 Lakeview, New York 14085

Re: RealCo, Inc., Watervliet, New York

Former AlTech Landfill - Monitoring Well Network Completion Report

Dear Dr. Park:

Malcolm Pirnie, Inc. (Malcolm Pirnie) is pleased to present RealCo, Inc. (RealCo) with this letter report describing the completion of the post-closure monitoring well network for the former AlTech landfill. This work was conducted in accordance with the final Environmental and Site Analytical Plan prepared by Malcolm Pirnie and submitted to the New York State Department of Environmental Conservation (NYSDEC) on June 9, 2003 and the work plan proposal submitted by Malcolm Pirnie. This letter summarizes the results of the monitoring well installation, development, refurbishment, and abandonment at the former AlTech Landfill.

EXECUTIVE SUMMARY

The following tasks were proposed to complete the monitoring well network:

- Abandon nine wells (MW-1, MW-2, MW-3, MW-6, MW-7, MW-8, MW-12, MW-13, and MW-15) in accordance with the NYSDEC Groundwater Monitoring Well Decommissioning Procedures (Malcolm Pirnie, Inc., October 1996).
- Refurbish four existing monitoring wells (MW-10, MW-16, MW-16B, and MW-20B).
- Install and develop four new overburden wells.
- Install and develop five new bedrock wells.

15 CORNELL ROAD

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■ Install and develop eight wells in which the screened intervals would be determined during drilling.

Malcolm Pirnie conducted field oversight of the groundwater monitoring well installation and development. Field conditions caused some field activities to deviate slightly from those proposed in the work plan. The following tasks were completed:

- Abandoned three wells (MW-7, MW-12, and MW-13). MW-3, MW-6, MW-8, and MW-15 could not be located and were therefore not abandoned. Monitoring wells MW-1 and MW-2 were not abandoned but will not remain in the sampling well network. They may be abandoned based on the water quality results from the replacement wells WW-1I and WW-2B.
- Refurbished MW-10, MW-16, and MW-16B.
- Installed and developed one well (WW-20B) to replace MW-20B, which could not be located.
- Installed and developed two new overburden wells (WW-5 and WW-17). WW-26 was installed to demonstrate the lack of appreciable yield in the overburden in the northern portion of the site. No overburden or interface wells were installed at WW-25B, WW-27B, or WW-28B because there was no appreciable groundwater in the overburden or interface at these locations.
- Installed and developed four new overburden/bedrock interface wells (WW-1I, WW-23I, WW-24I, and WW-26I). WW-1I was proposed as a bedrock well but it was installed as an interface well because there was water in the interface.
- Installed and developed eight new bedrock wells (WW-2B, WW-3B, WW-23B, WW-24B, WW-25B, WW-26B, WW-27B, and WW-28B).

METHODS

Parratt Wolfe personnel decontaminated augers, cutter heads, drill rods, split spoons, pumps, tubing, and any other non-dedicated equipment entering the bore holes before commencing work, and between each well boring. Soil cuttings and liquids derived from boring and development activities were contained in 55-gallon steel drums. As of November 25, 2003, all investigative derived waste was disposed of by RealCo in accordance with NYSDEC approval.



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Borings for overburden wells were drilled by rotary methods using 4-1/4-inch or 6-1/4-inch diameter hollow stem augers (HSA). All overburden monitoring wells were constructed of two-inch diameter PVC with 10 feet of 0.010-slot screen, and finished with four-inch diameter protective steel casings that extend above the ground surface.

Borings for bedrock wells were drilled to the bedrock interface using HSA or air-rotary methods. A five-foot rock socket was reamed into the bedrock, and a four-inch diameter steel casing was grouted in the rock socket and extended above the ground surface. In three of the bedrock wells (new monitoring well locations WW-23B, WW-24B, and WW-27B), core samples were collected prior to reaming the borehole. The cores show that the bedrock at the site is a dark gray to bluish gray siltstone. In general, the cores are slightly to moderately weathered and fractured. The bedrock boreholes were reamed using air-rotary methods to a depth of approximately 10 feet below the bedrock interface or the estimated groundwater level, whichever was lower.

The bedrock monitoring wells were constructed of 2-inch diameter PVC with 10 or 20 feet of 0.010-slot screen. WW-25B and WW-26B were constructed with 20-foot long screens to make sure that the well screen intersected water-bearing fractures. All other wells were screened over a ten-foot interval. The bedrock monitoring wells were finished with four-inch diameter protective steel casings that extend above the ground surface.

WELL INSTALLATION

Parratt Wolfe installed and developed 16 new wells. These wells, along with some previously existing wells, make up the monitoring well network (Figure 1). Monitoring well construction diagrams and boring logs are provided in Attachments A and B, respectively. A licensed surveyor surveyed the locations and measuring point elevations of the refurbished and new wells to an existing site datum. The survey data is summarized in Table 1.

As proposed, overburden monitoring well WW-17 was drilled south of the unnamed tributary, downgradient of the waste management area, and overburden monitoring well WW-5 was installed approximately 50 feet south of MW-4. Monitoring wells WW-1I and WW-2B were installed adjacent to existing wells MW-1 and MW-2. Monitoring well WW-3B, which is screened in the upper portion of saturated bedrock, replaced MW-3, which could not be located.

Seven of the new wells make up three sets of cluster wells (WW-23I/23B, WW-24I/24B, and WW-26/26I/26B). Monitoring well cluster WW-26/26I/26B was installed at the northern extent of the landfill and is comprised of an overburden, interface, and bedrock monitoring well. Monitoring well clusters WW-23I/23B and WW-24I/24B were



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installed downgradient of MW-14 and are each comprised of an overburden/bedrock interface monitoring well and a bedrock monitoring well.

No overburden or interface wells were installed at WW-25B, WW-27B, or WW-28B. The clay in the overburden was either dry or did not yield enough water to warrant installing a well in this unit. WW-26 was installed and screened in this interval to determine if the overburden formation would yield water. The clay at WW-26 appeared to be the most saturated of any of the clay encountered at the site. Monitoring of this well over a two-week period after installation showed that the clay overburden was not yielding water (well WW-26 was dry after 14 days). As the overburden and bedrock interface were observed to not be saturated in borings for WW-28B, WW-27B, and WW-25B, overburden and weathered bedrock wells were not installed at these locations.

The groundwater elevations in several of the bedrock wells are at or above the elevation of the overburden/bedrock interface. This does not necessarily indicate that the overburden or weathered bedrock is saturated or that the watertable is at the elevation of the water in the bedrock well. The height of the water in a bedrock well is related to the hydraulic head at the depth at which the well is screened. The water levels in WW-25B, WW-27B, and WW-28B are just above the top of the screen but not as high as the bedrock interface. The water level in WW-26B is at the bedrock interface and there is appreciable water at the interface as shown in WW-26I. As mentioned above, there is no water in the overburden. The water levels in WW-23I and WW-23B are above the bedrock interface. The water level in WW-24B is approximately three feet above the top of the screen but well below the bedrock interface.

WELL DEVELOPMENT

Upon completion of well installation, Parratt Wolfe developed the wells in accordance with the original ESC Work Plan. Malcolm Pirnie observed the well development, and measured and recorded field parameters, including turbidity, pH, specific conductance, and temperature. The monitoring wells were developed by purging groundwater from the well with Whale ® and Waterra ® pumps with simultaneous surging. A surge block was used on most of the wells to expedite the development. Development was considered complete when a minimum of three borehole volumes of water had been removed and the field parameters (pH, specific conductance, and temperature) for two consecutive well volumes had stabilized. All wells were developed until three borehole volumes were purged or the well went dry. All well development fluids were contained in 55-gallon steel drums for disposal by RealCo. Many of the wells produced water that was turbid after three borehole volumes were purged. Well development logs are provided in Attachment C.



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WELL REHABILITATION AND ABANDONMENT

Existing monitoring wells MW-10, MW-16, MW-16B were refurbished, which included replacing the protective casing and grout, well caps, and locks. MW-20B was scheduled to be refurbished because it was buried under re-grading material during the reclamation project. However, MW-20B was replaced with a new well (WW-20B) because it could not be located.

Parratt Wolfe abandoned three wells (MW-7, MW-12, and MW-13) in accordance with the NYSDEC Groundwater Monitoring Well Decommissioning Procedures (Malcolm Pirnie, Inc., October 1996). MW-3, MW-6, MW-8, and MW-15 could not be located and were therefore not abandoned. Monitoring wells MW-1 and MW-2 were not abandoned. These wells may be abandoned after assessing the water quality in the replacement wells at these locations.

If you have any questions or require additional information, please feel free to call me at (518) 786-7349.

Very truly yours,

MALCOLM PIRNIE, INC.

Daniel C. Lang

Project Hydrogeologist

jcf

Attachments

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Table 1 Survey Data Former RealCo Landfill Watervliet, New York

WELL ID	NORTHING	FACTING	CACING	MEAC DOINT	onounn.	STICK-UP
		EASTING	CASING	MEAS. POINT	GROUND	HEIGHT (FEET)
WW-01	990050.486202	663600.614132	84.99	84.90	82.89	2.01
WW-01I	990054.133361	663595.629223	85.46	85.20	83.47	1.73
WW-02	990662.200245	663566.845924	104.90	104.65	102.85	1.80
WW-02B	990644.710592	663568.138192	105.63	105.30	103.04	2.26
WW-03B	991067.332038	663327.159467	113.94	113.46	111.26	2.20
WW-04	990102.319732	662570.763467	201.83	201.60	200.37	1.23
WW-05	990024.390677	662592.173491	200.72	200.56	198.65	1.91
WW-10	990407.178331	662427.498343	212.59	212.25	209.86	2.39
WW-14	990654.962618	663571.394321	104.02	103.83	102.45	1.38
WW-16	990305.017618	663100.426329	162.15	161.62	159.13	2.49
WW-16B	990316.364366	663099.261529	163.48	163.08	160.64	2.44
WW-17	990196.913736	663041.869893	160.52	160.18	158.29	1.89
WW-20B	990270.450852	663688.803038	85.82	85.54	83.35	2.19
WW-21	989858.411802	663954.793452	69.17	68.88	67.30	1.58
WW-21B	989869.965854	663956.068771	69.04	68.85	67.45	1.40
WW-22	990175.141881	664122.592838	61.95	61.73	59.76	1.97
WW-22B	990178.040681	664113.083742	61.94	61.70	59.99	1.71
WW-231	990778.236869	663592.392836	84.14	83.99	82.69	1.30
WW-23B	990767.977994	663591.054985	84.78	84.56	83.69	0.87
WW-24I	990243.208124	663921.523633	69.57	69.11	67.22	1.89
WW-24B	990257.858129	663920.864883	69.36	69.04	67.12	1.92
WW-25B	990439.400074	663437.139355	139.25	138.84	136.79	2.05
WW-26	991237.004505	662574.626102	194.73	194.53	192.30	2.23
WW-26I	991229.770995	662561.437913	195.30	194.99	192.99	2.00
WW-26B	991227.711187	662570.449398	195.42	195.26	193.41	1.85
WW-27B	991110.013778	662906.033157	162.46	161.72	160.93	0.79
WW-28B	991082.623668	663138.963690	151.16	150.86	148.84	2.02

All measurements are in feet relative to site datum.

ATTACHMENT A



			WEEL NO
Project	Start Date	End Date	Drilling Co.
FMR AL-TECH LF P-C MWN COM	MPLETION 8/12/03	8/15/03	Parratt Wolfe
Project No.	Field Geologist		Driller(s)
REALCO - 3938014	A. Bobar		L. Pech
ocation			Drilling Method(s)
200 SPRING STREET, TOW	N OF COLONIE, NEW YORK		6.25" Auger, 3 7/8" Air Rotary
			Development Method(s)
	_		Whale Pump
	←	Size and Length of	
		Lockable Protective Steel Casing	4"
Sloping Cement Pad		Locked? X Yes No	
\		Locked? resN)
X		— Stick-Up	2.01'
<u></u>			
	div.	Depth to Top of Grout/	No Grout – Bentonite
		Bottom of Cement	to 1.7' then pad
		Riser Diameter	
		and Material	
₩ ₩-	-	Borehole Diameter	10"
Bartanita Ballat			
Bentonite Pellet Seal			
💥 🙀_		Depth	3.7'
	1		
		Depth	5.7'
		Jopui	
Sand Filter Pack		Screen Diameter, Slot Size and Material	2" pvc 0.010" Slot
			45 71
	-\-	- Depth	15.7'
<u> </u>		_ Depth	15.7'
	<u>`</u>	- Backfill Material	Not applicable
<u> </u>	*	Bottom of Borehole	
NOTE: DEPTHS ARE FEET BELOV	W GRADE		
Not To Scale			



Project	Start Date	End Date	Drilling Co.
FMR AL-TECH LF P-C MWN COMPLETIO	N 8/12/03	9/3/03	Parratt Wolfe
Project No.	Field Geologist		Driller(s)
REALCO - 3938014	A. Bobar, M. Flu	usche	L. Pech, M. Marshall
Location			Drilling Method(s)
200 SPRING STREET, TOWN OF CO)LONIE, NEW YOR	₹K	6.25" Auger, 3 7/8" Air Rotary, Wet Reaming
			Development Method(s) Whale Pump
		Cite and Langth of	
	-	 Size and Length of Lockable Protective 	4"
Sloping		Steel Casing	
Cement Pad L		Locked? X Yes No	
			2.26'
\[\partial \pa	<u> </u>	Stick-Up	
			
Cement- Bentonite		Depth to Top of Grout/ Bottom of Cement	linknown
Grout		Riser Diameter	OIRHOTTI
Val 172	_	and Material	2" pvc
∅ Ø		Borehole Diameter	<u>10"</u>
8 18			
9 19			
		Procasing Diameter	4"
Ø Ø		Weathered Rock Depth	
		Competent Rock Depth	
Bentonite Pellet			4"
Seal \		Rock Socket Diameter	
			001
Sand Filter Pack		——— Depth	38'
		Depth	40'
Bedrock		Depth	461
Fracture		Hole Diameter	
		(Core, Roller Bit, Hammer	
`/\!\ \		Screen Diameter & Type	2" pvc 0.010" Slot
		Depth	
NOTE: DEPTHS ARE FEET BELOW GRADE	<u> </u>		
Not To Scale			



Project	Start Date	End Date	Drilling Co.
FMR AL-TECH LF P-C MWN COMPLETI	ON 8/18/03	8/19/03	Parratt Wolfe
Project No.	Field Geologist		Driller(s)
REALCO - 3938014	A. Bobar		L. Pech
ocation 200 SPRING STREET, TOWN OF C	COLONIE, NEW YOR	ĸ	Drilling Method(s) 6.25" Auger, 3 7/8" Air Rotary
			Development Method(s) Whale Pump
Stanias (Haring	+	Size and Length of Lockable Protective Steel Casing	4"
Sloping Cement Pad		Locked? X Yes No	
, p. p	———	Stick-Up	2.20'
	•		
Cement- Bentonite Grout		Depth to Top of Grout/ Bottom of Cement	Unknown
		Riser Diameter and Material	2" pvc
Ø Ø -	— —	Borehole Diameter	
		Procasing Diameter	
		— Weathered Rock Depth Competent Rock Depth	401
Bentonite Pellet			4"
Seal		Rock Socket Diameter	23'
		Depth	
Sand Filter Pack		— Depth	
Bedrock		Depth	401
Fracture		— Hole Diameter	3 7/8" Air Rotary
		(Core, Roller Bit, Hammer?	
		— Screen Diameter & Type	50:
	_		
NOTE: DEPTHS ARE FEET BELOW GRAD	PE		
Not To Scale			

MALCOLM PIRNIE

Overburden Monitoring Well Sheet

roiect			1 = 15 1	
roject	ANANI OOMBI ETI	Start Date	End Date	Drilling Co.
FMR AL-TECH LF P-C	MWN COMPLETI	ON 9/9/03	9/9/03	Parratt Wolfe
roject No.	<u> </u>	Field Geologist		Driller(s)
REALCO - 3	938014	M. Flusche		M. Marshall
		<u></u>		D-201 - M-16 - 4(c)
cation	FET TOWN OF 6	OLONIE NEW YORK	,	Drilling Method(s)
200 SPRING STR	EEI, IOWN OF C	OLONIE, NEW YORK	\	4.25" Auger
				Development Method(s)
				Whale Pump
			 Size and Length of Lockable Protective 	
a,			Steel Casing	4"
Sloping Cement Pad			Locked? X Yes No	
	1 11		Locked? 14 Tes No	
			-	1.91'
.4.	P		Stick-Up	1.31
		- \		
Cement- Bentonite		ĺ	Depth to Top of Grout/	
Grout			Bottom of Cement	Unknown
	1 191		Riser Diameter	
X			and Material	
			— Borehole Diameter	
	3 6/2	J		
Bentonite Pellet				
Seal				
				31'
V X X	- 		Depth	
X				
	 		Depth	33'
7				
]		35'
			— Depth	
			Screen Diameter,	
Sand Filter Pack		————	Slot Size and Material	2" pvc 0.010" Slot
1 (2000)				
		_\	Depth	45'
₩ ₩				45'
<u> </u>	<u> </u>		— Depth	·······-
			Backfill Material Bottom of Borehole	Not applicable 45'
		<u> </u>	— DOCTOR OF DOTERIOR	- '`
]		
NOTE: DEPTHS ARE	FEET BELOW GRAD!	[]		



oject	Start Date	End Date	Drilling Co.
FMR AL-TECH LF P-C MWN COMPLET		9/8/03	Parratt Wolfe
oject No.	Field Geologist	_	Driller(s)
REALCO - 3938014	M. Flusche		M. Marshall
cation			Drilling Method(s)
200 SPRING STREET, TOWN OF C	COLONIE, NEW YORI	K 	4.25" Auger w/roller b
			Development Method(s)
			Whale Pump
- - ◀	————— — ——	Size and Length of	
Slavina A	 	Lockable Protective Steel Casing	4"
Sloping Cement Pad		Locked? X Yes No	
\	[]		
) p. o .	—	Stick-Up	1.89'
			
ement- Bentonite		Depth to Top of Grout/	
Grout		Bottom of Cement	Unknown
		Riser Diameter	2" nvc
2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2		and Material Borehole Diameter	0.11
		Borchole Blameter	8"
88	1		
Bentonite Pellet			
Seal			
			2'
\ ₩		Depth	
₩ ₩			
→ ₩ ₩		Depth	
T			
	- } - -	Depth	4.5'
	ļ	Screen Diameter,	00 0 0400 01 4
Sand Filter Pack	 	Slot Size and Material	2" pvc 0.010" Slot
		Depth	14.5'
	_		
			44 51
<u> </u>	\	— Depth	
		— Backfill Material — Bottom of Borehole	
	P		
NOTE: DEPTHS ARE FEET BELOW GRAD	_		



WELL NO WW-20B

Project	Start Date	End Date	Drilling Co.
FMR AL-TECH LF P-C MWN COMPLET	ON 9/12/03	9/16/03	Parratt Wolfe
Project No.	Field Geologist		Driller(s)
REALCO - 3938014	K. Stahle		M. Marshall
Location 200 SPRING STREET, TOWN OF C	COLONIE, NEW YORK		Drilling Method(s) 6.25" Auger, 3 7/8" Air Rotary
			Development Method(s) Whale Pump
Sloping	<u> </u>	Size and Length of Lockable Protective Steel Casing	4"
Cement Pad		Locked? X Yes No — Stick-Up	2.407
Cement- Bentonite	*	Depth to Top of Grout/ Bottom of Cement	
Grout		Riser Diameter and Material	2" pvc
		Borehole Diameter	10"
		Procasing Diameter	4"
		_ Weathered Rock Depth	13'
		_ Competent Rock Depth _	14'
Bentonite Pellet Seal		_ Rock Socket Diameter	
		_ Depth	<u> 17.5'</u>
Sand Filter Pack		_ Depth	19.5'
		_ Depth	
Bedrock		_ Depth	
Fracture		Hole Diameter (Core, Roller Bit, Hammer)	
		– Screen Diameter & Type	2" pvc 0.010" Slot
		- Depth	32'
NOTE: DEPTHS ARE FEET BELOW GRA	DE		
Not To Scale			



Project No. REALCO - 3938014 Field Geologist A. Bobar Driving Methodology L. Pech		Start Date	End Date	Drilling Co.
Project No. REALCO - 3938014 Field Geologist A. Bobar Location 200 SPRING STREET, TOWN OF COLONIE, NEW YORK Size and Length of Lockarle Protective Steel Casing 4" Locked? X yes No Sick-Up 1.30' Depth to Top of Gout/ Borton of Cement and Material 2" pvc Bentionite Pellet Seal Depth 16' Depth 20' Soreen Diameter Soreen Dia	•			
REALCO - 3938014 A. Bobar L. Pech Carding Method(s) 6.25" Auger Development Method(s) Whale Pump Size and Length of Lockable Protective Steel Casing Locked? X yes _No Stick-Up				
Depth 16' Depth 18' Sand Filter Pack Sand Filter Pack Sand Filter Pack Depth 20' Soreen Diameter Stot Size and Material 2" pvc 0.010" Slot Size and Material 2" pvc 0.010" Slot Size and Material 2" pvc 0.010" Slot Size and Material 2.7'.5' Depth 30' Not applicable				
200 SPRING STREET, TOWN OF COLONIE, NEW YORK Ceredisperent Method(s) Whale Pump Size and Length of Lockadie Protective Steel Casing Locked? X Yes No Stick-Up 1.30' Depth to Top of Grout Bottom of Cement Riser Diameter and Material 2" pvc Borehole Diameter 10" Depth 16' Depth 18' Depth 20' Screen Diameter, Stot Size and Material 2" pvc 0.010' Stot Weathered Rock Depth 25' Competent Rock Depth 27.5' Depth 30' Depth 30' Depth 30' Depth 30' Depth 30' Not applicable		, <u></u>		
Depth to Top of Grout/ Bentonite Pellet Seal Depth to Top of Grout/ Borehole Diameter Seal Depth 16' Depth 18' Depth 18' Depth 20' Screen Diameter, Stot Size and Material Weathered Rock Depth 25' Competent Rock Depth 30' Not applicable		OLONIE NEW YORK	•	
Size and Length of Lockable Protective Steel Casing 4" Locked? X Yes No Slick-Up 1.30' Slick-Up 1.30' Depth to Top of Grout/ Bottom of Cement and Material 2" pvc Borehole Diameter 10" Depth 18' Depth 18' Depth 20' Screen Diameter, Slot Size and Material 2" pvc 0.010" Slot Slot Size Diameter 3 of Material 2" pvc 0.010" Slot Size Diameter 3 of Material 2" pvc 0.010" Slot Size Diameter 3 of Material 3 of Depth 30' Dept	200 SPRING STREET, TOWN OF CO	JLONIE, NEW YORK	•	6.25" Auger
Sloping Cement Pad Lockable Protective Steel Casing Locked? X Yes No Slick-Up 1.30' Slick-Up 1.30' Depth to Top of Grout Borenoit Seel Casing Locked? X Yes No Slick-Up 1.30' Depth to Top of Grout Seel Slick-Up 1.30' Beritonite Pellet Seel 18' Depth 18' Depth 18' Depth 20' Screen Diameter, Soreen Diameter, Soreen Diameter, Slot Size and Material Weathered Rock Depth 25' Competent Rock Depth 27.5' Depth 30' Depth 30' Depth Not applicable				
Lockade Protective Steel Casing Locked? X Yes No Stick-Up 1.30' Depth to Top of Grout/ Bottom of Cement Borehole Diameter and Material Borehole Diameter Depth Not applicable				Whale Pump
Sloping Cement Pad Locked? X Yes No Stick-Up 1.30' Stick-Up 1.30' Depth to Top of Grout/ Bottom of Cement and Material 2" pvc Borehole Diameter 10" Bentonite Pellet Seal Depth 20' Screen Diameter, Slot Size and Material 2" pvc 0.010" Slot Weathered Rock Depth 25' Competent Rock Depth 25' Competent Rock Depth 30' Depth 30' Depth 30' Not applicable			— Size and Length of	
Cement- Bentonite Grout Depth to Top of Grout/ Bottom of Cement Bentonite Pellet Seal Depth De				4"
Sand Filter Pack Sand Filter Pack Sand Filter Pack Sand Filter Pack Depth 20' Screen Diameter Sorgen Diameter 25' Competent Rock Depth 25' Competent Rock Depth 30' Depth 30' Depth 30' Depth 30' Depth 30' Depth 30' Not applicable	Sloping			
Depth to Top of Grout/ Bottom of Cement Riser Diameter and Material Borehole Diameter 10" Depth 16' Depth 18' Depth Depth 20' Screen Diameter Siot Size and Material Weathered Rock Depth Competent Rock Depth 27.5' Depth Depth 30' Depth Depth 30' Depth Depth 30' Not applicable	Cement Pad \		Locked? X Yes No	
Depth to Top of Grout/Bottom of Cement Riser Diameter and Material Borehole Diameter 10" Depth 16' Depth Depth Depth 20' Screen Diameter Siot Size and Material Weathered Rock Depth Competent Rock Depth Depth 30' Depth Depth 30' Depth Depth Depth One of Grout/Bottom of Cement Unknown Unknown 10" 16' 16' Depth Depth 20' Screen Diameter Siot Size and Material Weathered Rock Depth 27.5' Depth Depth Not applicable				1 30'
Bentonite Pellet Seal Depth Depth Depth Soreen Diameter, Slot Size and Material Weathered Rock Depth Depth Competent Rock Depth Depth Depth Soreen Diameter, Slot Size and Material Depth Depth Depth Depth Depth Soreen Diameter, Slot Size and Material Depth D			Stick-Up	
Bentonite Pellet Seal Depth Depth Depth Soreen Diameter, Slot Size and Material Weathered Rock Depth Competent Rock Depth Depth Depth Soreen Diameter, Slot Size and Material Weathered Rock Depth Depth Depth Soreen Diameter, Slot Size and Material Depth Depth Soreen Diameter, Slot Size and Material Weathered Rock Depth Depth Soreen Diameter, Slot Size and Material Depth Soreen Diameter, Slot Size and Material Depth Depth Soreen Diameter, Slot Size and Material Weathered Rock Depth Soreen Diameter, Slot Size and Material Weathered Rock Depth Depth Not applicable		- \ -		
Bentonite Pellet Seal Depth Depth 16' Depth Soreen Diameter, Slot Size and Material Weathered Rock Depth Competent Rock Depth Depth 30' Depth Backfill Material Not applicable				
Bentonite Pellet Seal Depth Depth 16' Depth 20' Screen Diameter, Stot Size and Material Weathered Rock Depth Depth 30' Depth 30' Depth Backfill Material Not applicable			Depth to Top of Grout/	Unknown
Bentonite Pellet Seal Depth Depth 16' Depth Depth 20' Screen Diameter, Slot Size and Material Weathered Rock Depth Competent Rock Depth Depth 30' Depth Backfill Material Not applicable	Grout			
Bentonite Pellet Seal Depth Depth 16' Depth 18' Depth Screen Diameter, Siot Size and Material Weathered Rock Depth Depth 20' Screen Diameter, Siot Size and Material Weathered Rock Depth Depth Depth 30' Depth Backfill Material Not applicable			Riser Diameter and Material	2" pvc
Bentonite Pellet Seal Depth Depth Depth Depth Depth Depth Depth Screen Diameter, Slot Size and Material Weathered Rock Depth Depth Depth Depth Depth And Pitter Pack Screen Diameter, Slot Size and Material Depth Not applicable				
Sand Filter Pack Depth Depth Depth Depth Screen Diameter, Slot Size and Material Weathered Rock Depth Competent Rock Depth Depth Depth 30' Depth Backfill Material Not applicable				16'
Sand Filter Pack Depth Screen Diameter, Slot Size and Material Weathered Rock Depth Competent Rock Depth Depth Depth Depth Backfill Material Not applicable			Depth	
Sand Filter Pack Depth Screen Diameter, Slot Size and Material Weathered Rock Depth Competent Rock Depth Depth Depth Depth Backfill Material Not applicable				
Sand Filter Pack Screen Diameter, Slot Size and Material Weathered Rock Depth Competent Rock Depth Depth Depth Depth Backfill Material Screen Diameter, Slot Size and Material 2" pvc 0.010" Slot 27.5' 30' Not applicable	→ ₩ ₩ ——		Depth	18'
Sand Filter Pack Screen Diameter, Slot Size and Material Weathered Rock Depth Competent Rock Depth Depth Depth Depth Backfill Material Screen Diameter, Slot Size and Material 2" pvc 0.010" Slot 27.5' 30' Not applicable	T SS			
Screen Diameter, Slot Size and Material Weathered Rock Depth Competent Rock Depth Depth Depth Backfill Material 2" pvc 0.010" Slot 25' 30' Not applicable	Sand Filter Back	- \	Depth	
Weathered Rock Depth 25'	Sand Filter Fack			2" pvc 0.010" Slot
Competent Rock Depth 27.5' 30'				051
Depth 30' Depth 30' Backfill Material Not applicable			— Wednered Rook Depart	
Depth 30' Backfill Material Not applicable			Competent Rock Depth	27.5'
Depth			Denth	30'
Backfill Material Not applicable		^	Обрат	
Backfill Material Not applicable	↓			001
	<u> </u>	\ -		
Bottoin of Borenie				201
l l			— Bottom of Borefiole	
	Not To Scale			



WELL NO. WW-23B

FINNIE	Jintornig Wen	Once	WELL NO
Project	Start Date	End Date	Drilling Co.
FMR AL-TECH LF P-C MWN COMPLETIO	N 8/13/03	8/14/03	Parratt Wolfe
Project No.	Field Geologist	•	Driller(s)
REALCO - 3938014	A. Bobar		L. Pech
Location			Drilling Method(s)
200 SPRING STREET, TOWN OF CO	LONIE, NEW YORK		6.25" Auger, 3 1/8" Core
			Development Method(s)
			Whale Pump
		Size and Length of	
Sloping A		Lockable Protective Steel Casing	4"
Cement Pad	[Locked? X Yes No	
			0.87"
ν. ν	<u> </u>	Stick-Up	<u> </u>
			
		Don'th to Ton of Oracit	
Cement- Bentonite Grout		Depth to Top of Grout/ Bottom of Cement	Unknown
		Riser Diameter	2" pvc
8118_		and Material Borehole Diameter	
0110			
91 I 9 -		— Procasing Diameter	4"
		— Weathered Rock Depth	25.75'
		Competent Rock Depth	
Bentonite Pellet		Rock Socket Diameter	411
Seal		— Depth	04 51
		— Depth	
Sand Filter Pack		,	271
		— Depth	40.01
Bedrock Fracture		— Depth	0.4/011.0
		Hole Diameter (Core, Roller Bit, Hammer?)	
			011 0 04011 01 1
`/\/		Screen Diameter & Type	2" pvc 0.010" Slot
			50.01
` ! !!! !		- Depth	50.3'
NOTE: DEPTHS ARE FEET BELOW GRADE			
Not To Scale			

MALCOLM PIRNIE

Overburden Monitoring Well Sheet

WELL NO. WW-24I

Cement- Bentonite Grout	Size and Length of Lockable Protective Steel Casing Locked? X Yes No	4.001
Piect No. REALCO - 3938014 Field Geologist M. Flusche Sation 200 SPRING STREET, TOWN OF COLONIE, NEW YORK Cement Pad Cement-Bentonite Grout	Size and Length of Lockable Protective Steel Casing Locked? X Yes No	Driller(s) M. Marshall Drilling Method(s) 4.25" Auger Development Method(s) Whale Pump
REALCO - 3938014 M. Flusche 200 SPRING STREET, TOWN OF COLONIE, NEW YORK Cement Pad Cement- Bentonite Grout	Lockable Protective Steel Casing Locked? X Yes No	M. Marshall Drilling Method(s) 4.25" Auger Development Method(s) Whale Pump
200 SPRING STREET, TOWN OF COLONIE, NEW YORK Sloping Cement Pad Cement- Bentonite Grout	Lockable Protective Steel Casing Locked? X Yes No	Drilling Method(s) 4.25" Auger Development Method(s) Whale Pump 4"
200 SPRING STREET, TOWN OF COLONIE, NEW YORK Sloping Cement Pad Cement- Bentonite Grout	Lockable Protective Steel Casing Locked? X Yes No	4.25" Auger Development Method(s) Whale Pump 4"
Cement- Bentonite Grout	Lockable Protective Steel Casing Locked? X Yes No	Development Method(s) Whale Pump 4"
Sloping Cement Pad Cement- Bentonite Grout	Lockable Protective Steel Casing Locked? X Yes No	Whale Pump
Cement- Bentonite Grout	Lockable Protective Steel Casing Locked? X Yes No	4"
Cement- Bentonite Grout	Lockable Protective Steel Casing Locked? X Yes No	4.00
Cement- Bentonite Grout	Lockable Protective Steel Casing Locked? X Yes No	4.00
Cement- Bentonite Grout	Locked? X Yes No Stick-Up	4.001
Cement- Bentonite Grout	Stick-Up	1.89'
Cement- Bentonite Grout		1.89'
Cement- Bentonite Grout		1.03
Grout		
Grout		
Grout		
5.00. [Depth to Top of Grout/ Bottom of Cement	Unknown
	•••••	
	Riser Diameter and Material	2" pvc
	Borehole Diameter	8"
	JOI OF OF DIGITION OF	
Y/A Y/A		
Bentonite Pellet		
Seal \		
		21'
VØ VØ————□	epth	
	Depth	23'
A	-	
		25'
	Pepth	
	creen Diameter,	08 0.0408.01
Sand Filter Pack	lot Size and Material	2" pvc 0.010" Slot
		35'
D	epth	
<u> </u>	epth	
В	ackfill Material	Not applicable
└─── ┤	ottom of Borehole	
NOTE: DEPTHS ARE FEET BELOW GRADE		



WELL NO. WW-24B

Project	Start Date	End Date	Drilling Co.
FMR AL-TECH LF P-C MWN COMPLE		9/15/03	Parratt Wolfe
Project No.	Field Geologist		Driller(s)
REALCO - 3938014	M. Flusche, K.	Stahle	M. Marshall
Location 200 SPRING STREET, TOWN OF	RK	Drilling Method(s) 6.25" Auger, 3 7/8" Air Rotary, 3 1/8" Core	
			Development Method(s) Whale Pump
Sloping		Size and Length of Lockable Protective Steel Casing	4"
Cement Pad		Locked? X Yes No	
P.		Stick-Up	1.92'
	, in the second		
Cement- Bentonite		Depth to Top of Grout/ Bottom of Cement	Unknown
		Riser Diameter and Material	2" pvc
		Borehole Diameter	
8 118			
		Procasing Diameter	4"
		Weathered Rock Depth	32'
		Competent Rock Depth	
Bentonite Pellet Seal		Rock Socket Diameter	4"
· \		Depth	40'
Sand Filter Pack		Depth	45'
		Depth	48'
Bedrock		Depth	EOI
Fracture		Hole Diameter	3 1/8" Core
		(Core, Roller Bit, Hammer Screen Diameter & Type	22 pue 0.0402 Slot
✓ \ [[] [] []		Depth	
NOTE: DESTUD ARE SEET BELOW OF	PADE		
NOTE: DEPTHS ARE FEET BELOW GR	ADE		
Not To Scale			



WELL NO. WW-25B

_	-			
Project	Start Da		End Date	Drilling Co.
FMR AL-TECH LF P-C MWN COMPLETIO	N 9/4/0)3 	9/8/03	Parratt Wolfe
Project No.	Field Geologis			Driller(s)
REALCO - 3938014	M. Flusc	he 		M. Marshall
Location 200 SPRING STREET, TOWN OF CO	DLONIE, NE	W YORK		Drilling Method(s) 6.25" Auger, 3 7/8" Air Rotary
				Development Method(s) Watara Pump
Sloping			Size and Length of Lockable Protective Steel Casing	
Cement Pad			Locked? X Yes No	
	<u> </u>	 ;	Stick-Up	2.05'
				
Cement- Bentonite Grout			Depth to Top of Grout/ Bottom of Cement	Unknown
		- F	Riser Diameter and Material	2" pvc
₽ ₽		E	Borehole Diameter	10"
8 18				
8118				4 11
Ø ∤ Ø		- F	Procasing Diameter	4"
		v	Veathered Rock Depth	
	_		Competent Rock Depth	42'
Bentonite Pellet. Seal			Rock Socket Diameter	4"
Sea. \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \			Depth	47'
Sand Filter Pack	_		Pepth	74 51
			epth	75'
Bedrock			Pepth	70;
Fracture			lole Diameter	2 7/011 Atm Date
	-		Core, Roller Bit, Hammer	
		s	creen Diameter & Type	2" pvc 0.010" Slot
		D	epth	98'
NOTE: DEPTHS ARE FEET BELOW GRADE	Ē			
Not To Scale				



roject	Start Date	End Date	Drilling Co.
FMR AL-TECH LF P-C MWN COMPLET	ION 8/27/03	8/27/03	Parratt Wolfe
oject No.	Field Geologist		Driller(s)
REALCO - 3938014	M. Flusche		L. Pech
cation			Drilling Method(s)
200 SPRING STREET, TOWN OF C	COLONIE, NEW YORK		4.25" Auger w/roller b
			Development Method(s) N/A
		Size and Length of	
	- }-	Lockable Protective Steel Casing	4"
Sloping Cement Pad		Locked? X Yes No	
	 	Stick-Up	2.23'
	y +		
ement- Bentonite Grout		Depth to Top of Grout/ Bottom of Cement	Unknown
		Riser Diameter	
16 16		and Material Borehole Diameter	A11
Bentonite Pellet Seal			
		Depth	31.5'
		•	
		Depth	
↑			
	+	— Depth	<u>35.5'</u>
	1 1		
Sand Filter Pack		Screen Diameter,	2" pvc 0.010" Slot
		Slot Size and Material	
			45 51
	+	— Depth	45.5'
1			
<u> </u>		Depth	
	 	— Backfill Material — Bottom of Borehole	
	7	— DOMOITH OF BUTCHOILE	



Project			Start Date	End Date	Drilling Co.
FMR AL-TECH LF	P-C MWN COMPLET	ION	8/29/03	9/2/03	Parratt Wolfe
roject No.			Geologist		Driller(s)
REALCO) - 3938014	M	l. Flusche		M. Marshall
ocation 200 SPRING	STREET, TOWN OF C	COLO	NIE, NEW YORK	3	Drilling Method(s) 4.25" Auger to 53.5', 3 7/8" Roller Bit to 55'
			-		Development Method(s)
					Whale Pump
				Size and Length of	
Staning ($\exists \Box \dagger \Box$	*	-	Lockable Protective Steel Casing	4"
Sloping Cement Pad	□			Locked? X Yes No	
	.]				
	X _p .	+		Stick-Up	2.00'
		; 	-		
Cement- Bentonite Grout				Depth to Top of Grout/ Bottom of Cement	Unknown
<u> </u>					
				and Material	2" pvc
		_		Borehole Diameter	
	<i>a a</i>				
Bentonite Pellet	0 0				
Seal	<i>M M</i>				
	<i>M M</i>				40'
\				Depth	
	\boxtimes				401
1				Depth	42'
					44.5'
		\		— Depth	
			ľ		
l Sand Filter Pack		-		Screen Diameter, Slot Size and Material	2" pvc 0.010" Slot
ı		-			
1					54.5'
		+		— Depth	
1					
<u> </u>		+		Depth	
				Backfill Material Bottom of Borehole	Not applicable 55'
		,	i		
	ARE FEET BELOW GRAD	E			
1	Not To Scale		J		



WELL NO. WW-26B

PIKNIE	14101116	oring wen	Olioce	WELL NO
Project		Start Date	End Date	Drilling Co.
FMR AL-TECH LF P-C MWN COM	PLETION	8/25/03	8/29/03	Parratt Wolfe
Project No.		Geologist	_	Driller(s)
REALCO - 3938014	M.	. Flusche		L. Pech, M. Marshall
ocation 200 SPRING STREET, TOWN	OF COLON	IIE, NEW YORK		Drilling Method(s) 6.25" Auger, 3 7/8" Air Rotary
				Development Method(s)
				Watara Pump
	-		Size and Length of Lockable Protective	4"
Sloping	T		Steel Casing	4
Cement Pad LJ			Locked? X Yes No	
Y _P .			Stick-Up	1.85'
2		-		
Cement- Bentonite Grout	-		Depth to Top of Grout/ Bottom of Cement	Unknown
			Riser Diameter	2" pvc
			and Material Borehole Diameter	10"
			Procasing Diameter	_4"
			Weathered Rock Depth	42'-45'
	/////////////////////////////////////		Competent Rock Depth	
Bentonite Pellet Seal			Rock Socket Diameter	A33
\ <u>@</u> <u>@</u>			Depth	58.5'
Sand Filter Pack			Depth	73'
			Depth	77'
Bedrock			Depth	907
Fracture			— Hole Diameter	0.5100.5.0.50
	/		(Core, Roller Bit, Hammer	
			Screen Diameter & Type	2" pvc 0.010" Slot
			-	4002
[, 1			— Depth	
NOTE: DEPTHS ARE FEET BELOV	W GRADE			
Not To Scale				



WELL NO. WW-27B

Project		Start Date		End Date	Drilling Co.
FMR AL-TECH LF P-C MWN COMPLETIO)N	8/20/03	_	8/22/03	Parratt Wolfe
Project No.		d Geologist			Driller(s)
REALCO - 3938014	A	. Bobar, M. F	Flusche		L. Pech, M. Marshall
Location 200 SPRING STREET TOWN OF CO	~ · · ·	NE NEW YO			Drilling Method(s) 6.25" Auger, 3 1/8" Core
200 SPRING STREET, TOWN OF CO	JLU,	VIE, NEVV)KN	·	
	_				Development Method(s)
				_ 	Whale Pump
		\longrightarrow		Size and Length of	
	*	- J		Lockable Protective Steel Casing	4"
Sloping Cement Pad				Locked? X Yes No	
\		1			
	•			Stick-Up	0.79'
	- +	.			
Cement- Bentonite	_	\perp	r	Depth to Top of Grout/	
Grout			В	Bottom of Cement	Unknown
<u>√a</u> Ma −			F	Riser Diameter and Material	2" pvc
Ø Ø -				Borehole Diameter	10"
Ø1 1Ø			_		
81 18					
Ø 				Procasing Diameter	4"
1 1 11					401
33333 B3335 .			v	Weathered Rock Depth	
XXXXI BXXX			c	Competent Rock Depth	22'
Bentonite Pellet				Rock Socket Diameter	4"
Seal _	_			Depth	26.5'
	_			Depth	
Sand Filter Pack	_				E2 51
				Depth	EC!
Bedrock Fracture				Depth	2.4/92. Core
Tracture \				Hole Diameter Core, Roller Bit, Hammer 1	
			,~	Core, Koller Dit, Hammon	?)
\ \\ \ \ \ \ \ \ \ \ \ \ \ \				Screen Diameter & Type	2" pvc 0.010" Slot
	_		_	OICOII DIGITALE.	
✓ \			— Г	Depth	66'
L				eptri	
NOTE: DEPTHS ARE FEET BELOW GRADE	E				
Not To Scale					



WELL NO. WW-28B

- · ·		1 O4 - 14 D - 4 -	I Fad Data	Ta			
Project		Start Date	End Date	Drilling Co.			
FMR AL-TECH LF P-C MWN COMPLET		8/19/03	9/3/03	Parratt Wolfe			
Project No.		Geologist		Driller(s)			
REALCO - 3938014	M	. Flusche, A. Bo	bar 	L. Pech, M. Marshall Drilling Method(s)			
Location	Social						
200 SPRING STREET, TOWN OF	COLO	NIE, NEW YORK 		6.25" Auger, 3 7/8" Air Hammer Development Method(s)			
				Whale Pump			
			Size and Length of Leakable Protective				
Sloping		- [Lockable Protective Steel Casing	4"			
Cement Pad Cement Pad			Locked? X Yes No				
\] [
	+		Stick-Up	2.02'			
	*						
Cement- Bentonite	_		Depth to Top of Grout/ Bottom of Cement	Unknown			
Grout							
	_		Riser Diameter and Material	2" pvc			
8 18-			Borehole Diameter	10"			
9119							
8118							
8 			Procasing Diameter	<u>4"</u>			
			Weathered Rock Depth	30'			
				243			
Participa Pallica			Competent Rock Depth				
Bentonite Pellet Seal			Rock Socket Diameter				
\ <u>a</u> <u>a</u>			— Depth				
Sand Filter Pack			— Depth				
<u> </u>			— Depth	63'			
Bedrock	_		— Depth	CE)			
Fracture			Hole Diameter	0 7/0U A ! ! !			
			(Core, Roller Bit, Hammer				
		İ		011 0.04011.01.4			
`/\/_\ 	<u></u>		— Screen Diameter & Type	2" pvc 0.010" Slot			
´ \ []			— Depth	<u>75'</u>			
NOTE: DEPTHS ARE FEET BELOW GRA	ADE						
Not To Scale							
110t TO OCAIC		I					

ATTACHMENT B

MAL PIR	COLM RNIE		TEST	BORIN	G LO	GE	ORING I	No. WW-1I
PROJECT RealCo MW	ION Watervi	iet, NY		Si	HEET 1 OF	1		
CLIENT				Р	ROJECT No.	3938014		
DRILLING CONTRACTOR	Parratt Wol	fe				М	EAS. PT. ELEV	85.20
PURPOSE	Monitoring	Well Installat	tion			G	ROUND ELEV.	83.5
WELL MATERIAL	2" PVC						ATUM	Site
DRILLING METHOD(S)	HSA, Air Ro	otary	SAMPLE	CORE	CASI	NG D	ATE STARTED	8/11/03
DRILL RIG TYPE	Drill Rig	TYPE		<u> </u>			ATE FINISHED	
GROUND WATER DEPTH	9.5'	DIA.	"			-	RILLER	L. Pech
MEASURING POINT		WEIGHT	-			\vdash		
DATE OF MEASUREMENT		FALL					RNIE STAFF	A. Bobar
SAMPLE TYPE, TYPE, NUMBER BLOWS ON SAMPLE SPOON PER 6"	DIA GRAPHIC LOG	KEY - Colo	GIC DESCRI r, Major, Mir ture, Etc.		ELEV. DEPTH	WELL Constr		REMARKS
2-		No samples co			- 77. 5		3.7 1.5.7	

MALCO PIRN		TEST	BORIN	G LC	G	BORING	No. WW-2B	
PROJECT RealCo MWN	LOCATI	ON Waterv	ON Watervliet, NY			SHEET 1 OF 3		
CLIENT							PROJECT No.	3938014
DRILLING CONTRACTOR Par	rratt Wolfe						MEAS, PT. ELEV	/. 105.30
PURPOSE Mo	nitoring W	ell installat	tion				GROUND ELEV.	103.0
	PVC				 -		DATUM	Site
	A, Air Rota		SAMPLE	CORE	CAS	ING	DATE STARTED	8/12/03
	II Rig	TYPE			 		DATE FINISHED	
GROUND WATER DEPTH 45.	4	DIA.			<u></u>	<u> </u> †	DRILLER	LP and MM
MEASURING POINT DATE OF MEASUREMENT		WEIGHT	140 # 30"			 	PIRNIE STAFF	AB and MAF
SAMPLE TYPE, NUMBER NUMBER SPOON PER 6"	GRAPHIC LOG	GEOLOGI (EY - Color,	IC DESCRI		ELEV. DEPTH	WEL	L .	REMARKS
2- 4- 0.33	Bro pul	own; Silt and cavel, little to train plasticity; Drown; Silt and covery fine organ w-medium plasticed and he gments; Dry.	ace very fine s ry. lay with occas nic material; Fi sticity; Dry-mo	and; Stiff; sional fine irm; ist. sluff) with ed shale	96.0 7.0 92.0 11.0		Poor reco	overy

		MAI	CC RN	MJK JI		TEST BORIN	G LOG	В	ORING	No.	WW-2B
PROJE	CT Re	alCo MV	VN		LOCATION	ON Watervliet, NY	_	SH	EET 2 OF	3	
CLIEN	τ		_		·			PR	OJECT No.	393	8014
ОЕРТН ЕТ.	SAMPLE TYPE, RECOVERY, NUMBER	BLOWS ON SAMPLE SPOON PER 6*	PID	GRAPHIC LOG	KEY - Color Moist	IC DESCRIPTION , Major, Minor ure, Etc.	ELEV. W	ELL nstr.		REMA	.RKS
X	1.92	5 4			Medium plasticit	y; Moist-damp.	82.0				
22-		4		MMMM	-		21.0				
24		5 8			plasticity; Moist-	d silt; Soft; Medium to low damp.	78.0				
26		9			Gray/blue; Clay plasticity; Moist.	with silt; Soft; Medium	25.0 77.0 26.0				
28- 30-					Gray/blue; Clay Plastic; Wet to r	with some silt; Soft; noist.	72.0				
32-				Δ Δ Δ Δ Δ Δ	Weathered rock		31.0 71.0 32.0				
36-					Competent rock Angular cuttings	; Bluish gray; Siltstone;	- 68.0 35.0		38.0_		
38- - 40-									40.0		
42-											
44-									-	•	
									¥		

		MAI	CC RN	MAK JE		TEST BORI	NG LOG	BORING No.	WW-2B		
PROJECT RealCo MWN LOCATION Watervliet, NY							SHEET 3 OF 3				
CLIE	NT_	_						PROJECT No. 3938	014		
DEPTH FT.	SAMPLE TYPE, RECOVERY, NIMBER	BLOWS ON SAMPLE SPOON PER 6"	PID	GRAPHIC	KEY - Color,	C DESCRIPTION Major, Minor ire, Etc.	ELEV. WE	ELL REMA	RKS		
								Water first encot while drilling.	untered @ 49' bgs		

MAL PIR	COLM			TEST	BORIN	G LO	G	В	ORING N	No. WW-3B
PROJECT RealCo MWN	ON Watervi	let, NY			SH	IEET 1 OF	3			
CLIENT		<u> </u>						PR	ROJECT No.	3938014
DRILLING CONTRACTOR	Parratt Wo	lfe					_	ME	AS. PT. ELEV	113.46
PURPOSE	Monitoring	Well Insta	allatio	on				GR	ROUND ELEV.	111.3
WELL MATERIAL	2" PVC					,		DA		Site
	HSA, Air Ro	otary		SAMPLE	CORE	CAS	ING	DA	TE STARTED	8/18/03
	Drill Rig	TYF		***				DA	TE FINISHED	8/19/03
GROUND WATER DEPTH	36.0'	DIA						┢	ILLER	L. Pech
MEASURING POINT		WEIG		140 # 30"				<u> </u>	RNIE STAFF	A. Bobar
DATE OF MEASUREMENT		FAL		30				F115	- TAFF	A. Bobai
SAMPLE TYPE, TYPE, NUMBER BLOWS ON SAMPLE SPOON PER 6"	GRAPHIC LOG	KEY - C	olor,	C DESCRII Major, Min re, Etc.		ELEV. DEPTH	WEI Cons	LL str.	F	REMARKS
2- 4	× × × × ×	occasional then brown plasticity; M Brown; Clay plasticity; M Heavily wear	y/brow fine gr clay a loist.	vn silt and clay ravel; Dry to 9. and silt; Soft; L	9' bgs ow-med um	105.3 6.0 100.3 11.0 95.8 15.5 95.3 16.0 93.3				

	PIRNIE	TEST BORING LOG	BORING No. WW-3B
PROJ	ECT RealCo MWN	LOCATION Waterviet, NY	SHEET 2 OF 3
CLIE	NT		PROJECT No. 3938014
ОЕРТН ГТ.	SAMPLE TYPE, RECOVERY, NUMBER BLOWS ON SAMPLE SAMPLE SPOON PER 6" OI GRAPHIC	GEOLOGIC DESCRIPTION KEY - Color, Major, Minor Moisture, Etc.	ELL REMARKS
22- 24- 26- 332- 334- 36- 38- 20- 4-			35.0 ▼

MALCOLM PIRNIE	TEST BORING LOG	BORING No. WW-3B
PROJECT RealCo MWN	LOCATION Watervilet, NY	SHEET 3 OF 3
CLIENT		PROJECT No. 3938014
SAMPLE TYPE, RECOVERY, NUMBER BLOWS ON SAMPLE SPOON PER 6" OIA GRAPHIC LOG	GEOLOGIC DESCRIPTION KEY - Color, Major, Minor Moisture, Etc. ELEV. DEPTH Cons	L REMARKS
48- 50- 52- 54- 56- 58-		Water first encountered @ 53' bg when drilling in bedrock

MAL PIR	TEST BORING LOG					BORING No. WW-5					
PROJECT RealCo MW	ON Watervliet, NY				SHEET 1 OF 2						
CLIENT								PROJECT No. 3938014			
DRILLING CONTRACTOR Parratt Wolfe								MEAS. PT. ELEV. 200.56			
PURPOSE	Monitoring	Well Installa	tion				GF	ROUND ELEV.	198.7		
WELL MATERIAL	2" PVC							DATUM Site			
DRILLING METHOD(S)	Hollow Ste	em Auger SAMPLE CORE			CASING			DATE STARTED 9/9/03			
DRILL RIG TYPE	Drill Rig	TYPE						DATE FINISHED 9/9/03			
GROUND WATER DEPTH	21.0'	DIA.	**				<u>├</u>				
MEASURING POINT		WEIGHT	140 #				\vdash	RILLER	M. Marshall		
DATE OF MEASUREMENT		FALL	30"				PIF	RNIE STAFF	M. Flusche		
SAMPLE TYPE, NUMBER BLOWS ON SAMPLE SPOON PER 6"	GRAPHIC LOG	KEY - Color	i IC DESCRI , Major, Min ure, Etc.		ELEV. DEPTH	WE Con	LL str.	REMARKS			
2-		Brown; Clay and gravel, no sand inches; Firm; Me	silt with some	sand and	191.7 7.0 186.7 12.0			Some da of augers	ered softer light brown clay		

MALCOL PIRNIE	TEST BORING LOG	BORING No. WW-5				
PROJECT RealCo MWN	LOCATION Watervilet, NY	SHEET 2 OF 2				
CLIENT		PROJECT No. 3938014				
SAMPLE TYPE, RECOVERY, NUMBER BLOWS ON SAMPLE SPOON PER 6"	KEY - Color, Major, Minor Moisture, Etc.	NELL REMARKS				
Weight W	Moisture, Etc. Brown; Clay and silt with 2 inch gray clay layer at 20.2' bgs; Firm; Medium plasticity to plastic; Dry-slightly moist. Brown; Clay and silt; Firm; Plastic; slightly 722.0 Brown; Clay and silt; Firm; Plastic; slightly 73.2 Moist. Gray; Clay; Firm; Medium plasticity to plastic; Moist. Gray; Clay; Firm; Medium plasticity; Wet. Gray; Clay; Firm; Medium plasticity; Wet. 166.7 32.0 Gray; Clay; Firm; Medium plasticity; Wet.	31.0				
38- 40 1 1 1 3 3 42 44-	No recovery. 156.7 42.0 153.7 45.0	Encountered water while drilling @ 40' bgs.				

MAL PII	TEST BORING LOG				BORING No. WW-17					
PROJECT RealCo MW	VN	ON Watervliet, NY				SHEET 1 OF 1				
CLIENT								PROJECT No. 3938014		
DRILLING CONTRACTOR	Parratt Wolfe					N	MEAS. PT. ELEV. 160.18			
PURPOSE	Monitoring We	ll Installat	tion				GROUND ELEV. 158.3			
WELL MATERIAL	2" PVC							Site		
DRILLING METHOD(S)	Hollow Stem A		SAMPLE CORE CASING				DATE STARTED 9/8/03			
DRILL RIG TYPE	Drill Rig	TYPE	99			-	ATE FINISHED	<u> </u>		
GROUND WATER DEPTH	6.5'	DIA.					RILLER	M. Marshall		
MEASURING POINT		WEIGHT	140 # 30"			\vdash	IRNIE STAFF	M. Flusche		
DATE OF MEASUREMENT		FALL	30				INVIL STAFF	WI. Flusche		
SAMPLE TYPE, RECOVERY, NUMBER BLOWS ON SAMPLE SPOON PER 6**	PIDIEQ	EY - Color,	IC DESCRI Major, Min Ire, Etc.		ELEV. DEPTH	WELL Consti	, F	REMARKS		
2- 4- 6- 0.5	root	; Firm; Ľow p	silt; Bottom in lasticity; Dry-r	noist.	151.3 7.0		4.0			
12- 14- 16- 0.5 = 10	mate	erial; Firm; Mitic; Wet-mois	edium plasticit	y to	146.3 12.0 141.3 17.0		14.5			

MAI PII	TEST BORING LOG					BORING No. WW-20B				
PROJECT RealCo MW	ON Watervilet, NY				SHEET 1 OF 2					
CLIENT					PF	ROJECT No.	3938014			
DRILLING CONTRACTOR						MEAS. PT. ELEV. 85.54				
PURPOSE	Monitoring	Well	Installati	on				GROUND ELEV. 83.4		
WELL MATERIAL	2" PVC							DA	TUM	
DRILLING METHOD(S)	HSA, Air R	totary		SAMPLE	CORE	CASING		DATE STARTED		9/12/03
DRILL RIG TYPE	Drill Rig	TYPE						DATE FINISHED		
GROUND WATER DEPTH	18.2'		DIA.				_			M. Marshall
MEASURING POINT			WEIGHT	#			ŀ	DRILLER		
DATE OF MEASUREMENT			FALL	"				PIF	RNIE STAFF	K. Stahle
SAMPLE TYPE, RECOVERY, NUMBER BLOWS ON SAMPLE SPOON PER 6"	DIA GRAPHIC LOG		Y - Color,	IC DESCRII Major, Min ıre, Etc.		ELEV. DEPTH	WEL Cons	.L tr.	F	REMARKS
2- 4- 6- 8- 10- 12- 14- 16-			ample collection	cted.		69.4			<u>17.5</u> ▼ 19.5	

	,	MALC PIRI	OLM VIE		TEST BORII	NG LOG	BORIN	G No. WW-20I
PRO	ECT Rea	alCo MWN		LOCATIO	ON Watervliet, NY		SHEET 2	
CLIE	NT						PROJECT N	lo. 3938014
ОЕРТН FT.	SAMPLE TYPE, RECOVERY, NUMBER	BLOWS ON SAMPLE SPOON PER 6"	GRAPHIC LOG	KEY - Color	IC DESCRIPTION , Major, Minor ure, Etc.	ELEV. WE	ELL nstr.	REMARKS
- 22- - 24-								
- 26- - 28-								
 30-							32.0	
32-								

ELL MATERIAL :	Parratt Wo Monitoring 2" PVC HSA, Core Drill Rig	g Well	I Installat TYPE DIA.					PR:	OJECT No. 3938014 AS. PT. ELEV. 84.56
RILLING CONTRACTOR PROSE ELL MATERIAL ELLLING METHOD(S) ELL RIG TYPE EOUND WATER DEPTH EASURING POINT	Monitoring 2" PVC HSA, Core Drill Rig	g Well	TYPE		0005			ME	
ELL MATERIAL ELLING METHOD(S) ELL RIG TYPE EOUND WATER DEPTH ASURING POINT	Monitoring 2" PVC HSA, Core Drill Rig	g Well	TYPE		0005				AS. PT. ELEV. 84.56
ELL MATERIAL EILLING METHOD(S) EILL RIG TYPE EOUND WATER DEPTH ASURING POINT	2" PVC HSA, Core Drill Rig	•	TYPE		0005				
ILLING METHOD(S) ILL RIG TYPE OUND WATER DEPTH ASURING POINT	HSA, Core Drill Rig			SAMPLE	0005			GR	OUND ELEV. 83.7
OUND WATER DEPTH	Drill Rig			SAMPLE	0005			DAT	TUM Site
OUND WATER DEPTH					CORE	CASI	NG	DAT	TE STARTED 8/13/03
ASURING POINT	19.8'		DIA.				_		TE FINISHED 8/14/03
<u> </u>			_						LLER L. Pech
TE OF MEASUREMENT			WEIGHT	140 #			ŀ		
		1	FALL	30"		_		PIK	NIE STAFF A. Bobar
SAMPLE TYPE, RECOVERY, NUMBER BLOWS ON SAMPLE SPOON PER 6	GRAPHIC LOG		Y - Color,	C DESCRI Major, Min re, Etc.		ELEV. DEPTH	WEL Cons	L tr.	REMARKS
1.5		Brown plastic	n silt and clacity; Damp-r d gray/browed. firm; low	ay; Soft; Low-n	nedium ;; ty; Damp.	77.7 6.0 72.7 11.0 67.7 16.0			Switched from HSA to air rotary with 6 1/4" roller bit.

	MAI Pii	.COLM RNIE		TEST BORII	NG LOG	BOR	ING No. WW-23B
PROJECT	RealCo MV	VN	LOCATI	ON Watervliet, NY		SHEET	2 OF 3
CLIENT				· · · · · · · · · · · · · · · · · · ·		PROJEC	OT No. 3938014
DEPTH FT. SAMPLE TYPE	RECOVERY, NUMBER BLOWS ON SAMPLE SPOON PER 6"	DI GRAPHIC LOG	KEY - Color	IC DESCRIPTION , Major, Minor ure, Etc.	ELEV. WE	LL str.	REMARKS
22-	2 4 5 Weight 2 2 2		layer; Soft; Low \(silt-low plastici	nd clay; Soft; Medium	62.7 21.0 60.7 23.0		Water first encountered @ 21' bg: while drilling.
26	1 8 13 23 50/0.2	Δ Δ Δ Δ Δ Δ Δ Δ	of spoon not as	s; Rock appears 5.75' bgs; Material in end fragmented and fine.			Hit split spoon refusal @ 25.75' bgs.
30-		x x x x x x x x x x x x x x x x x x x	Medium weather weathered fract	rk blue/gray; Siltstone; ered to sound; Few ures; Hardness ~4-5.	- <u>52.2</u> 31.5	33.0	92% Rec; 0.72 RQD
36		X X X X X X X X X X X X X X X X X X X	Dark gray to da Sound; Few we	rk blue/gray; Siltstone; athered fractures;	<u>48.4</u> 35.3	ı	92% Rec; 0.97 RQD
38-		X	Hardness ~4-5.			37.0	<u>-</u> · · .
40-		x x x x x x x x x x x x x x x x x x x	Dark gray; Silts	tone; Medium weathered natural fractures; Hardnes	43.4		92% Rec; 0.80 RQD
42-		X X X X X X X X X X X X X X X X X X X	to sound; Few r	avage faces show shiny			
44-		X			38.4		92% Pari 0 92 POD
		X X X X X X X X X X X X X X X X X X X	Dark gray; Silts	tone; Sound with few	45.3	<u> </u>	92% Rec; 0.83 RQD

		MAI	RN	IE IE		TEST BORII	NG LOG	BORII	NG No. WW-23E
PRO	JECT R	ealCo MV	٧N		LOCATIO	ON Watervliet, NY		SHEET 3	3 OF 3
CLIE	NT							PROJECT	No. 3938014
ОЕРТН ГТ.				KEY - Color, Moistu	C DESCRIPTION Major, Minor Ire, Etc.	ELEV. WE	LL str.	REMARKS	
- 48- -				× × × × × × × × × × × × × × × × × × ×	natural fractures	; Hardness ~4-5.			
50-				* * * *			33.4 50.3	50.3	
ļ									
				1					

MAL PIR	COLM RNIE		TEST	BORIN	G LO	G	Е	BORING I	No. WW-24B
PROJECT RealCo MW	N	LOCA	TION Waterv	liet, NY			Si	HEET 1 OF	3
CLIENT							PI	ROJECT No.	3938014
DRILLING CONTRACTOR	Parratt Wo	lfe					М	EAS. PT. ELEV	69.04
PURPOSE	Monitoring	Well Installa	tion		_		GI	ROUND ELEV.	67.1
WELL MATERIAL	2" PVC						DA	ATUM	
DRILLING METHOD(S)	HSA, Air R	otary, Core	SAMPLE	CORE	CAS	NG	DA	ATE STARTED	9/9/03
DRILL RIG TYPE	Drill Rig	TYPE					-	ATE FINISHED	
GROUND WATER DEPTH	46.7'	DIA. WEIGHT	140 #				┢	RILLER	M. Marshall
MEASURING POINT							\vdash		
DATE OF MEASUREMENT		FALL	30"				Fi	RNIE STAFF	M. Flusche
SAMPLE TYPE, RECOVERY NUMBER BLOWS ON SAMPLE SPOON PER 6"	DIA GRAPHIC LOG	KEY - Colo	GIC DESCRI or, Major, Min ture, Etc.		ELEV. DEPTH	WE Con	LL str.		REMARKS
2-		gravel; Firm; Lo coarse gravel is spoon.	<u>lasticity; Moist.</u> n; Medium plast	y. Some es of sand and Almost	55.1 12.0 51.6 15.5 50.1				got difficult at 7' bgs. less difficult.

MA Pi	LCOLM IRNIE	TES	T BORING LOG	BORING No.	WW-24B
PROJECT RealCo M	WN	LOCATION Water	vliet, NY	SHEET 2 OF 3	
CLIENT				PROJECT No. 39	38014
SAMPLE TYPE, RECOVERY, NUMBER BLOWS ON SAMPLE SPOON	DIA	GEOLOGIC DESCR KEY - Color, Major, M Moisture, Etc.	linor DEPTH Co	VELL REM	MARKS
1.92 Weigh 22 22 22 2		Gray; Clay; Firm; Medium pl to moist.	45.1		
24 - Weigh 26 - 1.5 2 3 3		Gray; Clay; Firm; Medium pla	asticity; Wet. 40.1 27.0		
30 1 1 6 5 32 6		Brown; Clay with sand and g gravel in bottom of spoon; Fi plasticity; Wet.			
34- 36- 36- R		Brown; Clay with silt, sand, g weathered rock. Firm; Low p Wet.		Refusal of spi	oon. Competent rock
40-	x x x x x x x x x x x x x x x x x x x	Bluish gray; Siltstone; Slightly and weathered; Fractures @ 41.6' bgs, 42.4' bgs, 43.4' bgs bgs.	40.8' bgs,	100% Rec; 0.	91 RQD
44-	X X X X X X X X X X X X X X X X X X X	Bluish gray; Siltstone; Modera fractured and weathered; Frac		45.0 100% Rec; 0.4	85 RQD

		ICO IRNI	<u>E</u>		TEST BORI	NG LOG	BORING No. WW-24B
	JECT RealCo N	IWN		LOCATIO	ON Watervilet, NY		SHEET 3 OF 3
CLIE							PROJECT No. 3938014
DEPTH FT.	SAMPLE TYPE, RECOVERY, NUMBER BLOWS ON SAMPLE SPOON	PER 6.	GRAPHIC LOG	KEY - Color,	IC DESCRIPTION Major, Minor Ire, Etc.	ELEV. WE	ELL nstr. REMARKS
48- 50- 52- 54- 56- 60-			X	45.6' bgs, 45.8' bds. 47.5' bgs, 48.3' bds. Bluish gray; Silts and weathered; 652.7' bgs, 53.1' bds. Bluish gray; Silts and weathered; 64.8' bds.	tone; Slightly fractured fractures @ 50.2' bgs, and 54.5' bgs, and 54.5' bgs, and 55.75' bgs, and 58.1' bgs.	17.1 50.0 12.1 55.0	48.0 100% Rec; 0.95 RQD 82% Rec; 0.80 RQD

MAL PIF	COLM RNIE		TEST	BORIN	G LOG	•	BORING	No. WW-25B
PROJECT RealCo MW	N	LOCATI	ON Watervi	iet, NY			SHEET 1 OF	4
CLIENT	-						PROJECT No.	3938014
DRILLING CONTRACTOR	Parratt Wo	lfe					MEAS. PT. ELE	V. 138.84
PURPOSE		Well Installati	on _				GROUND ELEV	136.8
WELL MATERIAL	2" PVC						DATUM	Site
DRILLING METHOD(S)	HSA, Air R	otary	SAMPLE	CORE	CASIN	G	DATE STARTE	9/4/03
DRILL RIG TYPE	Drill Rig	TYPE				H	DATE FINISHEI	
GROUND WATER DEPTH	68.2'	DIA.	11			}-		M. Marshall
MEASURING POINT		WEIGHT	140 #			-	DRILLER	
DATE OF MEASUREMENT		FALL	30"			L	PIRNIE STAFF	M. Flusche
SAMPLE TYPE, TYPE, NUMBER BLOWS ON SAMPLE SPOON PER 6"	DIA GRAPHIC LOG	KEY - Color	iC DESCRII , Major, Min ure, Etc.		ELEV. DEPTH	WEL! Const	L.	REMARKS
2- 4- 6- 8- 10 1.17 2 8 9 14- 14- 16- \ 1.92 \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \		Brown; Clay and Dry-slightly; Moi Brown; Clay and plasticity; Moist.	st.		124.8 12.0 119.8 17.0			

	MAI PII	COLM RNIE	TEST BORING L	.OG	BORING No. WW-25B
PROJECT	RealCo MW	/N	LOCATION Watervilet, NY		SHEET 2 OF 4
CLIENT					PROJECT No. 3938014
OEPTH FT. SAMPLE TYPE,	RECOVERY, NUMBER BLOWS ON SAMPLE SPOON PER 6"	DIA GRAPHIC LOG	GEOLOGIC DESCRIPTION KEY - Color, Major, Minor Moisture, Etc.	EV. WE	LL REMARKS
22	2 3 4 3 3		Brown; Clay and silt; Firm; Medium plasticity to plastic; Moist. 11	 ~//	
24-	2 5 5 4		Brown; Clay and silt with some very thin (<0.5 mm) gray laminations; Firm; Medium plasticity; Moist.	— <u>-</u> NY/	
30	2 4 5 8		Brown; Clay and silt; Firm; Medium plasticity to plastic; Moist. 10 Brown; Clay and silt; Firm; Medium 3 plasticity; Moist-wet. 10	4.8	
36 - 1	.75 12 30 50/0.4 R		\text{medium plasticity; Dry.} 3 \text{Sand, clay, and weathered rock.} 10 \text{Weathered angular rock with some sand} 3 \text{and clay.} 9	1.3 5.5 0.8 6.0 9.8 7.0	
40 1 1 42 44 -	50 42 35 20	Δ Δ Δ Δ Δ Δ Δ Δ Δ Δ Δ Δ Δ Δ Δ Δ Δ Δ Δ		4.8	

_	<u>PIRN</u>	IIE_		TEST BORI		——	NG No. WW-25E		
PRO	JECT RealCo MWN		LOCATIO	ON Watervilet, NY	 -	SHEET 3 OF 4			
LIE		 _				PROJEC	T No. 3938014		
DEPTH FT.	SAMPLE TYPE, RECOVERY, NUMBER BLOWS ON SAMPLE SPOON PER 6"	GRAPHIC LOG	KEY - Color,	IC DESCRIPTION Major, Minor ire, Etc.	ELEV. WE	ELL estr.	REMARKS		
50- 52- 54- 56- 58- 66- 68- 70-		**************************************	As above.			71.5			

MALCOLM PIRNIE	TEST BORING LOG	BORING No. WW-25B
PROJECT RealCo MWN	LOCATION Watervillet, NY	SHEET 4 OF 4
CLIENT		PROJECT No. 3938014
SAMPLE TYPE, NUMBER BLOWS ON SAMPLE SPOON PER 6" Id	GEOLOGIC DESCRIPTION ELEV. WE KEY - Color, Major, Minor Moisture, Etc.	LL REMARKS
74- 76- 78- 80- 82- 84- 86- 88- 90- 92- 94- 96-	39.3 97.5	Water bearing fracture encountere @ 93' bgs.

MAI PIF	COLM			TEST	BORIN	G LO	G	В	ORING N	lo. WW-26B
PROJECT RealCo MW	N		LOCATION	ON Watervi	iet, NY			SH	EET 1 OF	5
CLIENT							_	PR	ROJECT No.	3938014
DRILLING CONTRACTOR	Parratt Wo	lfe						ME	AS. PT. ELEV	195.26
PURPOSE	Monitoring	Well	Installati	on				GR	ROUND ELEV.	193.4
VELL MATERIAL	2" PVC							DA	TUM	Site
ORILLING METHOD(S)	HSA, Air R	otary		SAMPLE	CORE	CASI	NG	DA	TE STARTED	8/25/03
ORILL RIG TYPE	Drill Rig		TYPE					DA	TE FINISHED	8/29/03
ROUND WATER DEPTH	44.5'		DIA.					DR		
MEASURING POINT			WEIGHT	140 #			ł		RNIE STAFF	M. Flusche
DATE OF MEASUREMENT		<u> </u>	FALL	30"				· "	-	- Tusche
SAMPLE TYPE, RECOVERY, NUMBER BLOWS ON SAMPLE SPOON PER 6"	OIA GRAPHIC LOG		Y - Color,	IC DESCRI Major, Min ure, Etc.		ELEV. DEPTH	WEL	_L str.		REMARKS
2- 4- 6- 8- 10- 0.92 9 13 12- 14 1.5 8 11 12		plast	icity; Dry.	ay and silt; Fir		182.4 11.0 177.4 16.0				

		MAI	CC RN	MK JE	TEST BORING	G LO	G	BORING No. WW-26B	
PROJECT RealCo MWN LOCAT					LOCATION Watervliet, NY				
CLIENT	г	,				_	F	PROJECT No. 3938014	
DEPTH FT.	SAMPLE TYPE, RECOVERY, NUMBER	BLOWS ON SAMPLE SPOON PER 6"	PID	GRAPHIC LOG	GEOLOGIC DESCRIPTION KEY - Color, Major, Minor Moisture, Etc.	ELEV. DEPTH	WELL Constr	r. REMARKS	
M	1.5	8 10				172.4		Less silt than above	
1						21.0			
22-					D. J. W. O. B. Madisan				
24-		6			Brown: Clay and silt; Soft; Medium plasticity; Moist.	168.4			
┤╢	2	6			Gray; Clay and silt; Soft; Medium plasticity; Moist.	25.0 167.4			
26∰	+	7			piasticity, Microst.	26.0			
28-									
1		1			Gray; Clay with some silt; Soft; Medium				
30-∭	1.92	2			plasticity; Wet.				
Λ		2				162.4			
32	1.67	1 1 1			Gray; Clay with some silt; Soft; Medium plasticity; Wet.	31.0			
34-₩	<u> </u>	11				159.4 34.0			
36-									
\mathbf{M}	1	Weight			Gray; Clay with some silt; Soft; Medium plasticity; Wet.				
10-	2	Weight Weight			F	455			
#	 	Weight				1 <u>52.4</u> 41.0			
12-] {					
-								Augers have a little resistance	
14 +	1	20			Heavily weathered rock; Gray siltstone;			¥	
- X	1.33	<u>46</u> 38			Some angular, some rounded; Mostly dry; Slightly moist at bottom				
/\		50/0.4				147.4		<u>//</u>	

	MA	LCOL/ IRNIE	И	TEST BOR	ING LOG	В	ORING No. WW-26B
PRO	JECT RealCo M	WN	LOCATI	ON Watervliet, NY		SHE	EET 3 OF 5
CLIE	NT					PR	OJECT No. 3938014
DEPTH FT.	SAMPLE TYPE, RECOVERY, NUMBER BLOWS ON SAMPLE SPOON	DIA GRAPHIC	GEOLOG KEY - Color Moiste	iC DESCRIPTION , Major, Minor ure, Etc.	ELEV. WE	LL str.	REMARKS
50- 52- 54- 56- 60- 62- 68- 70-		**************************************	Competent rock Angular cuttings	; Bluish gray; Siltstone;	46.0 53.5		Water first encountered in interface @ 52' bgs

	MALCO PIRNI	TEST BORI		BORING No. WW-26B
PROJE	ECT RealCo MWN	LOCATION Watervliet, NY		SHEET 4 OF 5
CLIEN	т			PROJECT No. 3938014
рертн гт.	SAMPLE TYPE, NUMBER BLOWS ON SAMPLE SPOON PER 6"	GEOLOGIC DESCRIPTION KEY - Color, Major, Minor Moisture, Etc.	ELEV. WELL DEPTH Const	
74- 76- 78- 80- 82- 84- 86- 88- 90- 92- 94-		X		77.0 Water first encountered in bedrock at 82'

			MAI	CO R N	IM IE		TEST BOR	ING LOG	В	BORING No. WW-26B				
PRO.	JEC	⊺ Rea	alCo MV	VN		LOCATION	ON Watervliet, NY		SH	EET 5 OF	5			
CLIE									PF	ROJECT No.	3938014			
ОЕРТН ГТ.	SAMPLE	TYPE, RECOVERY, NUMBER	BLOWS ON SAMPLE SPOON PER 6"	PID	GRAPHIC LOG	KEY - Color	IC DESCRIPTION , Major, Minor ure, Etc.	ELEV. WE	ELL nstr.		REMARKS			
100-		32			D XXXXXXXXX	Moistu	ure, Etc.	93.4		100.0				

MAL PIF	COLM RNIE			TEST BORING LOG			G	BORING No. WW-27B		
PROJECT RealCo MW	/N		LOCATI	ON Watervl	iet, NY			SH	EET 1 OF	3
CLIENT								PR	OJECT No.	3938014
DRILLING CONTRACTOR	Parratt Wo	lfe						ME	AS. PT. ELEV.	161.72
PURPOSE	Monitoring	l Installat	tion				GR	OUND ELEV.	160.9	
WELL MATERIAL	2" PVC							DA	TUM	Site
DRILLING METHOD(S)	HSA, Air R Drill Rig	otary		SAMPLE	CORE	CASI	NG	DA	TE STARTED	8/20/03
DRILL RIG TYPE	TYPE	"		 		DA	TE FINISHED	8/22/03		
GROUND WATER DEPTH	41.6'		DIA.		-	<u></u>		DR	ILLER	L. Pech
MEASURING POINT			WEIGHT FALL	140 # 30"			Ì		RNIE STAFF	AB and MAF
SAMPLE TYPE. RECOVERY NUMBER SAMPLE SPOON PERG*	did GRAPHIC LOG		GEOLOG Y - Color	IC DESCRI , Major, Min ure, Etc.		ELEV. DEPTH	WEL	L str.	F	REMARKS
2- 4- 6- 8- 10 2 3 3 4 5 14- 14- 16- 1.5		to pl	vn; Clay; Dr			148.9 12.0 145.7 15.3 144.4 16.5			Split spo	on refusal

	MAI PII	COLV RNIE	TEST BORIN	IG LOG	ВОГ	RING No. WW-27B	
PRO	ECT RealCo MV	VN	LOCATION Watervliet, NY		SHEET 2 OF 3		
CLIE	NT				PROJE	ECT No. 3938014	
DEPTH FT.	SAMPLE TYPE, TYPE, NUMBER, BLOWS ON SAMPLE SPOON PER 6"	GRAPHIC LOG	GEOLOGIC DESCRIPTION KEY - Color, Major, Minor Moisture, Etc.	ELEV. WE	LL str.	REMARKS	
22- 24- 26- 28- 30- 32- 34- 36- 38- 40- 42-		**************************************	Bluish gray; Siltstone; Moderately weathered; Lots of partings and cracks; Fractures @ 27' bgs, 30' bgs, and 31' bgs. Bluish gray; Siltstone; Heavily weathered; Lots of cracks; Fractures @ 32.3' bgs, 33' bgs, 35' bgs, and 35.5' bgs. Bluish gray; Siltstone; Slightly weathered; Few fractures, fractures @ 38.25' bgs, 39' bgs, and 40.5' bgs.	138.9 22.0 129.4 31.5		Heavily weathered rock to 21.5' bgs 90% Rec; 0.42 RQD 100% Rec; 0.07 RQD	
44-		x x x x x x x x x x x x x x x x x x x	bgs, 43.5' bgs, 44.5' bgs, 45.5' bgs, and 46' bgs.				

MALCO PIRNI	TEST BORI	NG LOG	BORING No. WW-27B				
PROJECT RealCo MWN	LOCATION Watervliet, NY		SHEET 3 OF 3				
CLIENT PROJECT No. 3938014							
SAMPLE TYPE, NUMBER BLOWS ON SAMPLE SPOON PER 6"	GEOLOGIC DESCRIPTION KEY - Color, Major, Minor Moisture, Etc.	ELEV. WE	LL str. REMARKS				
48- 50- 52- 54- 56- 58- 60- 62- 64-	Moisture, Etc. X X X X X X X X X X X X X X X X X X X	109.4 d; 51.5	94% Rec; 0.80 RQD 50.5 100% Rec; 0.83 RQD 100% Rec; 0.70 RQD				

MAL PIR	COLM		TEST BORING LOG				BORING No. WW-28B			
PROJECT RealCo MW	/N	LOCATION	ON Watervliet, NY			SH	HEET 1 OF	4		
CLIENT							PF	ROJECT No.	3938014	
DRILLING CONTRACTOR	Parratt Wol	fe					ME	EAS. PT. ELEV	150.86	
PURPOSE	Monitoring	Well Installat	ion				GF	ROUND ELEV.	148.8	
WELL MATERIAL	2" PVC			,			D/	ATUM	Site	
DRILLING METHOD(S)	HSA, Air Ha	ammer	SAMPLE	CORE	CASI	NG	DA	TE STARTED	8/19/03	
DRILL RIG TYPE	Drill Rig	TYPE		<u> </u>			DA	TE FINISHED	9/3/03	
GROUND WATER DEPTH	63.8'	DIA.			<u> </u>			RILLER	L. Pech	
MEASURING POINT		WEIGHT	140 #					RNIE STAFF	AB and MAF	
DATE OF MEASUREMENT		FALL	30"	<u> </u>			7		AB and MAF	
SAMPLE TYPE TYPE RECOVERY NUMBER BLOWS ON SAMPLE SPOON PER 6*	GRAPHIC LOG	KEY - Color,	C DESCRI Major, Min ire, Etc.		ELEV. DEPTH	WEI Cons	LL str.	F	REMARKS	
2- 4 4 4 5 8 8 8 8 8 8 8 8 8 9 11 11 12- 14 2 5 7 9 16 9 9 18-		Brown; Mottled s organic material plasticity; Dry-dar plasticity; Moist. Brown; Clay with plasticity; Moist. Brown; Clay and splasticity; Moist-with plasticity; Moist-with plasticit	some silt; Sof	ft; Medium	137.8 6.0 137.8 11.0 132.8 16.0					
3 3		Brown; Clay and solasticity; Wet.	silt; Soft; Medi	ium-low	128.8					

ĺ	MALCC PIRN	MK E	TEST BORIN	IG LOG	BOR	ING No. WW-28B	
PROJECT Rea	ICo MWN		LOCATION Watervliet, NY	SHEET 2 OF 4			
CLIENT					PROJEC	OT No. 3938014	
SAMPLE TYPE, RECOVERY, NUMBER	SAMPLE SPOON PER 6"	GRAPHIC LOG	GEOLOGIC DESCRIPTION KEY - Color, Major, Minor Moisture, Etc.	ELEV. WE	LL str.	REMARKS	
22- 24 2 26- 28- 30-\(1.75\) 32-\(\) 34- 36- 38- 40- 42-	5 6 3 3 3 3 3 3 24 30 23 21 75/0.2 R		Blue/Gray; Clay layer; Soft; Medium plasticity to plastic; Wet. Gray/Brown; Silt and clay with occasional silt lenses (2"); Soft; Low to medium plasticity; Wet. Blue/Gray; Clay and silt; Soft; Medium to low plastic; Wet (not saturated). Blue/Gray; Clay and silt; Soft; Medium to low plastic; Wet (not saturated). Heavily weathered rock; Moist-Dry. No recovery. Competent rock; Bluish gray; Siltstone; Angular cuttings.	122.8 21.0 128.3 21.0 122.8 26.0 117.8 31.0			

	MALCO PIRNI	LM F	TEST BORI	NG LOG	BORING No. WW-28E
PRO	JECT RealCo MWN	LOC	CATION Watervliet, NY		SHEET 3 OF 4
CLIE	NT				PROJECT No. 3938014
DEPTH FT.	SAMPLE TYPE, RECOVERY, NUMBER BLOWS ON SAMPLE SPOON PER 6"	KEY - Co	OGIC DESCRIPTION olor, Major, Minor bisture, Etc.	ELEV. WE	LL REMARKS
- 48- - 50-		X			
52- - 54-		××××××××××××××××××××××××××××××××××××××			
56- - 58-		**************************************			
60-		<pre></pre>			60.0
64-		X X X X X X X X X X X X X X X X X X X			63.0 ▼
66-		X X X X X X X X X X X X X X X X X X X			
68 - 70 -		X X X X X X X X X X X X X X X X X X X			
-		× × × × × × × × × × × × × × × × × × ×			

_		_	MAI PI	RN	IE IE		TEST BORI	NG LUG		NG No. WW-28B
		Re	alCo MV	WN		LOCATI	ON Watervliet, NY		SHEET 4	
CLIE					, 				PROJECT	No. 3938014
ОЕРТН FT.	SAMPLE	TYPE, RECOVERY, NUMBER	BLOWS ON SAMPLE SPOON PER 6"	PID	GRAPHIC LOG	KEY - Color	IC DESCRIPTION , Major, Minor ure, Etc.	ELEV. WE	ELL nstr.	REMARKS
74- -					× × × × × × × × × × × × × × × × × × ×			73.8	75.0	

ATTACHMENT C

WELL DEVELOPMENT/ PURGING LOG

WELL NUMBER:	WW-1I	DAT	E: <u>9/23/0</u>)3		
PROJECT NAME:	RealCo Monitoring	Well Network C	ompletion_		·	
PROJECT NUMBER:	3938014					
				_	Vol.	
A: Total Casing and Sc	reen Length:	15.50		Well I.D. 1"	Gal./ft. 0.04	
B: Casing Internal Dian	neter:	2.00		2" 3"	0.17 0.38	
C: Water Level Below 1	op of Casing:	9.50		4" 5"	0.66 1.04	
D: Volume of Water in 0	Casing:	1.02		6" 8"	1.50	
$v = 0.0408 (B)^2 x$	(A-C) = D				2.60	
v = 0.0408 () ² x (-) <u>=</u>	1.02	gal.	
PARAMETER		ACCUMU	LATED VOL	UME PURGE	D	
Date						
Time						
Gallons						
Well Volume						
Conductivity (mohm/cm)	_					
Dissolved Oxygen						
pH			_			
Temperature (°C)						
Turbidity				<u> </u>		
Salinity						
				 		
Notes: 9/23/03 1130: Initiate purge	e Dry after <1 gallo	on.				
1200: Purged dry 3 times.				_		
			<u> </u>			
	-				· ·	

WELL DEVELOPMENT/ PURGING LOG

WW-2B DATE: 9/17/03 **WELL NUMBER:**

RealCo Monitoring Well Network Completion PROJECT NAME:

3938014 PROJECT NUMBER:

Total Casing and Screen Length: 57.30

Casing Internal Diameter: 2.00 B:

Water Level Below Top of Casing: 45.40 C:

Volume of Water in Casing: 2.02 D:

 $v = 0.0408 (B)^2 x (A-C) = D$

) ² x (, _	١
, , ,	-	•

Well I.D. Gal./ft. 1" 0.04 2" 0.17 3" 0.38 0.66 5" 1.04 1.50 8" 2.60

Vol.

v = 0.0408 ()² x (-) =	2.02	gal.

PARAMETER	ACCUMULATED VOLUME PURGED							
Date								
Time	1510							
Gallons	1.5	3	4.5	6				
Well Volume								
Conductivity (mohm/cm)	1.29	1.28	1.29	1.23				
Dissolved Oxygen	15.78	15.54	15.4	15				
рH	7.4	7.45	7.41	7.33				
Temperature (°C)	16.4	165	17.8	17.5				
Turbidity	999	999	999	999				
Salinity	0.05	0.05	0.05	0.05				

Notes:	
1500: Initiate well development.	
1523: Dry. Not very clear.	

WELL DEVELOPMENT/ PURGING LOG

Well I.D.

1"

2"

3"

4" 5"

6"

8"

Vol.

Gal./ft.

0.04

0.17

0.38 0.66

1.04 1.50

2.60

9/17/03 and 9/24/03 WW-3B DATE: **WELL NUMBER:**

PROJECT NAME:

RealCo Monitoring Well Network Completion

PROJECT NUMBER:

3938014

A:	Total Casing and Screen Length:	62.00

B: Casing Internal Diameter: 2.00

C: Water Level Below Top of Casing: 36.00

Volume of Water in Casing: 4.42 D:

 $v = 0.0408 (B)^2 x (A-C) = D$

) ² x (_) =	4 40	gal.
) X (-) =	4.42	gai.

v = 0.0408 () ² x (-)) =	4.42	gal.	
PARAMETER		3	AC	CUMULA	TED VOLU	ME PURG	ĒD	
Date	9/17	_	<u>-</u>		9/24		-	
Time	1535	1545	1555					
Gallons	4.5	9	13.5		38.5			
Well Volume	1.02	2.04	3.05					
Conductivity (mohm/cm)	2.98	3.18	3.24					
Dissolved Oxygen	17.2	16.46	17.34					
рН	7.3	7.21	7.19					
Temperature (°C)	15.2	13.2	13.2					
Turbidity	616	338	100	_	•			
Salinity	0.13	0.15	0.16				<u> </u>	

Notes:

9/17/03 1535: Initiate purge.

1550: Purged 13.5 gallons.

9/24/03 1100: Initiate purge.

1150: Purged 25 more gallons. Water is very clear.

WELL DEVELOPMENT/ PURGING LOG

WELL NUMBER: WW-5 DATE: 9/18/03 and 9/23/03

PROJECT NAME: RealCo Monitoring Well Network Completion

PROJECT NUMBER: 3938014

A: Total Casing and Screen Length: 47.75

B: Casing Internal Diameter: 2.00

C: Water Level Below Top of Casing: 20.95

D: Volume of Water in Casing: 4.56

 $v = 0.0408 (B)^2 x (A-C) = D$

Well I.D.	Gal./ft.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

Vol.

v = 0.0408 ()² x (-)= 4.56 gal.

PARAMETER	ACCUMULATED VOLUME PURGED							
Date	9/18		9/23	1				
Time	825	945	1245	1345				
Gallons		40	50	57				
Well Volume	0.00	8.78	10.97	12.51	_			
Conductivity (mohm/cm)			3.52					
Dissolved Oxygen			11.6					
pH			7.1					
Temperature (°C)			13.5					
Turbidity			>999					
Salinity			0.17					
Depth to water		Dry		Dry				

N	~	١,	_	٠
N	O.	ı	5	

9/18/03 0825: Initiate development.

0945: Purged 40 gallons. Well went dry. Water is still cloudy

9/23/03 1220: Initiate purge.

1245: Purged 10 more gallons.

1345: Purged 7 more gallons. Still muddy.

WELL DEVELOPMENT/ PURGING LOG

) = 1.70

WELL NUMBER: WW-17 DATE: 9/18/03 and 9/23/03

PROJECT NAME:

RealCo Monitoring Well Network Completion

PROJECT NUMBER:

3938014

A:	Total Casing and Screen Length:	16.50
B:	Casing Internal Diameter:	2.00
C:	Water Level Below Top of Casing:	6.50
D:	Volume of Water in Casing:	1.70

$v = 0.0408 (B)^2 \times (A-C) = D$	v = 0.0408	$(B)^2 \times (A-C) =$	D
-------------------------------------	------------	------------------------	---

v = 0.0408 ($)^2 \times ($

	Vol.	
Well I.D.	Gal./ft.	
1"	0.04	
2"	0.17	
3"	0.38	
4"	0.66	
5"	1.04	
6"	1.50	
8"	2.60	

gal.

PARAMETER	ACCUMULATED VOLUME PURGED								
Date	9/18	9/23			<u> </u>				
Time	1020	1415	1424	1431	1440	1449	1535	1545	1556
Gallons	20	30	40	50	60	70	80	90	100
Well Volume	11.76	17.65	23.53	29.41	35.29	41.18	47.06	52.94	58.82
Conductivity (mohm/cm)		3.2	3.13	3.13	3.1	3.09	3	3	2.96
Dissolved Oxygen		10.77	10.66	11.02	11.5	11.55	11.54	11.77	11.45
pH		6.51	6.56	6.56	6.54	6.53	6.57	6.58	6.55
Temperature (°C)		15.8	16.1	15.7	15.1	15	15.9	15.5	15.9
Turbidity		999	>999	>999	>999	>999	>999	>999	>999
Salinity		0.15	0.15	0.15	0.15	0.15	0.14	0.14	0.14
		L							

Notes:

9/18/03 1000: Initiate purge.

1020: Purged 20 gallons. Slightly cloudy.

9/23/03 1400: Initiate purge.

1500: Purged 75 gallons. Still cloudy.

Water efferveses and has slight odor.

1600: Purged 100 gallons. Only slightly cloudy.

WELL DEVELOPMENT/ PURGING LOG

9/17/03 and 9/23/03 WW-20B DATE: WELL NUMBER:

RealCo Monitoring Well Network Completion PROJECT NAME:

3938014 PROJECT NUMBER:

Total Casing and Screen Length: 32.00 A:

2.00 B: Casing Internal Diameter:

Water Level Below Top of Casing: 18.20 C:

Volume of Water in Casing: 2.35 D:

 $v = 0.0408 (B)^2 x (A-C) = D$

) ² x	,	
) X	(-

	Vol.	
Well I.D.	Gal./ft.	
1"	0.04	
2"	0.17	
3"	0.38	
4"	0.66	
5"	1.04	
6"	1.50	
8"	2.60	

v = 0.0408 ()² x (-) =	2.35	gal.

PARAMETER		ACCUMULATED VOLUME PURGED						
Date	9/17			9/2	23			
Time								
Gallons	4	8	14		21			
Well Volume	1.71	3.41	5.97	8.9	95			
Conductivity (mohm/cm)	0.94	0.981	0.961					
Dissolved Oxygen	13.38	15.08	16					
pH	7.39	7.26	7.26					
Temperature (°C)	14.2	14.3	14.3					
Turbidity	999	999	940					
Salinity	0.04	0.04	0.04					
	11.0							

	o	_	

9/17/03 1315: Initiate purge.

1345: Purged 20 gallons. Water still cloudy.

9/23/03 Purged dry after 7 more gallons.

v = 0.0408 (

WELL DEVELOPMENT/ PURGING LOG

)<u>=</u> 1.92 gal.

WELL NUMBER: WW-231		WW-23I	DATE:	8/25/03 and 9/24/03				
PR	OJECT NAME:	RealCo Monitori	RealCo Monitoring Well Network Completion					
PR	OJECT NUMBER:	3938014						
A:	Total Casing and So	creen Length:	32.50_	Well I.D.	Gal./ft.			
				1"	0.04			
B:	Casing Internal Diar	neter:	2.00	2"	0.17			
				3"	0.38			
C:	Water Level Below	Top of Casing:	21.20	4"	0.66			
				5"	1.04			
D:	Volume of Water in	Casing:	1.92	6"	1.50			
	$y = 0.0408 (R)^2 x$	(A-C) = D	_	8"	2.60			

PARAMETER	ACCUMULATED VOLUME PURGED						
Date	8/25	9/24					
Time							
Gallons	25	100					
Well Volume	13.01	52.06					
Conductivity (mohm/cm)							
Dissolved Oxygen							
pΗ							
Temperature (°C)							
Turbidity							
Salinity							

)² x (

							_			
Notes:										
8/25/03 F	Purged 25 gallons	3.								
9/24/03 0	845: Initiate dev	elopment.								
Muddy if y	ou surge but cle	arse up ni	cely (only	slightly clo	oudy) if you	u stop surç	ging.		_	
0945: En	d development.	75 gallons	purged to	day.				_	-	
100 gallor	is purged total.									

WELL DEVELOPMENT/ PURGING LOG

-)<u>=</u> 5.33 gal.

WE	WELL NUMBER: WW-23B	WW-23B	DATE:	8/25/03 and 9/24/03		
PR	OJECT NAME:	RealCo Monitor	ing Well Network Com	oletion		
PR	OJECT NUMBER:	3938014				
					Vol.	
A:	Total Casing and So	creen Length:	51.38	Well I.D.	Gal./ft.	
				1"	0.04	
B:	Casing Internal Diar	meter:	2.00	2"	0.17	
				3"	0.38	
C:	Water Level Below	Top of Casing:	20.01	4"	0.66	
				5"	1.04	
D:	Volume of Water in	Casing:	5.33	6"	1.50	
				8"	2.60	
	$y = 0.0408 (B)^2 y$	(A-C) = D				

PARAMETER		ACC	UMULATED	VOLUME PUF	RGED	_
Date	8/25	9/24				
Time						
Gallons	25	80				
Well Volume	4.69	15.00				
Conductivity (mohm/cm)						
Dissolved Oxygen						
pH						
Temperature (°C)						
Turbidity						
Salinity						

Notes:	
8/25/03 Purged 25	
9/24/03 0700: Initiate development.	
0810: End development. Purged 55 more gallons.	
Slightly cloudy	
80 gallons total purged.	

v = 0.0408 ()² x (

WELL DEVELOPMENT/ PURGING LOG

WELL NUMBER: _____ WW-24| DATE: _____ DATE: _______

PROJECT NAME:

RealCo Monitoring Well Network Completion

PROJECT NUMBER:

v = 0.0408 (

3938014

A: Total Casing and Screen Length: 35.00

B: Casing Internal Diameter: 2.00

C: Water Level Below Top of Casing: 11.00

D: Volume of Water in Casing: 4.08

 $v = 0.0408 (B)^2 x (A-C) = D$

) ² x ((-)	=
--------------------	-------	---

Well I.D.	Gal./ft.	
1"	0.04	
2"	0.17	
3"	0.38	
4"	0.66	
5"	1.04	
6"	1.50	
8"	2.60	

4.08 gal.

Vol.

PARAMETER		ACCUMULATED VOLUME PURGED										
Date	9/17	-								9/18	9/22	
Time	1042	1050	1100	1110	1120	1130	1140	1150	1200	1615	1035	1115
Gallons	8	12	16	20	25	29	32	36	40	95	115	140
Well Volume	1.96	2.94	3.92	4.90	6.13	7.11	7.84	8.82	9.80	23.28	28.19	34.31
Conductivity (mohm/cm)	1.12	1.1	1.12	1.11	1.15	1.12	1.15	1.14	1.14			
Dissolved Oxygen	13.17	12.41	12.85	13.03	13.17	13.53	13.21	13.54	13.32			
pH	7.34	7.34	7.31	7.33	7.32	7.3	7.28	7.3	7.3			
Temperature (°C)	13.3	13.7	13.2	13.7	13.9	13.7	13.7	13.2	13.1			
Turbidity	999	7	999	999	999	999	999	999	999			
Salinity	0.05	0.04	0.05	0.05	0.05	0.05	0.05	0.05	0.05			

Notes:

9/17/2003: Initiate development. Purged 40 gallons.

9/18/03 1500: Initiate development. Purged 55 gallons. Still cloudy

9/22 1015: Initiate development. Purged 55 gallons.

140 gallons total purged.

WELL DEVELOPMENT/ PURGING LOG

Well I.D.

1"

2"

3"

6"

8"

2.26

gal.

Vol.

Gal./ft.

0.04

0.17

0.38

0.66

1.04

1.50

2.60

 WELL NUMBER:
 WW-24B
 DATE:
 9/17/03

PROJECT NAME: RealCo Monitoring Well Network Completion

PROJECT NUMBER: 3938014

A: Total Casing and Screen Length: 60.00

B: Casing Internal Diameter: 2.00

C: Water Level Below Top of Casing: 46.70

D: Volume of Water in Casing: 2.26

 $v = 0.0408 (B)^2 x (A-C) = D$

v = 0.0408 ($($ $)^2 \times$	(-) =
v - 0.0+00 (, , ,	. (,

PARAMETER	ACCUMULATED VOLUME PURGED								
Time	1252								
Gallons	2					_			
Well Volume	0.88						-		
Conductivity (mohm/cm)	3.26								
Dissolved Oxygen	12.7								
pH	12.84								
Temperature (°C)	14.9								
Turbidity	5.67								
Salinity	0.18								

N.	_	٠.	_	
IV	n	te		

1248:	Initiate	deve	lopment.
-------	----------	------	----------

1301: End well development. Well went dry.

Water very clear from start.

D: Volume of Water in Casing:

 $v = 0.0408 (B)^2 x (A-C) = D$

WELL DEVELOPMENT/ PURGING LOG

6"

1.50 2.60

WELL NUMBER:	WW-25B	DATE:	9/22/03		
PROJECT NAME:	RealCo Monitorin	g Well Network Comp	letion		
PROJECT NUMBER: 3938014					
				Vol.	
A: Total Casing and S	creen Length:	98.00	Well I.D.	Gal./ft.	
			1"	0.04	
B: Casing Internal Dia	meter:	2.00	2"	0.17	
			3"	0.38	
C: Water Level Below	Top of Casing:	68.20	4"	0.66	
			5"	1.04	

v = 0.0408 ()² x (-)<u>= 5.07</u> gal.

5.07

PARAMETER	ACCUMULATED VOLUME PURGED								
Time	1320								
Gallons									
Well Volume									
Conductivity (mohm/cm)	1.76								
Dissolved Oxygen	9.79						_		
рН	8.76								
Temperature (°C)	22.4						_		
Turbidity	>999								
Salinity	0.09								
_									

Notes:							
1320: Initiate	developmen	it. Water i	s cloudy.				
1330: Well dry	@ 5.5 gallo	ons.				 	

WELL DEVELOPMENT/ PURGING LOG

3938014						
					Voi.	
en Lenath	:	58.00	ĺ	Well I.D.		
<u></u>	_					
ter:		2.00		2"		
	_			3"		
p of Casin	a:	47.50		4"		
	_			5"		
asing:		1.79		6"	1.50	
J	_			8"	2.60	
λ -C) = D						
<u>-</u> -			<u> </u>		<u> </u>	
		ACCUM	ULATED VOL	.UME PURGE	-D	
1100	1200	1430				
0	35	55				
				\perp		
	1					
	eter: p of Casing asing: A-C) = D	p of Casing:	ter: 2.00 p of Casing: 47.50 asing: 1.79 A-C) = D ACCUM A	2.00 p of Casing: 47.50 asing: 1.79 A-C) = D ACCUMULATED VOL	1" 2 2 3" 3 4" 5 5" asing: 1.79 6" 8 4" A-C) = D ACCUMULATED VOLUME PURGE	1" 0.04 eter: 2.00 2" 0.17 3" 0.38 ep of Casing: 47.50 4" 0.66 5" 1.04 essing: 1.79 6" 1.50 8" 2.60 A-C) = D ACCUMULATED VOLUME PURGED 1100 1200 1430

1200: Purged 35 gallons.

1450: Purged 55 gallons. Still cloudy.

WELL DEVELOPMENT/ PURGING LOG

WELL NUMBER: WW-26B DATE: 9/24/03

PROJECT NAME: RealCo Monitoring Well Network Completion

PROJECT NUMBER: 3938014

A: Total Casing and Screen Length: 103.00

B: Casing Internal Diameter: 2.00

C: Water Level Below Top of Casing: 44.50

D: Volume of Water in Casing: 9.95

 $v = 0.0408 (B)^2 x (A-C) = D$

v = 0.0408) ² x	(-
0.0100	, ,	1

	Vol.	
Well I.D.	Gal./ft.	
1"	0.04	
2"	0.17	
3"	0.38	
4"	0.66	
5"	1.04	
6"	1.50	
8"	2.60	

gal.

9.95

1/-1

PARAMETER	ACCUMULATED VOLUME PURGED							
Time								
Gallons								
Well Volume								
Conductivity (mohm/cm)								
Dissolved Oxygen								
pH								
Temperature (°C)								
Turbidity							_	
Salinity								

_				
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1230: Begin development with whale pump

1300: Five gallons purged. Drew water down to 61 feet below TOC. Switched to watara.

1400: Purged three gallons with watara

1420: Purged two more gallons after waiting 20 minutes. Five gallons left in tube.

15 gallons total purged.

WELL DEVELOPMENT/ PURGING LOG

PROJECT NUMBER:	3938014								
									
						-	Vol.		
A: Total Casing and So	creen Lenath	:	70.00		Well I.D	·_	Gal./ft.		
7.1 Total Gaoing and G		•			1"	•	0.04		
B: Casing Internal Diar	neter:		2.00		2"		0.17		
z. Gaomy miomar z iai		-			- 3"		0.38		
C: Water Level Below	Top of Casino	a.	41.58		4"		0.66		
o. Water Level Below	rop or odomi	a	11.00		5"		1.04		
D: Volume of Water in (Casing:		4.83		6"		1.50		
D. Volumo of Water in		-		}	8"		2.60		
$v = 0.0408 (B)^2 x$	(A-C) = D				•				
(2)	` ,			<u> </u>					
v = 0.0408 (,) ² x (-) =	4.83	gal.			
7 0.0 .00 (•	, ,, ,,		<i>'</i>		<u>.</u> 9			
PARAMETER	Ţ 	_	ACCUN	ULATED VO	VOLUME PURGED				
		 T					+==	Ŧ	
Date Time	 - -	 +				-		╁	
Gallons				 		 	┼──	╁	
Well Volume			 -	- 			 	十	
Conductivity (mohm/cm)							 	†	
Dissolved Oxygen								T	
Н							 	T	
「emperature (°C)								T	
urbidity								Ĺ	
Salinity								L	
								L	
							<u> </u>	L	
		<u></u>					<u></u>	_	
lotes:									
	·								
620: Initiate development.								_	
620: Initiate development. 640: Dry. Pretty clear.									

WELL DEVELOPMENT/ PURGING LOG

Well I.D.

2"

3"

4"

5"

6"

8"

Vol. Gal./ft.

0.04

0.17

0.38

0.66

1.04

1.50

2.60

WELL NUMBER: WW-28B DATE: 9/22/2003 and 9/23/03

PROJECT NAME: RealCo Monitoring Well Network Completion

PROJECT NUMBER: 3938014

A: Total Casing and Screen Length: 75.00

B: Casing Internal Diameter: 2.00

C: Water Level Below Top of Casing: 63.80

D: Volume of Water in Casing: 1.90

 $v = 0.0408 (B)^2 \times (A-C) = D$

v = 0.0408 (

)	² x (<u>-</u>) =	1.90	gal.
- 1	· ^ \		,	1.00	5∽

PARAMETER			ACC	CUMULAT	ED VOLU	ME PURGED			
Date	9/22						9/23		
Time	1500	1531	1540	1605	1635				
Gallons	2	4.5	6	6.5	7.2		12.2		
Well Volume	1.05	2.36	3.15	3.41	3.78				
Conductivity (mohm/cm)	4.56	4.71	4.73	4.82	4.83				
Dissolved Oxygen	14.5	13.61	13.42	12.93	12.74				
pH	7.11	6.98	6.96	7.23	6.94				
Temperature (°C)	14.5	14.2	13.9	13.9	13.3				
Turbidity	>999	>999	540	>999	>999				
Salinity	0.23	0.24	0.24	0.24	0.24				
									_
								·	

Notes:

9/22/03 1410: Initiate development.

1415 Well dry @ 2.3 gallons.

1510: Well dry @ 2.1 gallons. Water has gray color.

1545: Well dry @ 2 gallons.

1610: Well dry @ 1 gallon.

1640: Well dry @ 0.75 gallons

9/23/03 Dry @ 5 gallons. Still cloudy

12.2 gallons total purged.