PRE-DESIGN INVESTIGATION REPORT

WORK ASSIGNMENT C007622-12

COLD SPRING FORMER MGP SITE
VILLAGE OF COLD SPRING

SITE NO. 340026
PUTNAM (C), NY

Prepared for:
NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION
625 Broadway, Albany, New York

Joseph Martens, Commissioner

DIVISION OF ENVIRONMENTAL REMEDIATION
REMEDIAL BUREAU B

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G4667H

September 2014

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FOR THE COLD SPRING FORMER MGP SITE

VILLAGE OF COLD SPRING, PUTNAM COUNTY, NEW YORK

SITE ID #340026

PREPARED FOR:

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

DIVISION OF ENVIRONMENTAL REMEDIATION
REMEDIAL BUREAU E, SECTION A

PREPARED BY:

URS CORPORATION

257 WEST GENESEE ST., SUITE 400

BUFFALO, NEW YORK 14202

SEPTEMBER 2014

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1.0 INTRODUCTION

1.1 Scope

URS has been tasked to design the remediation for the Cold Spring Former MGP site under Work Assignment Number D007622-12 by the New York Department of Environmental Conservation (NYSDEC). The February 2010 Record of Decision (ROD) for the site states that the remedial program should include pre-design investigations (PDIs) as necessary to confirm site conditions. Figure 1 shows the existing site conditions.

One PDI was performed in October 2013. In February 2014, URS provided the NYSDEC with a pre-design investigation report (PDIR) detailing results of that investigation that pertain to the required extent of excavation and the location of any buried MGP structures (gas holder and foundations).

This report presents the results of the second-round PDI, which results from a change in the scope of the design to now include demolition of the Boat House on the site. The objectives of this PDI are the following:

- To obtain information to redefine the required limits of excavation of the MGP contaminated soils that result from that increase in the extent of the remediation.
- To perform a geophysical investigation to help locate buried structures throughout the area of remedial excavation.
- To perform slug tests on the existing wells in order to estimate the hydraulic conductivity of the upper water-bearing strata.

This PDI included also the collection and analysis of geotechnical samples. The results of those analyses will be discussed in a separate report.

1.2 Soil Clean-up Objectives (SCOs)

The soil clean-up objectives (SCOs) identified in the ROD and as modified (described above), include the removal and off-site disposal of the following materials:

- Remaining buried MGP structures

- All soil under and east of the boat club building and south of New Street that
  - contains visible coal tar, or
  - is contaminated with 500 ppm or more total polycyclic aromatic hydrocarbons (PAHs).

The SCOs include also the removal, to the extent practicable, of soil that exceeds the restricted residential clean-up criteria of Part 375-6.

2.0 DESCRIPTION OF FIELD ACTIVITIES

Pre-design investigation activities discussed in this report include the following:

- Performance of a geophysical investigation to locate buried structures in the drilling and excavation area.
- Soil borings and collection of analytical samples to determine and refine the limits of excavation.
- Collection of an analytical sample for waste characterization.
- Slug testing of existing monitoring wells to determine the hydraulic properties of the water-bearing strata.

Field activity locations are shown on Figure 1. URS's field notes and selected photographs of investigation activities are contained in Appendices A and B.

2.1 Geophysical Investigation

On April 14, 2014, Radar Solutions Incorporated (RSI) of Waltham, Mass. performed a geophysical survey of the site. A detailed report of the results is included as Appendix D. The purpose of the survey was to identify underground obstructions and utilities that could interfere with the drilling program of this PDI, as well as with the subsequent remedial excavation.

The investigation was performed using ground-penetrating radar (GPR) and electro-magnetic induction (EMI).

In all, three areas were investigated: Area 1, which is an approximately 75 by 25 foot area located west of the boat house's reinforced concrete apron/patio; Area 2, which is located generally north of the boat house, in the parking lot area, and immediately adjacent to New Street; and Area 3, an approximate 75 by 90 foot area located immediately east of the building, in the east parking lot. These areas are shown on Figure 1.

2.2 Collection of Analytical Samples

Between April 14, 2014 and April 28, 2014, site drilling activities were conducted by Associated Environmental Services, Ltd., under contract to NYSDEC call-out contractor EnviroTrac, Ltd. Seventeen borings were completed using a track-mounted Geoprobe® 7782 DT. Field activities were supervised full-time by a URS geologist.

Logs of the completed borings are contained in Appendix C.

A total of twenty samples (plus one field duplicate) were collected from 14 of those borings. The samples were sent to Test America Laboratories, Inc., a NYSDEC Call-Out Laboratory, for analysis for MGP-related contaminants [i.e., benzene, toluene, ethyl benzene, xylene (BTEX) and polycyclic aromatic hydrocarbons (PAHs)]. BTEX was analyzed according to Method 8260C and PAHs were analyzed according to Method 8270D.

Boring locations were recorded by URS using a hand-held Trimble GeoXH global positioning system unit.

2.3 Waste Characterization Sample

On April 16, 2014, one soil sample was collected from boring WC for analysis for waste characterization parameters. The boring log is included in Appendix C. The boring was located in a suspected contamination source area. At that location, the sample was collected from the interval from 5 to 6 feet below grade, which exhibited dark brown to black color and a coal tar odor.

2.4 Slug Testing

Between April 14 and April 18, 2014, URS slug-tested 6 of the monitoring wells on site: GW 1 through GW-5, installed in 2008 by Dvirka and Bartilucci; and MW-A, installed within the Boat House in 2012 by Groundwater and Environmental Services, Inc. (GES). Two additional wells were identified in the scope of work for this PDI, but were not tested. MW-B, located inside the boat house, did not have sufficient depth of water for testing, and MW-1, located just north of the boat house, was too narrow (¾-inch diameter) for testing.

The slug tests were performed as both rising- and falling-head tests. Data was collected using a Rugged Reader® hand-held data logger, with Win-Situ Mobile software and an In-Situ Level Troll 700® pressure

transducer. After opening the well and collecting the depth to water and depth to bottom, a solid 1.50-inch diameter, 2-foot long slug was positioned just above the water table. For the falling head test, the slug was smoothly and rapidly lowered to a depth below the original water table. After the water table returned to static level, the slug was removed for the rising head test. The test was considered complete after the water reached static level again.

3.0 RESULTS OF FIELD ACTIVITIES

3.1 Soil Analytical Results for Contamination Delineation

Twenty soil samples were collected for chemical analysis from the 14 locations shown on Figure 1. A summary of the borings and sampled intervals is presented in Table 1. The soil clean-up objectives (SCOs) for this project are detailed in Section 1.2 of this PDIR.

Table 1

Soil Boring and Sampling Results Summary

Boring Identifier	Total Depth of Completed Boring (ft. below grade)	Sampled Intervals (ft. below grade)	Project Soil Cleanup Objectives (SCOs)			Exceeds SCOs?
			Exceedance of 6 NYCRR 375.6 Criteria?	Greater than 500 ppm Total PAHs?	Visual Evidence of Coal Tar?	
GP-1	6.5	5 to 6.5	Yes	no	no	Yes
GP-2	5.8	5 to 5.4	Yes	no	no	Yes
GP-3	5.9	0.5 to 2	Yes	no	no	Yes
GP-3B	20.2	11 to 12	no	no	no	no
GP-4B	29.0	10 to 11 12 to 13	no no	no no	Black stain, Blebs in water	Yes
GP-5	11.0	6 to 7 10 to 11	Yes Yes	Yes Yes	no	Yes
GP-6	25.0	10 to 11 12 to 13	no no	no no	no	no
GP-7	26.0	5 to 6	no	no	no	no
GP-8	10.0	6 to 7	Yes	Yes	no	Yes
GP-9	35.2	10 to 11 15 to 16	Yes no	no no	Blebs in water	Yes
GP-10	28.0	10 to 12 13 to 14	no no	no no	Blebs	Yes
GP-11	10.0	5 to 6	no	no	Blebs	Yes
GP-11C	25.0	10 to 12	Yes	no	no	no
GT-1	34.5	8 to 9 14 to 15	no no	no no	no	no

Appendix D presents the analytical results for the samples as compared to 6 NYCRR Subpart 375-6 Remedial Program Soil Cleanup Objectives for restricted residential use.

Figure 2 shows the results of the soil boring program as presented in Table 1. Figure 2 shows that there is a cluster of sample points that exceed SCOs at the southwest corner of the boat house. During this pre-design investigation, nearby residents informed URS field personnel that oils had been stored and spilled in that general area.

Appendix E contains URS's Data Usability Summary Report (DUSR) for the analytical sample results.

3.2 Waste Characterization

As shown in Appendix D, sample WC did not exceed any of the RCRA Hazardous waste characteristics (corrosively, ignitability, reactivity, or TCLP).

3.3 Geophysical Investigation

A detailed report of the results of the geophysical results is included as Appendix F. The materials identified below grade, including 5 suspected buried pipes, utilities, and other structures, are shown on Figure 2.

The most significant result of this survey, however, is that the large ring foundation, determined in the Site Investigation/Remedial Alternatives Report (Dvirka and Bartilucci, 2009) to be in the northeast corner of the parking lot and partially on the adjacent residential property, was determined to be actually located approximately 35 feet southwest of that location. As a result, the small extension in the east (residential) limits of excavation, intended to encircle that foundation, is no longer necessary. The limits of excavation in that reach have been revised accordingly, as shown on Figure 2.

3.4 Slug Testing

The data collected during the slug testing of the 6 monitoring wells was analyzed using AQTESOLV ver. 3.50 software and the Bouwer and Rice method for unconfined aquifers. The coefficient of permeability was calculated for the upper strata of the site, above bedrock and any

confining clay layer. The results are presented in Table 2, and the calculations are contained in Appendix E.

Table 2

Slug Test Results

Well ID	Hydraulic Conductivity [cm/sec]					
	FH(1)	RH(2)	FH(1)	RH(2)	FH(1)	Geometric Mean
MW-A	$6.35x10^{-3}$	$5.73x10^{-3}$				$6.03x10^{-3}$
GW-01	$2.41x10^{-4}$	$2.11x10^{-4}$				$2.25x10^{-4}$
GW-02	$1.77x10^{-3}$	$1.22x10^{-3}$	$1.56x10^{-3}$	$1.47x10^{-3}$		$1.49x10^{-3}$
GW-03	$9.97x10^{-4}$	$1.27x10^{-3}$	$2.34x10^{-3}$	$1.72x10^{-3}$		$1.50x10^{-3}$
GW-04	$5.59x10^{-4}$	$5.59x10^{-4}$	$6.32x10^{-4}$		$4.49x10^{-4}$	$5.46x10^{-4}$
GW-05	$8.54x10^{-4}$	$2.12x10^{-3}$	$2.85x10^{-3}$	$3.11x10^{-3}$		$2.00x10^{-3}$

Notes:

(1) FH: Falling Head Test

(2) RH: Rising Head Test

3.5 Disposal of Investigation-Derived Waste (IDW)

This PDI generated 11 drums of drill cuttings and 2 drums of decontamination water. The NYSDEC call-out contractor responsible for the site, EnviroTrac, Ltd., facilitated the transportation and disposal of the IDW. On April 18th, 2014, they sampled the solid IDW for waste characterization parameters and polychlorinated biphenyls (PCBs). On April 29th, 2014, they sampled the liquid IDW for waste characterization parameters, PCBs, reactive cyanide, and mercury. The analyses were performed by Test America Laboratories, Inc.

On May 19, 2014, all 13 drums were removed from site and shipped to Republic Environmental Systems in Hatfield, PA.

Analytical results and transportation manifests are included in Appendix H.

4.0 DESIGN PARAMETERS

4.1 Waste Characterization

The results of the waste characterization of sample WC indicate that non-hazardous waste disposal facilities may be able to accept the soil excavated from the site.

4.2 Revised Limits of Excavation

This second round pre-design investigation has resulted in the following revisions to the limits of excavation presented in the previous PDI Soil Boring Program report (URS, Feb. 2014). The basis of these revisions can be seen on Figure 2.

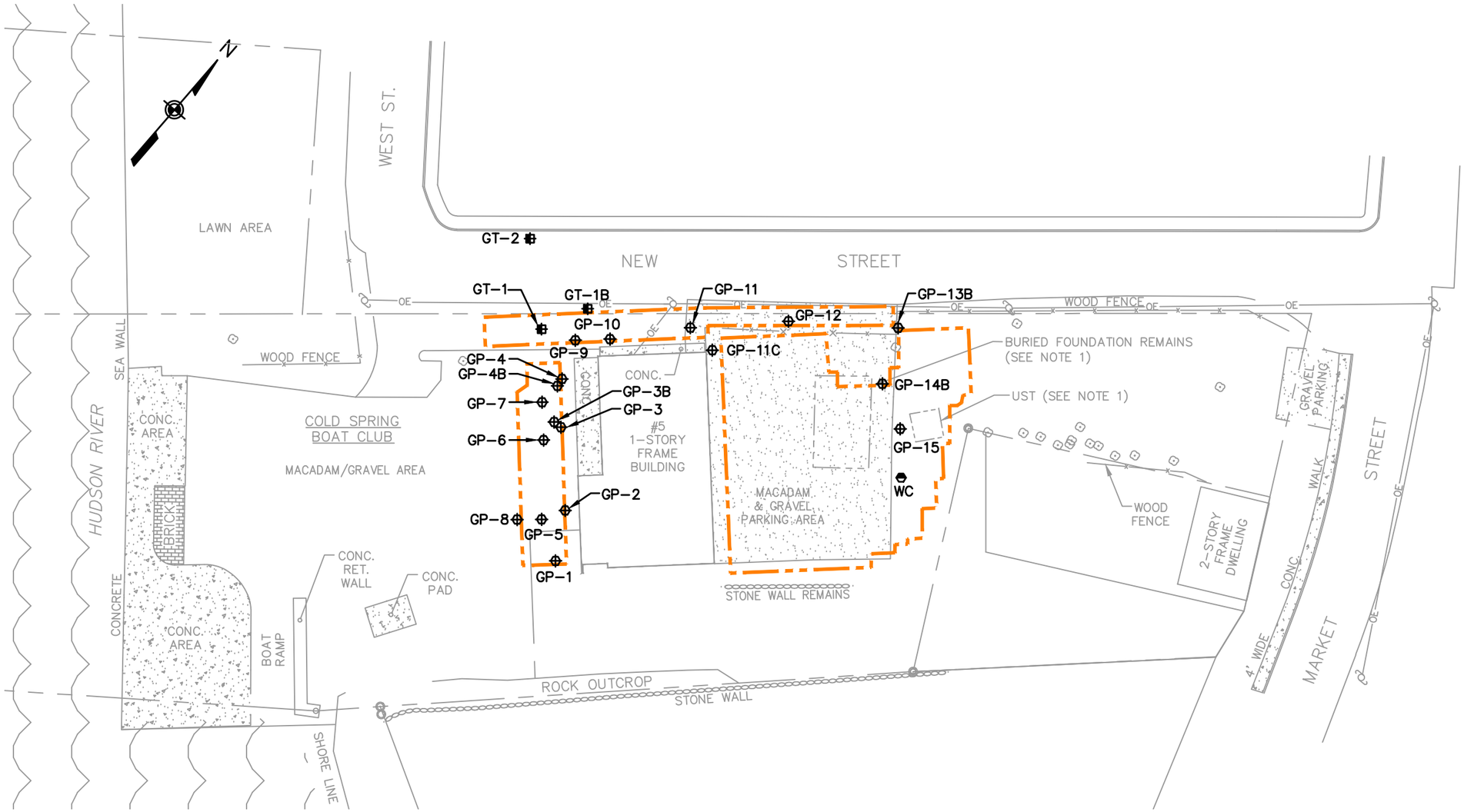
- North Side: Sample GP-9 showed exceedances of Commercial Re-Use criteria, total PAHs greater than 500 ppm, as well as visual evidence of coal tar. Sample GP-11 showed exceedances of unrestricted use criteria for VOCs.

  Since that wall of the excavation will likely be braced, so that post-excavation confirmatory samples will not be able to be collected, the limit of excavation along the northern boundary will be established close to the property line so as to capture as much as possible of any contamination that may be located to the north of boring GP-9. (Note that because that wall will be braced, the northern boundary of the excavation limits defined in the February 2104 URS report have been moved about 5 feet north, in line with the limit defined here. This will eliminate the "jog" in the wall that would have been necessary, as well as resulting in a more conservative design.)

- East Side: URS's geophysical survey has shown that the ring foundation for the large gas holder tank is located to the southwest of the location that has been shown in all previous reports. Thus, the small eastward extension ("jog") in the limits of excavation there (along which borings X-08 and X-09 from the URS October 2013 investigation are located), intended to encircle that foundation, is no longer necessary. The limits of excavation in that reach have been revised accordingly.

- South Side: The boundary of the excavation area along the south will extend to the outside edge of the Boat House foundation, beyond which a bedrock outcrop will prevent any further excavation.

- West Side: Samples GT-1, GP-6, and GP-7 bound the required limits of excavation along the northwest edge of the project. The southwest edge was not defined, however. Sample GP-8 shows exceedances of Commercial re-use criteria as well as concentrations of total PAHs in excess of 500 ppm. Thus the boundary of the excavation area is shown to allow a buffer on the outside of that boring, and attainment of clean-up objectives there will be confirmed during remediation by post-excavation samples.



LEGEND:

GP-1 ⊕	GENERAL BORING (URS 2014)
WC ◓	WASTE CHARACTERIZATION BORING (URS 2014)
GT-1 ⊕	GEOTECHNICAL BORING (URS 2014) AT WHICH CONTAMINATION DELINEATION SAMPLE COLLECTED (SEE NOTE 2)
	BOUNDARY OF GEOPHYSICAL INVESTIGATION (URS 2014)
	BURIED FOUNDATION REMAINS AND UST (SEE NOTE 1)

NOTES:

1. THE LOCATION OF THE BURIED FOUNDATION REMAINS AND UST ARE TAKEN FROM THE FINAL SITE INVESTIGATION/REMEDIAL ALTERNATIVES REPORT (DVIRKA AND BARTILUCCI, OCTOBER 2009)
2. THE RESULTS OF GEOTECHNICAL BORINGS AND BORINGS TO LOCATE THE TOP OF BEDROCK ARE DISCUSSED IN THE PREDESIGN GEOTECHNICAL SUMMARY REPORT (URS 2014)

40' 0 40'

SCALE IN FEET

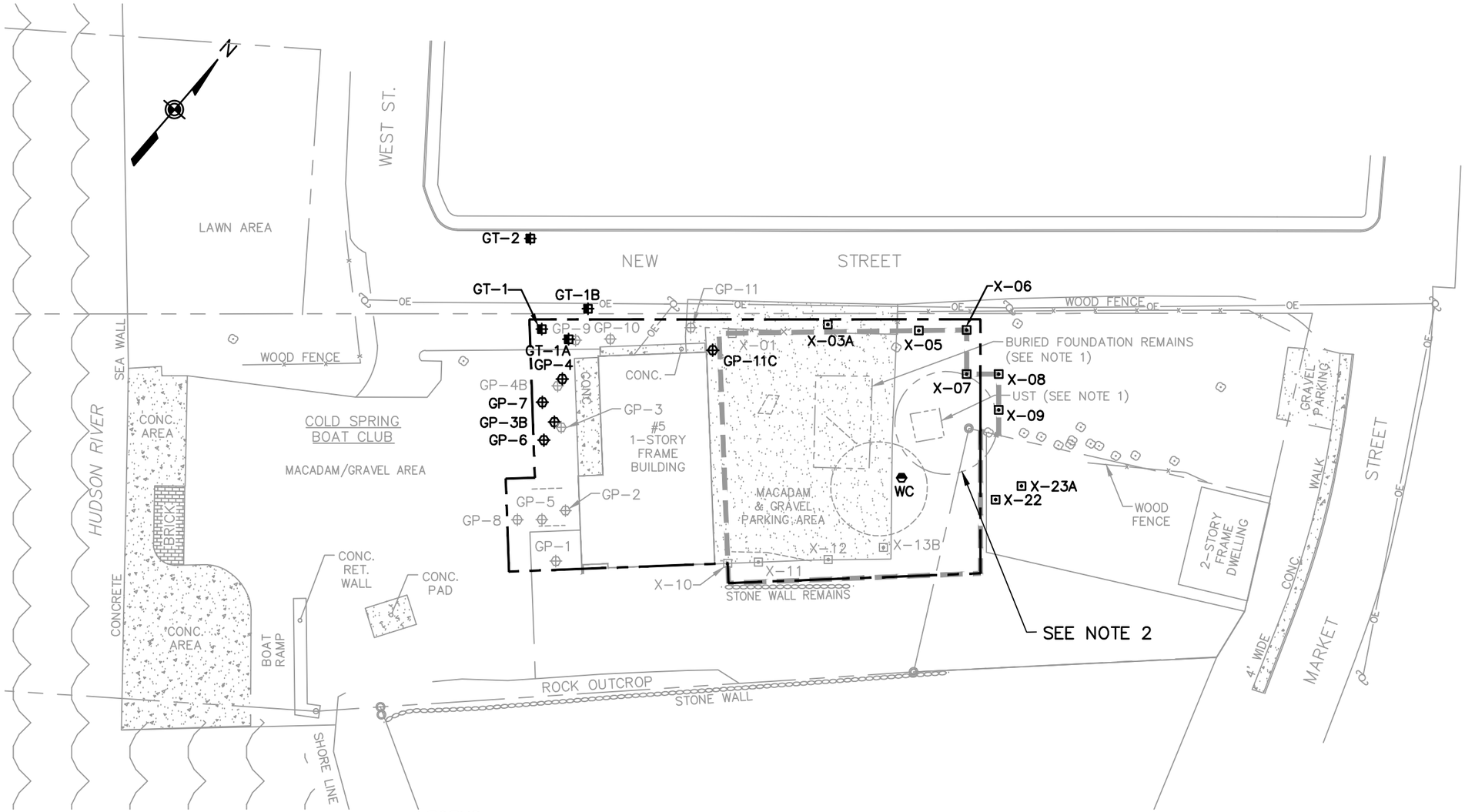
SOURCE:
DRAWING P-1001, DATED 9/11/08, PROVIDED BY WILLIAM D. YOUNGBLOOD, LAND SURVEYING, P.C.

URS 2014 SITE INVESTIGATION PLAN

URS

FIGURE 1

J:\Projects\11176853\CAD\JULY 2014\FIGURE 1.dwg, 1:1, 7/31/2014, 1-JJS



LEGEND:

GP-1	CONTAMINATION DELINEATION BORING (URS JULY 2014) SHOWING EXCEEDANCE OF SCO'S
GP-6	CONTAMINATION DELINEATION BORING (URS JULY 2014) NOT SHOWING EXCEEDANCE OF SCO'S
X-10	CONTAMINATION DELINEATION BORING (URS 2013) SHOWING EXCEEDANCE OF SCO'S
X-05	CONTAMINATION DELINEATION BORING (URS 2013) NOT SHOWING EXCEEDANCE OF SCO'S
WC	WASTE CHARACTERIZATION BORING (URS JULY 2014)
GT-1	GEOTECHNICAL BORING AT WHICH CONTAMINATION DELINEATION SAMPLE WAS COLLECTED

	REVISED BOUNDARY OF REQUIRED EXCAVATION
	PREVIOUS BOUNDARY OF REQUIRED EXCAVATION (URS FEB. 2014)
	BURIED FOUNDATION REMAINS AND UST (SEE NOTE 1)
	SUSPECTED BURIED STRUCTURES/METAL UTILITIES BASED ON GEOPHYSICAL SURVEY RESULTS (URS JULY 2014)

NOTES:

1. THE LOCATION OF THE BURIED FOUNDATION REMAINS AND UST ARE TAKEN FROM THE FINAL SITE INVESTIGATION/REMEDIAL ALTERNATIVES REPORT (DVIRKA AND BARTILUCCI, OCTOBER 2009)
2. LOCATION OF GAS-HOLDER FOUNDATION SHOWN IN DVIRKA AND BARTILUCCI REPORT. THIS LOCATION VARIES FROM THE LOCATION DETERMINED BY CURRENT URS INVESTIGATION.

40' 0 40'

SCALE IN FEET

SOURCE:
DRAWING P-1001, DATED 9/11/08, PROVIDED BY WILLIAM D. YOUNGBLOOD, LAND SURVEYING, P.C.

PRE-DESIGN INVESTIGATION RESULTS
COLD SPRING FORMER MGP SITE

URS

FIGURE 2

J:\Projects\11176853\CAD\JULY 2014\FIGURE 2.dwg, 1:1, 9/5/2014, 1-JJS

APPENDIX A

URS FIELD NOTES

Location: Cold Spring, NY Date: 4/14/14

Project / Client: Cold Spring / NYSDEC

Weather - Sunny, 65°-70°

0700 - Tim Ifkovich (URS) onsite — onsite off: 1715

Personnel - Chuck Dusel (URS) 800 1715
Steven Sussman (EnviroTrak) 920 1630
Gavin Zollo (EnviroTrak) 920 1630
John Veiss (Associated) 830 1615
Kensley Norian (Associated) 850 1615
Doria (Radar Sol.) 730 1400

- TI begin to mark geoprobe locations will blend our original locations + locations requested by Vic Gautam (URS)
- EnviroTrac contracted Associated Drilling to perform the geoprobe & geotechnical boreholes on site.

0730 - Doria (Radar Solutions) onsite, will perform geophysical survey of work area w/ GPR + Magnetics (using Em-61)

0800 - Chuck Dusel (URS) onsite, review boring locations

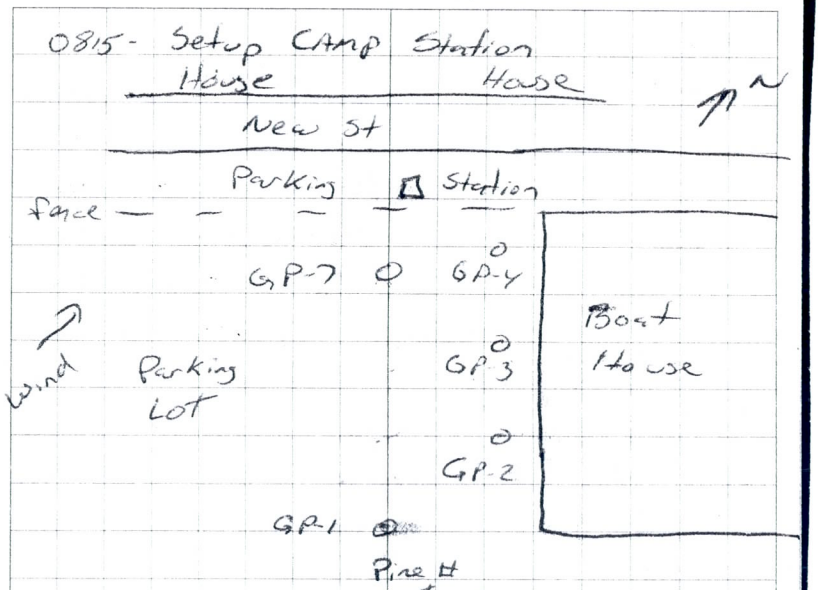
- Calibrate PID meters, MultiRAE Plus

#10324 PID — Gas (Isobutylene) - 100ppm Actual - 99.3
#05359 PID — Gas (Isobutylene) - 100pp Actual - 98.7
#022729 MultiRAE Plus — CO (50) 49 — H_2S (10ppm) 10 — LEL (50%) 49 — VOC (CO) 99 — O_2 (18%) 18.2%

Location: Cold Spring, NY Date: 4/14/14

Project / Client: Cold Spring NYSDEC

0815 - Setup CAMP Station



CAMP Station - PID - ~~South~~ 05359 Pine St
DustTrak - ~~South~~ 17784

845 - Associated Drilling onsite
- John Veiss + Kensley Norian
- go over scope of work

~~0900~~ 0920 - EnviroTrac onsite
Steve Sussman + Gavin Zollo
- went over scope, EnviroTrac was under the impression they were hand clearing all geoprobe points
- told them there was no hand clearing

Location Cold Spring, NY Date 4/14/14

Project / Client Cold Spring NYSDEC

at any locations

930 - Held Tailgate safety meeting w/ Associated & EnviroTrac

945 - Start to geoprobe @ GP-1, drillers using 7822 DT Geoprobe Rig, EnviroTrac is in charge of IDW, URS will collect samples from select geoprobe locations for MGP contamination & also look for depth to clay & Bedrock.

1000 - Breathing zone ok (GP-1)
- collected sample @ GP-1 (5-6.5')
Refusal @ 6.5, no clay

1020 - GP-2 Breathing zone ok
- collected sample @ GP-2 (5-5.4)
Refusal @ 5'9", no clay

1030 - GP-3, hit refusal @ 5'10"
collected sample @ GP-3 (0.5-2')
- moved 1' west of original location & hit refusal @ 7'9" (GP-3A)

1045 - Geoprobing stopped, EnviroTrac saying its their policy to hand clear all locations.
- Chuck on phone w/ NYSDEC - (Mike Mason, Dave Chiusano) & EnviroTrac

Location Cold Spring, NY Date 4/14/14

Project / Client Cold Spring NYSDEC

(Jeff Bohler) to discuss the need for hand clearing.

1200 - Daria continues to survey area, says GPR is not getting good penetration but Magnetic EM-61 is working good.

1205 - Continue drilling

1245 - Drilled GP-3B 2' N of GP-3A
- Refusal @ 20'3"
- silty clay 10-20'3"
- collected sample GP-3B (11-12)

1330 - Hit refusal @ GP-4 @ 8'3"
- moved 2'S & drove down to (GP-4A) bedrock @ 29.5', no samples collected

1400 - Daria offsite

1420 - Moved 1' west of GP-4A & drove down again, collecting samples
- hit refusal @ 29'
- silty clay 10-25'
- collected samples from 10-11 & 12-13'

1525 - collected sample @ GP-7 (5-6)

1530 - Chuck & Steve offsite to see building inspector in regards to location of geotechnical point (1) located on north side of New St. in sidewalk

Location Cold Spring, NY Date 4/14/14

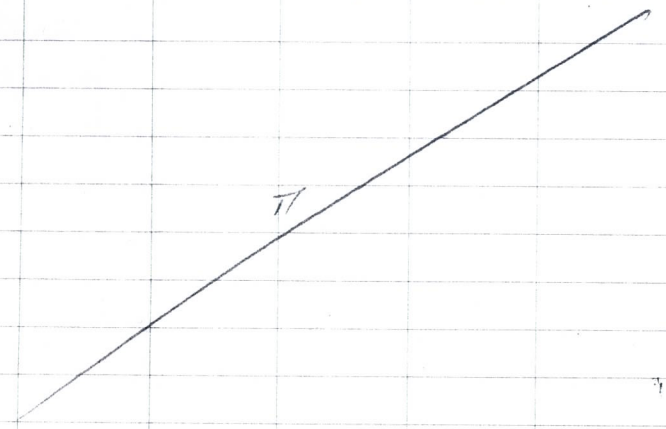
Project / Client Cold Spring NYSDEC

1600 - Drilled GP-7 to 26' (Refusal)
- silty clay 10-25' (No recovery 25-26')

1615 - Asso. offsite

1630 - CD + Steve return
- EnviroTrak offsite
- CD said that the grassy area is in a right-of-way + we will be use to drill there
- All geoprobe samples will be sent to TestAmerica for BTEX (8260C) PAH (8270D) + Moisture analysis

1700 - TI + CD offsite



Location Cold Spring, NY Date 4/15/14

Project / Client Cold Spring NYSDEC

Weather - Cloudy, Rainy ~60°

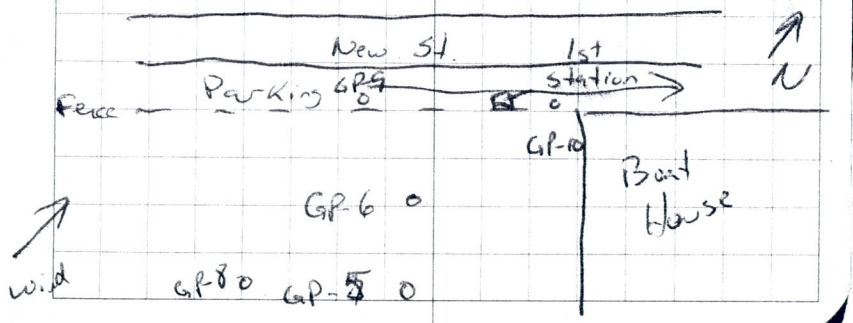
0700 - Tim Ikovich onsite -

Personnel		onsite	offsite
Chuck Dusel	- URS	900	1645
~~Steve Sussman~~ Victor CARDOZA	- EnviroTrac	730	1545
John Veiss	- Associated	800	1530
~~Kirsty Norien~~ Marty Amoscato	- Associated	800	1530

- Calibrate meters

		Cal Gas	Actual
#10324 PID		100ppm (Iso.)	99.6 ppm
#05359 PID		100 ppm (Iso.)	98.9 ppm
#02229 MultiRAE	CO	50 ppm	50 ppm
	LEL	50%	48%
	O_2	18%	18.2%
	H_2S	10ppm	10ppm
	Isobutylene	100ppm	99ppm

0730 - Setup CAMP



Location Cold Spring, NY Date 4/15/14

Project / Client Cold Spring NYSDEC

CAMP Station - PID - Pine # - 05359
Dust Trak - Pine # - 17784

815 - Hold Tailgate safety meeting
825 - Begin drilling @ GP-6
840 - still having LAMP / Clear Sensor problems w/ the PIDs
- Dust Trak - 0.016 mg/m3
845 - Breathing Zone Clear
900 - Chuck Dusel onsite
930 - Drilled GP-6 to 25', but after going back down the hole, couldn't get past 23', something may have collapsed in the hole. CD said they are good + to move on.
- collected sample from 10-11' (slight sheen on water + slight pet. odor) + from 12-13'
- clay from 10-20'
1000 - Finished GP-5, Refusal @ 11' collected sample from 6-7 + 10-11. sheen + pet. odor from 6.5 7'
- move to GP-8
- CD spoke w/ Steve (Boat Dock) stated that sometimes guys

Location Cold Spring, NY Date 4/15/14

Project / Client Cold Spring NYSDEC

drain their outdrive from the boats in the area of GP-5 + GP-6
1025 - Finished GP-8, Refusal @ 10'
- Sheen + slight pet. odor from 6-7, more contamination from the boaters draining their out drives
- Drillers start to mix grout for boreholes in main lot in front of Boat House
1100 - Start GP-9
1200 - Lunch Break
1245 - Return to work
1320 - Finished GP-9
- Refusal @ 35' 3"
Collected samples from 10-11 + 15-16', Silty clay found 15-25'
1445 - Finish GP-10, Refusal @ 5' upon 1st attempt, moved 2' W, refusal @ 28' on 2nd attempt
- Collected samples @ 10-12 + 13-14
- silty clay 10-28'
1450 - Associated dropped off drill rig to use for the geotechnical pts.

Location Cold Spring, NY Date 4/15/14

Project / Client Cold Spring NYSDEC

- parked Rig in back lot

1530 - Associated off site

1545 - EnviroTrak offsite

- Prepare to perform slug tests on wells MW-A & MW-B inside the building

1645 - Finished the slug Test on MW-A

- There was insuffient head in MW-B & was unable to be tested

- offsite

Location Cold Spring, NY Date 4/15/14

Project / Client Cold Spring NYSDEC

Weather

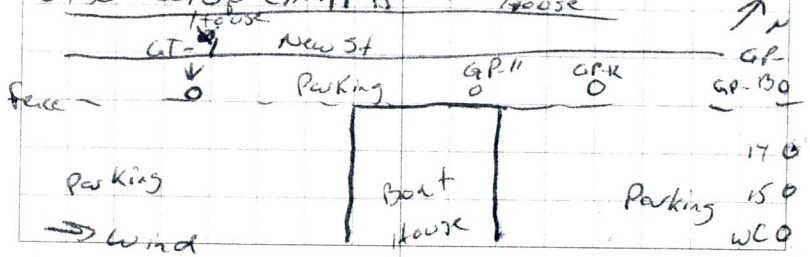
0700 - Tim Ifflander onsite

Personnel	onsite	offsite
Chuck Dusel - URS	820	1900
Victor Cardoza - EnviroTrac	730	1630
Jon Weiss - Associated	800	1600
Samuel Martinez - Asso.	800	1600
Kesley Norian - Asso.	800	1600
Ryan Jensen - Asso.	800	1600
Marty Anoscato - Asso.	800	1600

- Calibrate Meters

		Cal Gas	Actual
#10324	PID	100 ppm (I_{so})	98.8 ppm
#05359	PID	100 ppm (I_{so})	99.3 ppm
#022729	MultiRAE	CO 50 ppm	45 ppm
		LEL 50%	50%
		O_2 18%	18.2%
		H_2S 10 ppm	9 ppm
		I_{so} 100 ppm	99 ppm

0730 - Setup CAMP



Location Cold Spring, NY Date 4/16/14

Project / Client Cold Spring NYSDEC

CAMP station - Pine # 03359 - PID
Pine # 17784 - Dust Trak

0730 - Victor Cookson onsite - EnviroTrac

800 - Drillers onsite, Held Tailgate safety meeting, Geoprobe will continue environmental sampling @ GP-11 & bedrock boreholes. Drill Rig will use 4¼ HSA to perform geotechnical drilling @ GT-1. UFS communicated w/ Associated last weekend & told them to bring equipment for ~~mud rotary~~ (mud Tub + wash T) & to collect a rock core (NX size), however, the drillers did not bring that equipment

830 - Geoprobe starts sampling @ GP-11, Rig (Dietrich D-120) begins to setup on GT-1 on the south side of New St

- Victor & Kensley begin to hand clear GT-2

920 - GT-2 was hand cleared to 48", water kept collapsing the hole, CD said to stop @ 48".

925 - Geoprobe rods were getting kinked by a boulder @ 10' @ GP-11, will move 2' west

948 - Geoprobe hit refusal @ GP-11A @ 5', will move 2' west & 1' north

950 - Drill Rig drilled to 8', collected SS to 8'

Location Cold Spring, NY Date 4/16/14

Project / Client Cold Spring NYSDEC

- for Geotech borings, will collect continuous SS samples from 0-20' then every 5' thereafter.

1000 - Hit refusal @ GP-11B @ 7', move 3' east & 1' south of original location - collected sample from GT-1 from 8-9' for analysis (BTEX, Moisture, PAH)

1017 - Drill rig is having problems w/ heaving in the bore hole, borehole keeps collapsing & filling in, Drillers keep trying to clean out borehole w/ water

1007 - Collected sample @ GP-11B from (5-6')

1030 - collected sample @ GP-11C from (10-12') collected Field Duplicate @ GP-11C from 10-12', FD-041614 ☆

1100 - Geoprobe lost Macrocore sampler at GP-11C @ 20-25', will move on to bedrock boreholes that do not require sampling.

1130 - Drill Rig crew is mixing Revert to try & seal the hole to keep it from collapsing.

Location Cold Spring, NY Date 4/16/14

Project / Client Cold Spring NYSDEC

1135- Geoprobe hit refusal @ GP-12 @ 25'6"

1205- Hit refusal @ GP-13 @ 6'6" will move 2' west.

1215- Hit refusal @ 7' @ GP-13A, will move 2' E of original location

1230- GP-13B - Hit refusal @ 9'6", will move 1's into hole previously drilled for SB-05 (Refusal @ 13C @ 4'), stopped & move to GP-14

1223 - collected sample from GT-1 from 14-15' for analysis

1306 - Hit refusal @ GP-14 @ 5', will move 3' west

1316 - Hit refusal @ GP-14A @ 7'6", will move 3' west

1330- Hit refusal @ GP-14B @ 10'4", will move to GP-15

1355- Hit refusal @ GP-15 @ 11', will move 3' W

1415- Hit refusal @ GP-15A @ 9', will move to Waste Characterization borehole

- Drill Rig hit Bedrock refusal @ GT-1 @ ~34.5', found silty clay from 14-27'

Location Cold Spring, NY Date 4/16/14

Project / Client Cold Spring NYSDEC

1418- TI & CD called Vic Gatan of URS in Cleveland (Geotechnical engineer) to describe the borehole, Vic would like to drill another borehole 5' from GT-1 & collect Shelby Tubes from 16-18 & 22-24', we need at least 18" recovery

1430- Crew starts to grout GT-1

1445- Collected a Waste Characterization sample from 5-6' in the WC borehole, Probe crew used dual Tube liners to collect the sample, sample will be analyzed for TCLP VOCs, Semi, Metals, PCBs, Cyanide, Sulfide, Pest, Herb. (all TCLP RCRA), however limited volume was collected.

- All samples (Environmental, Waste Char., & ~~Drum ID~~) will be brought back to Buffalo by URS, including the Shelby Tubes.

1600- Crew members finished grouting & patching all Geoprobe boreholes & GT-1

- Asso. offsite

1630- EnviroTrak offsite, cont. slug Testing

Location Cold Spring, NY Date 4/17/14

Project / Client Cold Spring NYSDEC

Weather - Sunny ~50°

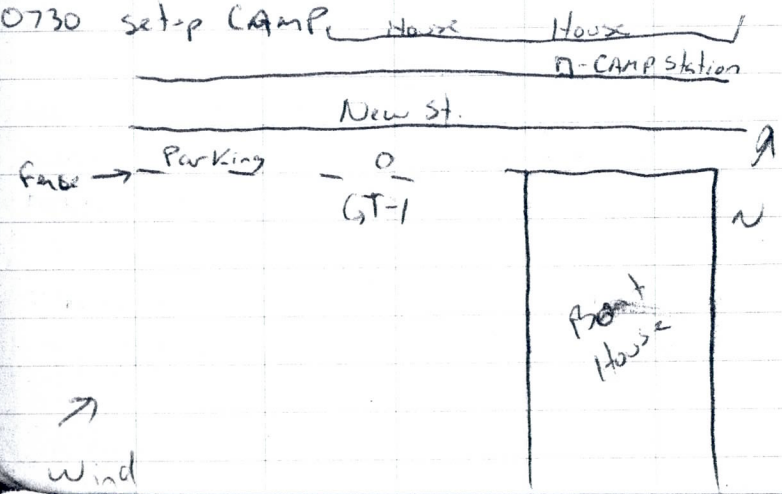
0700 - Tim Ifkovich onsite

Personnel		Onsite	offsite
Victor Cardoza	- EnviroTrak	730	
Ryan Jensen	- Associated	800	
Marty Anosanto	- Associated	800	

- Calibrate Meters

		Cal Gas	Actual
# 10324 PID		100 ppm (Iso)	98.3
# 053559 PID		100 ppm (Iso)	99.5
# 022729 MultiRAE	CO	50 ppm	49 ppm
	LEL	50%	49%
	O_2	18%	18.3%
	H_2S	10 ppm	9 ppm
	Iso.	100 ppm	100 ppm

0730 set-up CAMP



Location Cold Spring, NY Date 4/17/14

Project / Client Cold Spring NYSDEC

CAMP Station - PID Pine # 053559
Dust Trak # 17784

0800 - Associated onsite (Ryan, Marty)

0730 - EnviroTrac Onsite (Victor)

- Start running Slug Tests for on site wells
- Held Tailgate safety meeting
- 815 - Drillers brought equipment (mud tub + weight) for Mud Drilling & rock coring
- Drillers begin to setup on GT-1(ST) ~5' east of original GT-1 location

915 - Drillers begin to drill @ GT-1 (ST)

930 - At ~10' Augers are hitting Boulders & pushing the augers to the side. Will have to move 5' away to try again

- Victor begins Landeleaving 2nd hole for GT-2

1000 - Rig moved 5' E (10' from original GT-1)

- Due to using the mud tub, Driller said he couldn't get to close to other hole because it may come up through other hole
- Beg in drilling again.

Location Cold Spring, NY Date 4/17/14

Project / Client Cold Spring NYSDEC

1050- Drillers drilled to 10' & set casing to 10', set up mud tub and are now mixing mud w/ the water for seal

1200 - Samuel Martinez (Asso.) onsite to help

- Talked w/ Scott McCabe (URS) about progress of drilling, Scott will talk to John (Associated) to discuss how to speed up drilling

-lunch break

1230- Return to work

- Driller said that using Augers to act as casing for coring would not work because they would not be able to hold a seal & water would run up to ground surface

- will continue to use mud rotary

- Victor will collect a sample for IDW from the drums & send it to Test America for analysis

1307 - Asso. starts to drive 1st Shelby from 16-18'

1340- D.d not get any recovery on 1st Shelby

- instructed the driller to try again 18-20'

1410- Drove down to 18' & pushed a Shelby from 18-20'

Location Cold Spring, NY Date 4/17/14

Project / Client Cold Spring NYSDEC

1440 - Pulled out the Shelby Tube from 18-20' but had No Recovery

- Spoke w/ S. McCabe, C. Dusel, & Vic Gautam (URS-Cleveland) Vic stated to try again @ 20-22', asked if the drillers had a piston sampler but Ryan wasn't sure if they did or not.

1515- Drillers try pushing another Shelby from 20-22'

1550- Pulled up ~~2nd~~ 3rd attempt at Shelby Tube from 20-22', got 7" of recovery, not enough for geotechnical test

- Ryan said they will borrow a piston sampler for tomorrow

1615 - Drillers cleaned up, will leave Rig on current hole.

- TI continue to slug test

1630- Victor offsite

1730- TI off site

(TI)

Location Cold Spring, NY Date 4/18/14

Project / Client Cold Spring NYSDEC

Weather - Partly Sunny, 55°

0700 - Tim Ilkovich onsite

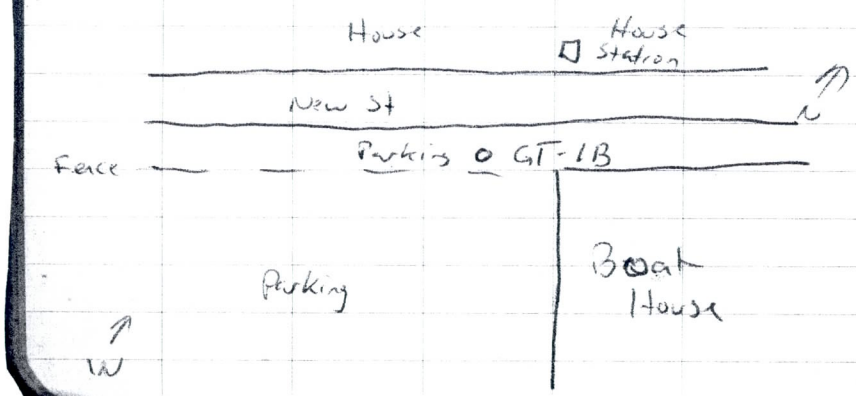
Personel		onsite	offsite
Steven Smith	- EnviroTrak	730	1815
Ryan Jasen	- Associated	0800	1815
Marty Amoscato	- Associated	0800	1815

- Calibrate Meters

	Calibrate	Actual
#05359 PID	100 ppm (Iso)	99.1 ppm
#022729 Mult. RAE	CO 50 ppm	50 ppm
	LEL 50%	49%
	O_2 18%	17.9%
	H_2S 10 ppm	10 ppm
	Iso 100 ppm	100 ppm

0730 - EnviroTrak onsite - Steven Smith

- setup CAMP PID-05359, DustTrak - 17784



Location Cold Spring, NY Date 4/18/14

Project / Client Cold Spring NYSDEC

- stopped slug test GW-03-TIDAL that was run overnight @ GW-03 to see tidal influence, will continue slug tests throughout the day

0800 - Associated onsite
- Ryan Jeisen, Marty Amoscato

820 - Pro River arrives onsite w/ the Piston Sampler, Lawrence Moreth. & Lawrence P. Moreth. (Jr. & Sr.)

851 - Lawrence had drillers put in 5' more ft of casing to seal it down to clay

921 - Drillers drilled to 22', will now attempt a Shelby Tube w/ the Piston Sampler from 22'-24'

- Lawrence Sr. doesn't think the Sampler will work, he believes the clay is to soft & moist to stay in the sampler

1030 - 2nd attempt using Piston Sampler, Piston was pushed ~7" but no material was in the shelby

- Participated in a conference call w/ Chuck Dusel, Scott McCabe, Dave Chiusano & Jeff Bohler

Location Cold Spring, NY Date 4/18/14

Project / Client Cold Spring NYSDEC

about the progress of the project. URS, EnviroTrac & Associated will discuss how to move forward to collect the geotechnical samples

1035 - 4th attempt @ pushing a Shelby Tube w/o using the piston sampler (22-24')

1110 - Pulled Shelby Tube from 22-24 & received No recovery

1120 - Spoke w/ Chuck & Scott, will drill forward to bedrock & set casing to begin coring. Would like a 10' core sample.

1227 - Drilled to bedrock @ GT-1B @ 27.5'

- The label on the rock core box is rubbed off (N-series) 3" OD & 2" ID

1302 - Driller set casing to 27.5' & began to rock core

1359 - Cored to 32.5' (5' into rock), very little water loss, seemed to get soft the last ~2"

1455 - Restart 2nd run from ~32.5-37.5'

1527 - Finish 2nd run

Location Cold Spring, NY Date 4/18/14

Project / Client Cold Spring NYSDEC

Rock Core Notes 27.5 - 37.5'

Run 1 (GT-1B)

Time	Depth	
1302	Start (27.5')	
1312	1' (28.5')	
1324	2' (29.5')	1341 - Stop to add 2' rod
1335	3' (30.5')	1344 - Resume
1350	4' (31.5')	
1359	5' (32.5')	

Little to no water loss occurred while coring the 1st 5' Run, seemed to get soft ~4.8' (32.3') w/ a little water loss from 4.8-5' (32.3-32.5')

- Pulled out Rock core - Recovery - 4.8' RQD - 4.8', solid granite w/ pink to green colors, (chlorite feldspar), ~~black~~ banding throughout (hornblende) (see photo 2091) No fractures

see next page for Run 2

TI

Location Cold Spring, NY Date 4/18/14

Project / Client Cold Spring NYSDEC

Rock Core Notes (32.5 - 37.5')
Run 2 (GT-1B)

Time	Depth	
1455	Restart @ 5' (32.5')	- losing a lot of water
1500	6' (33.5')	- Constant flow of water to mud tub
1510	7' (34.5')	- 1503 stop to add 5' Rod
1517	8' (35.5')	1505 - Resume
1524	9' (36.5')	
1527	10' (37.5')	

- Lost a lot of water during Run 2
  Approximately ~110 gals lost during 2nd run.

1600 - Pulled sample from coring bit
- Recovery - 3', RQD - 1.2'
  Sample came out in several chunks all < 4" except 1 section which measured 1.25'
- A total RQD of 6.05' for the 10' sample
- Same lithology as Run 1

1615 - Beg. in clean up

1815 - Area cleaned up, will leave drums & Rig in parking lot behind boathouse
- Tremied some grout/cement into bottom of borehole to seal fractures in rock

Location Cold Spring, NY Date 4/18/14

Project / Client Cold Spring NYSDEC

- ~~Filled borehole~~ (TT) Due to settling the hole will not be finished backfilling. Placed a bucket to act as a plug in the top of the borehole & placed a construction barrel w/ several weights over the hole. Caution tape was tied from the fence to the barrel & back to the fence.
- will return on 4/28/14 to finish drilling
- URS, Asso. - Enviro Trac - offsite
- Asked Steve from the Boathouse if we could leave the Rig in the back lot, said it belonged to the Hudson House, told drillers to contact them, left rig anyway (TT)

Location Cold Spring, NY Date 4/28/14

Project / Client Cold Spring NYSDEC

Weather- Sunny ~50°

0700- Tim Ifkovits (URS) onsite

Personnel		onsite	offsite
Bob Gimbel	EnviroTrac	0700	1615
Ryan Jensen	Associated	0820	1615
Marty Amoscato	Associated	0820	1615

0700- EnviroTrac onsite - Bob Gimbel

- Calibrate meters

		Cal Gas	Actual
#05359	PID	100 ppm (Isobutylene)	99.6 ppm
#10324	PID	100ppm	98.9 ppm
#022729	MultiRAE Plus	CO 50ppm	50 ppm
		LEL 50%	49%
		O_2 18%	18.3%
		H_2S 10ppm	10ppm
		Iso 100ppm	99 ppm

Dust Trak Calibration

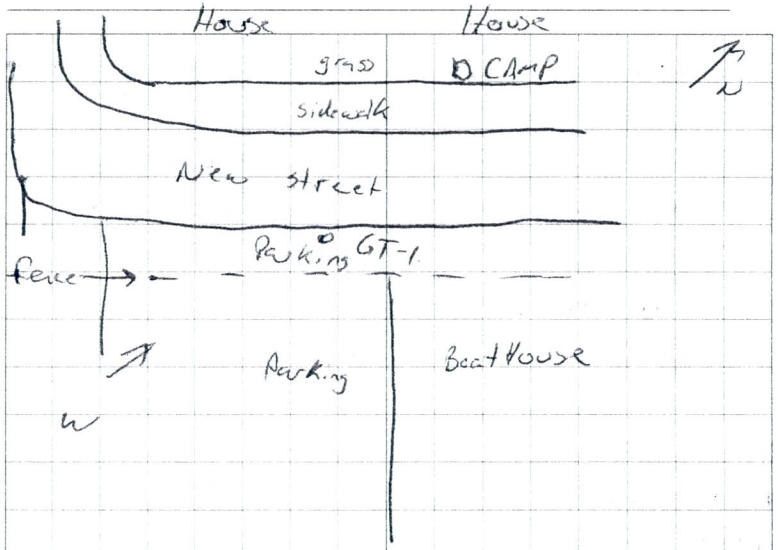
0730- Setup CAMP station

PID- # 05359

DustTrak- # 17784

Location Cold Spring, NY Date 4/28/14

Project / Client Cold Spring NYSDEC



- will try again to collect shelby tubes from the GT-1C area on the south side of New St.

0820- Associated arrives onsite
Ryan Jensen & Marty Amoscato
- Hold Tailgate Safety Meeting

0840- Drillers start setting up for another attempt @ setting a shelby @ GT-1C, will use 4¼ HSA & dr. 11 straight to 16' to attempt shelby

920- Picked up parking pass from Hudson House to give to Associated

Location Cold Spring, NY Date 4/28/14

Project / Client Cold spring NYSDEC

to put on their rig for parking in the back lot behind the boat house

925- Pro River - Lawrence Morethem onsite to drop off piston sampler

930 Pro River offsite

1006- GT-1C (3' east of GT-1), hit boulder @ 7', tried grinding through it but was unsuccessful, tried air rotary unsuccessful back to augers

1010- Move 2' west of GT-1 & try again.

1020- start GT-1D

1055- Drilled to 16' @ GT-1D, prep to send down shelby tube

1108- Pushed Shelby Tube from 16-18, will let it sit to swell inside tube

1129- start to pull up Shelby

1135- 1st attempt - 0 Recovery

1200- Pushed the Piston Sampler 18-20'

1226- Pulled up Piston Sampler

1255- No recovery on attempt w/ Piston Sampler - will try again from 20-22

1317- Spoke w/ Vic Gautam (URS- Cleveland) - suggested using a 3" spoon to clean out any residual over the last interval

Location Cold Spring, NY Date 4/28/14

Project / Client Cold Spring NYSDEC

& to bag it up. After the split spoon, will try to shelby again w/o the Piston sampler.

1400 - spoke w/ Vic Gautam, Chuck Dusel & Randy West on progress. Will keep trying shelby's followed by 3" split spoon, so if no recovery on shelby, should hopefully still get some sort of recovery from split spoon. Unsure as to why there is no recovery w/ shelby's

1410 - Pulled up 3" split spoon from 23-25' (Blow counts - 7, 8, 9, 10) (Blow counts for 21-23 - 9, 11, 7, 8) No Recovery

23-25' 8" Recovery, Pocket Penetrometer reading - 0.2 tons/sq ft, Gray Silty Clay wet - will collect any clay in SS in plastic bags / saran wrap as undisturbed as possible

1420 - Pushed Shelby Tube 25-27 & retracted w/o letting it sit, No Recovery

1435 - used 3" SS 25-27

1450 - 25-27 Blow counts 5-3-21-32

Rec - 2' Gray Silty Clay wet 25-26.6'

26.6-27' - Gray (f-m) S & gravel, wet

Pocket Penetrometer - 0.1 tons/sq ft

Location Cold Spring, NY Date 4/28/14

Project / Client Cold Spring NYSDEC

1500 ~~1600~~ - collected the 8" sample (23-25) & the 1.6' sample (25-27), wrapped them in plastic & duct taped the ends. reached the bottom of the clay Drillers will start cleaning up

1530 - Drillers grouted up boreholes, will top off w/ cold patch tomorrow

- Spoke w/ Chuck Dusel & Vic Grutan & left a message for Randy west, mentioned the samples collected from 23-25 & 25-27. Will try GT-2 tomorrow on north side of New St. In agreement w/ Vic, will collect continuous split spoon (2") samples from 4' to Clay (Hand cleared to 4'), when clay is found will try a Shelby tube, if Shelby's don't work, will try 3" split spoon to get clay samples, will also save some clay for additional geotechnical analysis

1616 - drillers off site, will consolidate some water from water drums into soil drums as per chuck dusel

1700 - TI offsite

Location Cold Spring, NY Date 4/29/14

Project / Client Cold Spring NYSDEC

Weather -

0700 - Tim Ifkovich onsite (URS)

Personnel		onsite	offsite
Bob Gimbel	EnviroTrac	700	
Ryan Jensen	Associated	815	
Marty Amoscato	Associated	815	

0700 - EnviroTrac onsite - Bob Gimbel

- Calibrate Meters

		Cal Gas	Actual
#05359	PID	100 ppm (Iso.)	99.2 ppm
#10324	PID	100 ppm	99.0 ppm
#022729	MultiRAE Plus	CO 50 ppm	49 ppm
		LEL 50%	49 %
		O_2 18%	18.2%
		H_2S 10 ppm	10 ppm
		Iso. 100 ppm	99 ppm

0730 - setup Camp Station

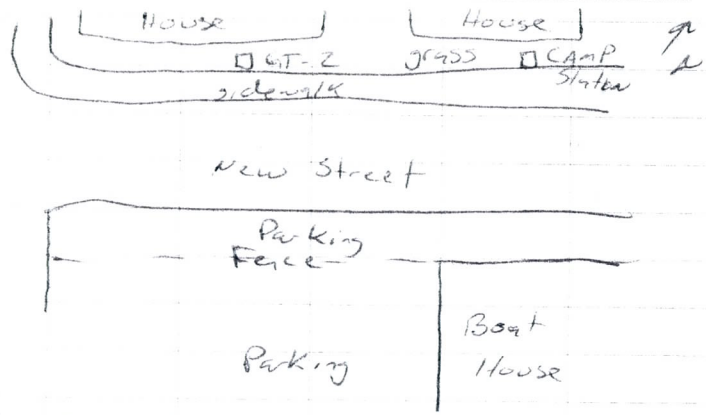
PID # 05359

Dust Trak # 17784

(TI)

Location Cold Spring, NY Date 4/29/14

Project / Client Cold Spring NYSDEC



815 - Associated onsite Ryan Jensen, Marty Amorato will move to GT-2 on north side of New St., & start split spoon sampling @ 4' (Hand cleared to 4')
- Held Tailgate safety meeting

850 - Drillers set up to Decon Augers in back parking lot

915 - Spoke w/ Chuck Duxl, there was to much Decon water to be able to mix it w/ the soil. Gave Bob Gimbel a cooler & sample bottles to collect a water sample from the drums for Analysis, told Bob to contact Jeff Bitter from EnviroTrac to update him & to have samples analyzed as soon as possible

1010 - Drillers set up on GT-2 & start drilling

Location Cold Spring, NY Date 4/29/14

Project / Client Cold Spring NYSDEC

1050 - The resident/owner of 112 West St. came over to ask why we were drilling in their yard. Gave her a description of the project and that Chuck & Steve Sossman (EnviroTrac) talked to a Town representative @ the Town Hall in Cold Spring on 4/14/14. This investigation showed that where we were drilling is part of a right-a-way and that the building was a Condo but the property belonged to the Condo Asso.. Emily stated that she owned the Condo & property land. I gave her the phone number for Chuck to discuss the situation.

1055 - An Enforcement officer (Joe Baldarza) from the Dept. of Consumer Affairs Weights and Measures Trades Licensing and Registration stop by asking if we were drilling for potable water. Explained the project that we will be excavating the Marina area & not drilling for potable water. Joe said we were good to go & left the site.

Location Cold Spring, NY Date 4/29/14

Project / Client Cold Spring NYSDEC

- Chuck spoke w/ Emily over the phone to explain that he spoke w/ the Town and we did not need a permit to drill in the right away. Showed Emily the Tax map to show the Block & Lot #'s she said there was a miscommunication & the Town did not advise her of the work being performed. Chuck also spoke w/ her regarding the Condo + Association. She asked how long we would be at that location for & asked if we could make sure it is cleaned up & restored when we were done. Chuck also gave her Dave Chessano's #.

1140 - Found silty clay @ GT-2 ~ 14', will push a Shelby Tube from 16-18'

1210 - Recovered Shelby from 16-18'
- 16" Rec., Pocket Pene - 0.4 tons/sq ft

1230 - Used wax, caps & duct tape to seal off the Shelby, will bring it back to Buffalo

1250 - Pushed another Shelby from 18-20
- Called Chuck, Rudy West & Vic Gaudian to update progress
- Shelby Tube is 3" Dia & 2.5' long

Location Cold Spring, NY Date 4/29/14

Project / Client Cold Spring NYSDEC

1320 - Recovered Shelby from 18-20'
13" Rec, Pocket Pene. - 0.4 tons/sq ft
- used wax, caps & duct tape to seal it off, stuffed empty void w/ paper to take up space

1330 - Drillers pushed another Shelby Tube from 20-22'

1400 - Recovered Shelby from 20-22'
27" Rec, Pocket Pene. - 0.3 tons/sq ft
- used wax, caps & duct tape to seal & stuffed void w/ paper

1420 - Pushed another Shelby 22-24'

1445 - Spoke w/ Chuck D. & Vic, agreed after we collect the 4th Shelby, we will begin to close up the hole, we will not drill to bedrock.

1450 - Recovered Shelby from 22-24'
9" Rec, Pocket Pene - 0.25 tons/sq ft
- Sealed w/ wax, caps & duct tape, used paper to fill void

1500 - Drillers start to clean up

1550 - Drillers start to grout GT-2
- Asked Bob if he was all set w/ the IDW water sampling

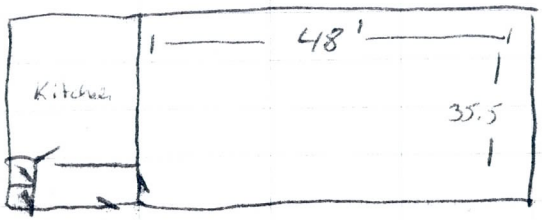
Location Cold Spring, NY Date 4/29/17

Project / Client Cold Spring NYSDEC

He said he was all set & that he spoke w/ Jeff Bohler, said he will send out the samples tomorrow

1645 - Drillers cleaned up site, grouted GT-2, Drillers will leave 2 bags of bentonite chips & 1 bag of CETCO Grout, I will return in the morning to top off the borehole and replace the grass patch that was removed.
- Drillers will return tomorrow around 1pm to pick up the drill rig
- Drillers & EnviroTrac offsite

1730 - Measured inside of Boathouse



~14' to the rafters

- also measured & sketched outside utilities as shown on figure
- 13 Drums Total onsite (10-solid, 3-liquid)
- TI offsite

Location Cold Spring, NY Date 4/30/17

Project / Client Cold Spring NYSDEC

Weather - Rain ~50°

0700 - Tim Ifkovich onsite
- will backfill remainder of borehole after settling from yesterday with CETCO Grout & Bentonite Chips leftover from the drillers & top it off with the grass plug that was originally cut out w/ a shovel

800 - Borehole GT-2 backfilled & covered w/ grass plug. Took Pics of area. Drillers will arrive around 1pm to pic up the drill Rig. EnviroTrac is responsible for the IDW pickup
- TI cleaned up area offsite to Buffalo

APPENDIX B

PDI PHOTOGRAPHS

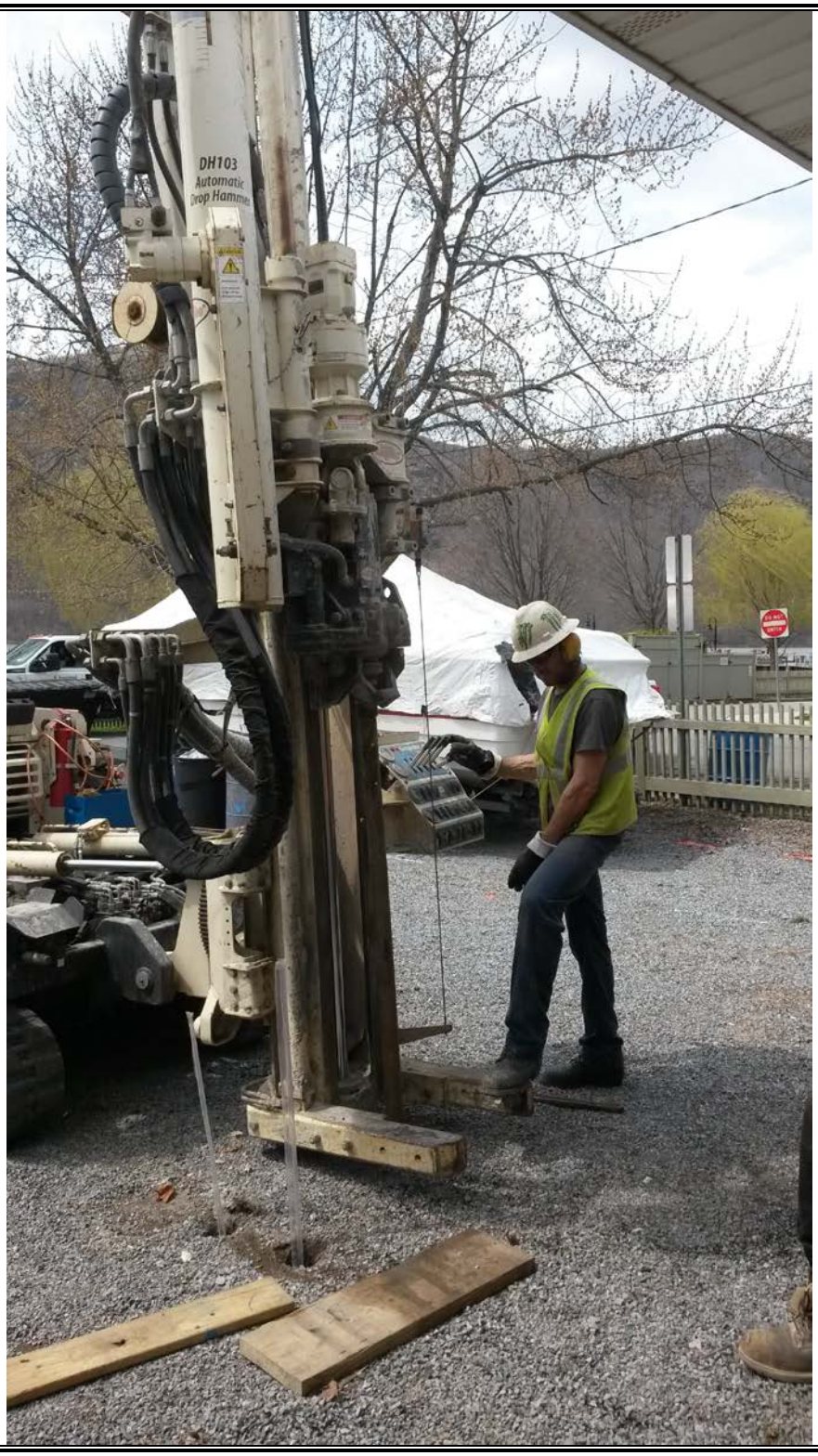


Photo 1: April 14, 2014 Geoprobe at GP-3.

Photo 2: April 14, 2014 Beginning of Geophysical Survey.

Photo 3: April 15, 2014 Geoprobe at GP-9.

Photo 4: April 16, 2014 Setting up to bore GT-1.

Photo 5: April 18, 2014 Drums stored alongside Boat House, also showing proximity of rock outcrop to the back of the Boat House..

Photo 6: April 29, 2014 View of the Boat House from the northwest.

Photo 7: April 29, 2014 Above-ground utilities in front of the Boat House.

APPENDIX C

BORING LOGS

URS Corporation

TEST BORING LOG

BORING NO. : GP-1

PROJECT/PROJECT LOCATION: Cold Spring Former MGP Site

SHEET: 1 OF 1

CLIENT: New York State Department of Environmental Conservation

JOB NO. : 11176853

BORING CONTRACTOR: Associated Environmental Services, LTD

NORTHING: 941001.593 **EASTING:** 640199.688

GROUNDWATER: Not Encountered

	CAS.	SAMPLER	CORE	TUBE
TYPE		Macrocore		
DIA.		2"		
WT.				
FALL				

* POCKET PENETROMETER READING

GROUND ELEVATION:

DATE STARTED: 4/14/2014

DATE FINISHED: 4/14/2014

DRILLER: J. Veiss

GEOLOGIST: T. Ifkovich

REVIEWED BY: K. Connare

DEPTH FEET	STRATA	SAMPLE NO.	SAMPLE BLOW COUNT	REC% / RQD%	COLOR	SOIL CONSISTENCY / ROCK HARDNESS	MATERIAL DESCRIPTION	USCS	PID	REMARKS
0		1		44	Brown to Gray		FILL: fine sand and gravel trace brick at 1.8' some dark brown fine sand from 1.9 to 2.2'	FILL	0.0	Moist
-5		2		87	Gray		FILL: fine sand, some gravel		121 93	
							Refusal at 6.5 ft bgs on presumed bedrock.			
-10										
-15										
-20										
-25										

COMMENTS: Boring advanced using a track-mounted 7782 DT Geoprobe rig with 5' long, 2" diameter Macrocore sampler. Collected sample from 5 to 6.5' bgs for BTEX, PAH, and Moisture analysis.

URS Corporation

TEST BORING LOG

BORING NO. : GP-2

PROJECT/PROJECT LOCATION: Cold Spring Former MGP Site

SHEET: 1 OF 1

CLIENT: New York State Department of Environmental Conservation

JOB NO. : 11176853

BORING CONTRACTOR: Associated Environmental Services, LTD

NORTHING: 941016.851 **EASTING:** 640190.888

GROUNDWATER: 5 ft bgs

DATE	TIME	LEVEL	TYPE	TYPE	CAS.	SAMPLER	CORE	TUBE
				DIA.		2"		
				WT.				
				FALL				
				* POCKET PENETROMETER READING				

GROUND ELEVATION:

DATE STARTED: 4/14/2014

DATE FINISHED: 4/14/2014

DRILLER: J. Veiss

GEOLOGIST: T. Ifkovich

REVIEWED BY: K. Connare

DEPTH FEET	STRATA	SAMPLE NO.	SAMPLE BLOW COUNT	REC% / RQD%	COLOR	SOIL CONSISTENCY / ROCK HARDNESS	MATERIAL DESCRIPTION	USCS	PID	REMARKS
0		1		32	Brn to Gray / Dk Brown		FILL: fine to medium sand and gravel, trace brick, trace shell fragments	FILL	0.0	Moist
									12.9	
-5		2		50	Gray		FILL: fine to medium sand, oily sheen on water		36.7	Wet
							Refusal at 5.8 ft bgs on presumed bedrock.			
-10										
-15										
-20										
-25										

COMMENTS: Boring advanced using a track-mounted 7782 DT Geoprobe rig with 5' long, 2" diameter Macrocore sampler. Collected sample from 5 to 5.4' bgs for BTEX, PAH, and Moisture analysis.

URS Corporation

TEST BORING LOG

BORING NO. : GP-3

PROJECT/PROJECT LOCATION: Cold Spring Former MGP Site

SHEET: 1 **OF** 1

CLIENT: New York State Department of Environmental Conservation

JOB NO. : 11176853

BORING CONTRACTOR: Associated Environmental Services, LTD

NORTHING: 941037.515 **EASTING:** 640171.119

GROUNDWATER: 1.5 ft bgs

GROUND ELEVATION:

DATE	TIME	LEVEL	TYPE	TYPE	CAS.	SAMPLER	CORE	TUBE
				DIA.		2"		
				WT.				
				FALL				
				* POCKET PENETROMETER READING				

DATE STARTED: 4/14/2014

DATE FINISHED: 4/14/2014

DRILLER: J. Veiss

GEOLOGIST: T. Ifkovich

REVIEWED BY: K. Connare

DEPTH FEET	STRATA	SAMPLE NO.	SAMPLE BLOW COUNT	REC% / RQD%	COLOR	SOIL CONSISTENCY / ROCK HARDNESS	MATERIAL DESCRIPTION	USCS	PID	REMARKS
0		1		44	Dk Brown to Gray		FILL: fine to medium sand, some gravel some brick from 0.9 to 1.1' some asphalt from 1.1 to 1.5'	FILL	607 419	Moist Wet
-5		2		89	Brown				427	
							Refusal at 5.9 ft bgs on presumed cobble.			
-10										
-15										
-20										
-25										

COMMENTS: Boring advanced using a track-mounted 7782 DT Geoprobe rig with 5' long, 2" diameter Macrocore sampler.
Collected sample from 0.5 to 2' bgs for BTEX, PAH, and Moisture analysis.

URS Corporation

TEST BORING LOG

BORING NO. : GP-3B

PROJECT/PROJECT LOCATION: Cold Spring Former MGP Site

SHEET: 1 **OF** 1

CLIENT: New York State Department of Environmental Conservation

JOB NO. : 11176853

BORING CONTRACTOR: Associated Environmental Services, LTD

NORTHING: 941037.355 **EASTING:** 640168.171

GROUNDWATER: 1.5 ft bgs

GROUND ELEVATION:

DATE	TIME	LEVEL	TYPE	TYPE	CAS.	SAMPLER	CORE	TUBE
				DIA.		2"		
				WT.				
				FALL				
				* POCKET PENETROMETER READING				

DATE STARTED: 4/14/2014

DATE FINISHED: 4/14/2014

DRILLER: J. Veiss

GEOLOGIST: T. Ifkovich

REVIEWED BY: K. Connare

DEPTH FEET	STRATA	SAMPLE NO.	SAMPLE BLOW COUNT	REC% / RQD%	COLOR	SOIL CONSISTENCY / ROCK HARDNESS	MATERIAL DESCRIPTION	USCS	PID	REMARKS
0		1		60	Gray / Black / Brown		FILL: fine to medium sand trace asphalt from 0.5 to 1.2'	FILL	0.0 3.6 0.0	Moist Wet
-5		2		40	Gray		Fine to medium SAND and GRAVEL	GW	0.0	
-10		3		66			Silty CLAY, trace gravel slight petroleum odor from 10 to 10.2' trace wood from 12 to 12.8'	CL	9.3 0.0	Moist
-15		4		86			trace wood at 16.5' trace wood at 19'		0.0	
-20							Refusal at 20.2 ft bgs on presumed bedrock.			
-25										

COMMENTS: Boring advanced using a track-mounted 7782 DT Geoprobe rig with 5' long, 2" diameter Macrocore sampler.
Collected sample from 11 to 12' bgs for BTEX, PAH, and Moisture analysis.

URS Corporation

TEST BORING LOG

BORING NO. : GP-4

PROJECT/PROJECT LOCATION: Cold Spring Former MGP Site

SHEET: 1 OF 1

CLIENT: New York State Department of Environmental Conservation

JOB NO. : 11176853

BORING CONTRACTOR: Associated Environmental Services, LTD

NORTHING: 941050.296 **EASTING:** 640160.562

GROUNDWATER: 1.5 ft bgs

DATE	TIME	LEVEL	TYPE	CAS.	SAMPLER	CORE	TUBE
			TYPE		Macrocore		
			DIA.		2"		
			WT.				
			FALL				
			* POCKET PENETROMETER READING				

GROUND ELEVATION:

DATE STARTED: 4/14/2014

DATE FINISHED: 4/14/2014

DRILLER: J. Veiss

GEOLOGIST: T. Ifkovich

REVIEWED BY: K. Connare

DEPTH FEET	STRATA	SAMPLE NO.	SAMPLE BLOW COUNT	REC% / RQD%	COLOR	SOIL CONSISTENCY / ROCK HARDNESS	MATERIAL DESCRIPTION	USCS	PID	REMARKS
0		1		50	Brown to Gray		FILL: fine to medium sand, some gravel, trace wood	FILL	0.0	Moist Wet
-5		2		63	Brown		Fine to coarse SAND	SW	0.0	
					Pink to White		Coarse SAND and GRAVEL	GP		
-10							Refusal at 8.2 ft bgs on presumed cobble.			
-15										
-20										
-25										

COMMENTS: Boring advanced using a track-mounted 7782 DT Geoprobe rig with 5' long, 2" diameter Macrocore sampler.

URS Corporation

TEST BORING LOG

BORING NO. : GP-4B

PROJECT/PROJECT LOCATION: Cold Spring Former MGP Site

SHEET: 1 **OF** 2

CLIENT: New York State Department of Environmental Conservation

JOB NO. : 11176853

BORING CONTRACTOR: Associated Environmental Services, LTD

NORTHING: 941047.470 **EASTING:** 640160.921

GROUNDWATER: 1.5 ft bgs

GROUND ELEVATION:

DATE	TIME	LEVEL	TYPE	TYPE	CAS.	SAMPLER	CORE	TUBE
				DIA.		2"		
				WT.				
				FALL				
				* POCKET PENETROMETER READING				

DATE STARTED: 4/14/2014

DATE FINISHED: 4/14/2014

DRILLER: J. Veiss

GEOLOGIST: T. Ifkovich

REVIEWED BY: K. Connare

DEPTH FEET	STRATA	SAMPLE NO.	SAMPLE BLOW COUNT	REC% / RQD%	COLOR	SOIL CONSISTENCY / ROCK HARDNESS	MATERIAL DESCRIPTION	USCS	PID	REMARKS
0							Boring advanced to 10' without sampling. 0-10' Stratigraphic profile previously descibed on log for boring GP-4.			Wet
-10		1		58	Gray		Silty CLAY, some wood from 10 to 10.3', some black staining and blebs on water from 10 to 11', sheen on water from 10 to 20'	CL	0.0	Wet Moist
-15		2		76					0.0	
-20		3		84					0.0	
-25							GRAVEL, some fine sand	GW		Wet

COMMENTS: Boring advanced using a track-mounted 7782 DT Geoprobe rig with 5' long, 2" diameter Macrocore sampler.
Collected sample from 10 to 11' and 12 to 13' bgs for BTEX, PAH, and Moisture analysis.

URS Corporation

TEST BORING LOG

BORING NO. : GP-4B

PROJECT: Cold Spring Former MGP Site

SHEET: 2 OF 2

CLIENT: New York State Department of Environmental Conservation

JOB NO. :11176853

DEPTH FEET	STRATA	SAMPLE NO.	SAMPLE BLOW COUNT	REC % / RQD %	COLOR	SOIL CONSISTENCY / ROCK HARDNESS	MATERIAL DESCRIPTION	USCS	PID	REMARKS
		4		43			Fine to medium SAND, some gravel	SP	0.0	
-30							Refusal at 29 ft bgs on presumed bedrock.			
-35										
-40										
-45										
-50										
-55										

COMMENTS: Boring advanced using a track-mounted 7782 DT Geoprobe rig with 5' long, 2" diameter Macrocore sampler.
Collected sample from 10 to 11' and 12 to 13' bgs for BTEX, PAH, and Moisture analysis.

URS Corporation

TEST BORING LOG

BORING NO. : GP-5

PROJECT/PROJECT LOCATION: Cold Spring Former MGP Site

SHEET: 1 OF 1

CLIENT: New York State Department of Environmental Conservation

JOB NO. : 11176853

BORING CONTRACTOR: Associated Environmental Services, LTD

NORTHING: 941009.256 **EASTING:** 640186.769

GROUNDWATER: 5 ft bgs

GROUND ELEVATION:

DATE	TIME	LEVEL	TYPE	TYPE	CAS.	SAMPLER	CORE	TUBE
						Macrocore		
				DIA.		2"		
				WT.				
				FALL				
				* POCKET PENETROMETER READING				

DATE STARTED: 4/15/2014

DATE FINISHED: 4/15/2014

DRILLER: J. Veiss

GEOLOGIST: T. Ifkovich

REVIEWED BY: K. Connare

DEPTH FEET	STRATA	SAMPLE NO.	SAMPLE BLOW COUNT	REC% / RQD%	COLOR	SOIL CONSISTENCY / ROCK HARDNESS	MATERIAL DESCRIPTION	USCS	PID	REMARKS
0		1		34	Brown to Dk Brown		FILL: fine to medium sand, some gravel trace asphalt and brick from 1 to 1.2'	FILL	0.0	Moist
-5		2		48	Brown to Gray / Black / Gray		Fine to medium SAND and GRAVEL, sheen on water from 6.5 to 7' with slight petroleum odor	GW	0.0	Wet
-10		3		100	Brown				0.0	
-15							Refusal at 11 ft bgs on presumed bedrock.			
-20										
-25										

COMMENTS: Boring advanced using a track-mounted 7782 DT Geoprobe rig with 5' long, 2" diameter Macrocore sampler. Collected sample from 6 to 7' and 10 to 11' bgs for BTEX, PAH, and Moisture analysis.

URS Corporation

TEST BORING LOG

BORING NO. : GP-6

PROJECT/PROJECT LOCATION: Cold Spring Former MGP Site

SHEET: 1 OF 1

CLIENT: New York State Department of Environmental Conservation

JOB NO. : 11176853

BORING CONTRACTOR: Associated Environmental Services, LTD

NORTHING: 941030.306 **EASTING:** 640169.489

GROUNDWATER: 5 ft bgs

GROUND ELEVATION:

DATE	TIME	LEVEL	TYPE	TYPE	CAS.	SAMPLER	CORE	TUBE
				DIA.		2"		
				WT.				
				FALL				
				* POCKET PENETROMETER READING				

DATE STARTED: 4/15/2014

DATE FINISHED: 4/15/2014

DRILLER: J. Veiss

GEOLOGIST: T. Ifkovich

REVIEWED BY: K. Connare

DEPTH FEET	STRATA	SAMPLE NO.	SAMPLE BLOW COUNT	REC% / RQD%	COLOR	SOIL CONSISTENCY / ROCK HARDNESS	MATERIAL DESCRIPTION	USCS	PID	REMARKS
0		1		18	Brown		FILL: fine to medium sand, some gravel	FILL	0.0	Moist
-5		2		24			Fine to medium SAND and GRAVEL	GW	0.0	Wet
-10		3		76	Gray		Silty CLAY, slight sheen on water, petroleum odor from 10 to 11' little wood from 11.2 to 11.3' and 12.3'	CL	0.0	Moist *PP - 0.75 tons/sq ft
-15		4		92			some medium sand and gravel from 18 to 18.2'		0.0	*PP - 0.5 tons/sq ft
-20		5		80			Fine to medium SAND and GRAVEL	GW	0.0	Wet
-25							Boring completed at 25 ft bgs.			

COMMENTS: Boring advanced using a track-mounted 7782 DT Geoprobe rig with 5' long, 2" diameter Macrocore sampler. Collected sample from 10 to 11' and 12 to 13' bgs for BTEX, PAH, and Moisture analysis.

URS Corporation

TEST BORING LOG

BORING NO. : GP-7

PROJECT/PROJECT LOCATION: Cold Spring Former MGP Site

SHEET: 1 **OF** 1

CLIENT: New York State Department of Environmental Conservation

JOB NO. : 11176853

BORING CONTRACTOR: Associated Environmental Services, LTD

NORTHING: 941039.799 **EASTING:** 640160.598

GROUNDWATER: 5 ft bgs

GROUND ELEVATION:

DATE	TIME	LEVEL	TYPE	TYPE	CAS.	SAMPLER	CORE	TUBE
						Macrocore		
				DIA.		2"		
				WT.				
				FALL				
				* POCKET PENETROMETER READING				

DATE STARTED: 4/14/2014

DATE FINISHED: 4/14/2014

DRILLER: J. Veiss

GEOLOGIST: T. Ifkovich

REVIEWED BY: K. Connare

DEPTH FEET	STRATA	SAMPLE NO.	SAMPLE BLOW COUNT	REC% / RQD%	COLOR	SOIL CONSISTENCY / ROCK HARDNESS	MATERIAL DESCRIPTION	USCS	PID	REMARKS
0		1		54	Brown to Gray		FILL: fine to medium sand trace asphalt from 0.5 to 1' trace shell fragments at 2'	FILL	0.0	Moist
-5		2		30	Brown		Fine to medium SAND and GRAVEL	GW	0.0	Wet
-10		3		68	Gray		Silty CLAY trace wood from 12.4 to 12.5'	CL	0.0	Moist
-15		4		100			trace wood at 17.5'		0.0	
-20		5		94					0.0	
-25		6		0			no recovery from 25 to 26' Refusal at 26 ft bgs on presumed bedrock.			

COMMENTS: Boring advanced using a track-mounted 7782 DT Geoprobe rig with 5' long, 2" diameter Macrocore sampler.
Collected sample from 5 to 6' bgs for BTEX, PAH, and Moisture analysis.

URS Corporation

TEST BORING LOG

BORING NO. : GP-8

PROJECT/PROJECT LOCATION: Cold Spring Former MGP Site

SHEET: 1 OF 1

CLIENT: New York State Department of Environmental Conservation

JOB NO. : 11176853

BORING CONTRACTOR: Associated Environmental Services, LTD

NORTHING: 941003.719 **EASTING:** 640180.460

GROUNDWATER: 5 ft bgs

GROUND ELEVATION:

DATE	TIME	LEVEL	TYPE	TYPE	CAS.	SAMPLER	CORE	TUBE
				DIA.		2"		
				WT.				
				FALL				
				* POCKET PENETROMETER READING				

DATE STARTED: 4/15/2014

DATE FINISHED: 4/15/2014

DRILLER: J. Veiss

GEOLOGIST: T. Ifkovich

REVIEWED BY: K. Connare

DEPTH FEET	STRATA	SAMPLE NO.	SAMPLE BLOW COUNT	REC% / RQD%	COLOR	SOIL CONSISTENCY / ROCK HARDNESS	MATERIAL DESCRIPTION	USCS	PID	REMARKS
0		1		52	Brown to Dk Brown		FILL: fine to medium sand, some gravel	FILL	0.0	Moist
-5		2		48	Brown / Gray / Black		Fine to medium SAND, some gravel, sheen on water, slight petroleum odor from 6 to 7'	SW	0.0	Wet
-10							Refusal at 10 ft bgs on presumed bedrock.			
-15										
-20										
-25										

COMMENTS: Boring advanced using a track-mounted 7782 DT Geoprobe rig with 5' long, 2" diameter Macrocore sampler. Collected sample from 6 to 7' bgs for BTEX, PAH, and Moisture analysis.

URS Corporation

TEST BORING LOG

BORING NO. : GP-9

PROJECT/PROJECT LOCATION: Cold Spring Former MGP Site

SHEET: 1 **OF** 2

CLIENT: New York State Department of Environmental Conservation

JOB NO. : 11176853

BORING CONTRACTOR: Associated Environmental Services, LTD

NORTHING: 941063.352 **EASTING:** 640155.327

GROUNDWATER: 5 ft bgs

GROUND ELEVATION:

DATE	TIME	LEVEL	TYPE	TYPE	CAS.	SAMPLER	CORE	TUBE
				DIA.		2"		
				WT.				
				FALL				
				* POCKET PENETROMETER READING				

DATE STARTED: 4/15/2014

DATE FINISHED: 4/15/2014

DRILLER: J. Veiss

GEOLOGIST: T. Ifkovich

REVIEWED BY: K. Connare

DEPTH FEET	STRATA	SAMPLE NO.	SAMPLE BLOW COUNT	REC% / RQD%	COLOR	SOIL CONSISTENCY / ROCK HARDNESS	MATERIAL DESCRIPTION	USCS	PID	REMARKS
0		1		48	Brown to Gray		FILL: fine to medium sand, some gravel	FILL	0.0	Moist
-5		2		40	Brown / Gray		Fine to medium SAND and GRAVEL, sheen and slight petroleum odor in tip of sampler	GW	0.0	Wet
-10		3		20			Clayey SILT, sheen and blebs on water, slight petroleum odor	ML	10.6	
-15		4		80			Silty CLAY, trace gravel	CL	0.0	Moist *PP - 0.5 tons/sq ft
-20		5		100			trace wood from 20 to 25'		0.0	*PP - 0.5 tons/sq ft
-25					Brown		Fine to medium SAND and GRAVEL	GW		Wet

COMMENTS: Boring advanced using a track-mounted 7782 DT Geoprobe rig with 5' long, 2" diameter Macrocore sampler.
Collected sample from 10 to 11' and 15 to 16' bgs for BTEX, PAH, and Moisture analysis.

URS Corporation

TEST BORING LOG

BORING NO. : GP-9

PROJECT: Cold Spring Former MGP Site

SHEET: 2 OF 2

CLIENT: New York State Department of Environmental Conservation

JOB NO. :11176853

DEPTH FEET	STRATA	SAMPLE NO.	SAMPLE BLOW COUNT	REC % / RQD %	COLOR	SOIL CONSISTENCY / ROCK HARDNESS	MATERIAL DESCRIPTION	USCS	PID	REMARKS
-30		6		48					0.0	
		7		10					0.0	
-35							Refusal at 35.2 ft bgs on presumed bedrock.			
-40										
-45										
-50										
-55										

COMMENTS: Boring advanced using a track-mounted 7782 DT Geoprobe rig with 5' long, 2" diameter Macrocore sampler. Collected sample from 10 to 11' and 15 to 16' bgs for BTEX, PAH, and Moisture analysis.

URS Corporation

TEST BORING LOG

BORING NO. : GP-10

PROJECT/PROJECT LOCATION: Cold Spring Former MGP Site

SHEET: 1 **OF** 2

CLIENT: New York State Department of Environmental Conservation

JOB NO. : 11176853

BORING CONTRACTOR: Associated Environmental Services, LTD

NORTHING: 941071.427 **EASTING:** 640164.076

GROUNDWATER: 5 ft bgs

GROUND ELEVATION:

DATE	TIME	LEVEL	TYPE	TYPE	CAS.	SAMPLER	CORE	TUBE
				DIA.		2"		
				WT.				
				FALL				
				* POCKET PENETROMETER READING				

DATE STARTED: 4/15/2014

DATE FINISHED: 4/15/2014

DRILLER: J. Veiss

GEOLOGIST: T. Ifkovich

REVIEWED BY: K. Connare

DEPTH FEET	STRATA	SAMPLE NO.	SAMPLE BLOW COUNT	REC% / RQD%	COLOR	SOIL CONSISTENCY / ROCK HARDNESS	MATERIAL DESCRIPTION	USCS	PID	REMARKS
0		1		40	Brown to Dk Brown		FILL: fine to medium sand, some gravel	FILL	0.0	Moist
-5		2		20	Gray		Coarse SAND and GRAVEL	GW	0.0	Wet
-10		3		76	Black / Gray		Silty CLAY blebs from 10 to 10.5', sheen on water from 10 to 11.7'	CL	0.0	Moist *PP - 0.3 tons/sq ft
-15		4		82					0.0	*PP - 0.4 tons/sq ft
-20		5		86					0.0	*PP - 0.4 tons/sq ft
-25										*PP - 0.4 tons/sq ft

COMMENTS: Boring advanced using a track-mounted 7782 DT Geoprobe rig with 5' long, 2" diameter Macrocore sampler.
Collected sample from 10 to 12' and 13 to 14' bgs for BTEX, PAH, and Moisture analysis.

URS Corporation

TEST BORING LOG

BORING NO. : GP-10

PROJECT: Cold Spring Former MGP Site

SHEET: 2 OF 2

CLIENT: New York State Department of Environmental Conservation

JOB NO. :11176853

DEPTH FEET	STRATA	SAMPLE NO.	SAMPLE BLOW COUNT	REC % / RQD %	COLOR	SOIL CONSISTENCY / ROCK HARDNESS	MATERIAL DESCRIPTION	USCS	PID	REMARKS
		6		40					0.0	
-30							Refusal at 28 ft bgs on presumed bedrock.			
-35										
-40										
-45										
-50										
-55										

COMMENTS: Boring advanced using a track-mounted 7782 DT Geoprobe rig with 5' long, 2" diameter Macrocore sampler. Collected sample from 10 to 12' and 13 to 14' bgs for BTEX, PAH, and Moisture analysis.

URS Corporation

TEST BORING LOG

BORING NO. : GP-11

PROJECT/PROJECT LOCATION: Cold Spring Former MGP Site

SHEET: 1 OF 1

CLIENT: New York State Department of Environmental Conservation

JOB NO. : 11176853

BORING CONTRACTOR: Associated Environmental Services, LTD

NORTHING: 941092.405 **EASTING:** 640182.394

GROUNDWATER: 1 ft bgs

GROUND ELEVATION:

DATE	TIME	LEVEL	TYPE	TYPE	CAS.	SAMPLER	CORE	TUBE
				DIA.		2"		
				WT.				
				FALL				
				* POCKET PENETROMETER READING				

DATE STARTED: 4/16/2014

DATE FINISHED: 4/16/2014

DRILLER: J. Veiss

GEOLOGIST: T. Ifkovich

REVIEWED BY: K. Connare

DEPTH FEET	STRATA	SAMPLE NO.	SAMPLE BLOW COUNT	REC% / RQD%	COLOR	SOIL CONSISTENCY / ROCK HARDNESS	MATERIAL DESCRIPTION	USCS	PID	REMARKS
0		1		46	Brown to Gray		FILL: fine to medium sand, some gravel trace brick at 2'	FILL	0.0	Moist Wet
-5		2		24	Gray		Fine to medium SAND and GRAVEL, sheen on water, slight petroleum odor, dark brown coating and blebs from 5.4 to 5.6'	GW	1.1	
-10							Refusal at 10 ft bgs on presumed cobble.			
-15										
-20										
-25										

COMMENTS: Boring advanced using a track-mounted 7782 DT Geoprobe rig with 5' long, 2" diameter Macrocore sampler. Collected sample from 5 to 6' bgs for BTEX, PAH, and Moisture analysis.

URS Corporation

TEST BORING LOG

BORING NO. : GP-11C

PROJECT/PROJECT LOCATION: Cold Spring Former MGP Site

SHEET: 1 OF 1

CLIENT: New York State Department of Environmental Conservation

JOB NO. : 11176853

BORING CONTRACTOR: Associated Environmental Services, LTD

NORTHING: 941091.486 **EASTING:** 640193.151

GROUNDWATER: 1 ft bgs

	CAS.	SAMPLER	CORE	TUBE
TYPE		Macrocore		
DIA.		2"		
WT.				
FALL				

*** POCKET PENETROMETER READING**

GROUND ELEVATION:

DATE STARTED: 4/16/2014

DATE FINISHED: 4/16/2014

DRILLER: J. Veiss

GEOLOGIST: T. Ifkovich

REVIEWED BY: K. Connare

DEPTH FEET	STRATA	SAMPLE NO.	SAMPLE BLOW COUNT	REC% / RQD%	COLOR	SOIL CONSISTENCY / ROCK HARDNESS	MATERIAL DESCRIPTION	USCS	PID	REMARKS
0							Boring advanced to 10' without sampling. 0-10' Stratigraphic profile previously described on log for boring GP-11.			Wet
-10		1		76	Gray		Silty CLAY trace wood at 13.5'	CL	0.0	Moist *PP - 0.75 tons/sq ft
-15		2		84			trace gravel, little wood from 15 to 20'		0.0	
-20		3		0			No recovery from 20 to 25', lost Macrocore sampler in borehole			
-25							Boring completed at 25 ft bgs.			

COMMENTS: Boring advanced using a track-mounted 7782 DT Geoprobe rig with 5' long, 2" diameter Macrocore sampler. Collected sample from 10 to 12' bgs for BTEX, PAH, and Moisture analysis.

URS Corporation

TEST BORING LOG

BORING NO. : GT-1

PROJECT/PROJECT LOCATION: Cold Spring Former MGP Site
SHEET: 1 **OF** 2
CLIENT: New York State Department of Environmental Conservation
JOB NO. : 11176853
BORING CONTRACTOR: Associated Environmental Services, LTD
NORTHING: 941058.660 **EASTING:** 640144.070
GROUNDWATER: 6 ft bgs
GROUND ELEVATION:

DATE	TIME	LEVEL	TYPE	TYPE	CAS.	SAMPLER	CORE	TUBE
				DIA.		2"		
				WT.		140 lbs.		
				FALL		30 in.		
				* POCKET PENETROMETER READING				

DATE STARTED: 4/16/2014
DATE FINISHED: 4/16/2014
DRILLER: R. Jensen
GEOLOGIST: T. Ifkovich
REVIEWED BY: K. Connare

DEPTH FEET	STRATA	SAMPLE NO.	SAMPLE BLOW COUNT	REC% / RQD%	COLOR	SOIL CONSISTENCY / ROCK HARDNESS	MATERIAL DESCRIPTION	USCS	PID	REMARKS
0		1	11, 6, 8, 10	35	Brown	Medium Dense	ASPHALT	FILL	0.0	Moist
							FILL: fine to medium sand, some gravel			
		2	4, 6, 5, 6	0			No recovery from 2 to 4'			
-5		3	4, 4, 9, 6	0			No recovery from 4 to 6'	GW		
		4	2, 1, 2, 11	45	Gray	Very Loose	Fine to medium SAND and GRAVEL		0.0	Wet
		5	8, 12, 13, 12	50		Medium Dense			0.0	
-10		6	50/1.25, --, --, --	0		Very Dense	No recovery from 10 to 12', pushed stone			
		7	50/3.25, --, --, --	0			No recovery from 12 to 14', pushed stone			
		8	21, 4, 2, 2	50		Medium Stiff	Silty CLAY	CL	0.0	Moist *PP - 0.4 tons/sq ft
-15		9	31, 2, 2, 2	70		Soft			0.0	*PP - 0.5 tons/sq ft
		10	18, 2, 2, 3	10			trace wood from 17 to 17.1'		0.0	*PP - 0.5 tons/sq ft
-20							No sampling was performed from 20 to 25'.			
-25						Medium Stiff	Silty CLAY			*PP - 0.4 tons/sq ft

COMMENTS: Boring advanced with truck-mounted Dietrich D-120 drill rig using a 4-1/4" HSA and 2" split spoon sampler.
Collected sample from 8 to 9' and 14 to 15' bgs for BTEX, PAH, and Moisture analysis.
GT = Geotechnical

URS Corporation

TEST BORING LOG

BORING NO. : GT-1

PROJECT: Cold Spring Former MGP Site | **SHEET: 2 OF 2**

CLIENT: New York State Department of Environmental Conservation | **JOB NO. :11176853**

DEPTH FEET	STRATA	SAMPLE NO.	SAMPLE BLOW COUNT	REC % / RQD %	COLOR	SOIL CONSISTENCY / ROCK HARDNESS	MATERIAL DESCRIPTION	USCS	PID	REMARKS
		11	32, 5, 1, 5	75			trace wood at 26'		0.0	
		12	47, 24, 22, 16	0		Dense	No recovery from 27 to 29' No sampling was performed from 29 to 30'.	GW		
-30		13	8, 10, 11, 13	60		Medium Dense	Fine to medium SAND and GRAVEL No sampling was performed from 32 to 32.5'.		0.0	Wet
		14	35, 50/3.75, --, --	25		Very Dense	Fine to medium SAND and GRAVEL		0.0	
-35							Refusal at 34.5 ft bgs on presumed bedrock.			
-40										
-45										
-50										
-55										

COMMENTS: Boring advanced with truck-mounted Dietrich D-120 drill rig using a 4-1/4" HSA and 2" split spoon sampler.
Collected sample from 8 to 9' and 14 to 15' bgs for BTEX, PAH, and Moisture analysis.
GT = Geotechnical

URS Corporation

TEST BORING LOG

BORING NO. : WC

PROJECT/PROJECT LOCATION: Cold Spring Former MGP Site | **SHEET: 1 OF 1**

CLIENT: New York State Department of Environmental Conservation | **JOB NO. : 11176853**

BORING CONTRACTOR: Associated Environmental Services, LTD | **NORTHING:** 941100.700 **EASTING:** 640270.764

GROUNDWATER: 5 ft bgs | **GROUND ELEVATION:**

DATE	TIME	LEVEL	TYPE	TYPE	CAS.	SAMPLER	CORE	TUBE
				DIA.		2"		
				WT.				
				FALL				
				* POCKET PENETROMETER READING				

DATE STARTED: 4/16/2014

DATE FINISHED: 4/16/2014

DRILLER: J. Veiss

GEOLOGIST: T. Ifkovich

REVIEWED BY: K. Connare

DEPTH FEET	STRATA	SAMPLE NO.	SAMPLE BLOW COUNT	REC% / RQD%	COLOR	SOIL CONSISTENCY / ROCK HARDNESS	MATERIAL DESCRIPTION	USCS	PID	REMARKS
0		1		24	Brown		FILL: fine sand and silt, some gravel some brick from 1 to 1.2'	FILL	0.0	Moist
-5		2		68			Fine SAND and SILT, dark brown to black 100% saturation from 5 to 5.5', light coating from 5.5 to 6', coal tar-like odor from 5 to 6'	SM	0.0	Wet
-10		3		48			Fine SAND and GRAVEL	GW	0.0	
-15		4		38			Fine SAND and SILT, little gravel	SM	0.0	
-20							Refusal at 19 ft bgs on presumed bedrock.			
-25										

COMMENTS: Boring advanced using a track-mounted 7782 DT Geoprobe rig with 5' long, 2" diameter Macrocore sampler.
Collected sample from 5 to 6' bgs for BTEX, PAH, and Moisture analysis.
WC - Waste Characterization

APPENDIX D

SOIL ANALYTICAL RESULTS TABLES

APPENDIX D
SOIL ANALYTICAL RESULTS - APRIL 2014
COLD SPRING FORMER MGP SITE

Location ID			GP-01	GP-02	GP-03	GP-03B	GP-04B
Sample ID			GP-1 5-6.5	GP-2 5-5.4	GP-3 0.5-2	GP-3B 11-12	GP-4B 10-11
Matrix			Soil	Soil	Soil	Soil	Soil
Depth Interval (ft)			5.0-6.5	5.0-5.4	0.5-2.0	11.0-12.0	10.0-11.0
Date Sampled			04/14/14	04/14/14	04/14/14	04/14/14	04/14/14
Parameter	**Units**	**Criteria***					
Volatile Organic Compounds							
Benzene	MG/KG	4.8	0.047 U	0.039 U	0.0055 U	0.0078 U	0.0036 J
Ethylbenzene	MG/KG	41	0.047 U	0.039 U	0.00041 J	0.0078 U	0.0028 J
Toluene	MG/KG	100	0.047 U	0.039 U	0.0055 U	0.0078 U	0.0015 J
Xylene (total)	MG/KG	100	0.019 J	0.017 J	0.011 U	0.016 U	0.11
Total BTEX	MG/KG	-	0.019	0.017	0.00041	ND	0.1179
Semivolatile Organic Compounds							
Acenaphthene	MG/KG	100	1.3	0.24 J	0.51 J	0.15 J	0.18 J
Acenaphthylene	MG/KG	100	1.0	0.30 J	1.0 J	0.015 J	1.4 U
Anthracene	MG/KG	100	6.6	0.90 J	1.8 J	0.076 J	0.090 J
Benzo(a)anthracene	MG/KG	1	5.2	5.2	22	0.26 U	0.16 J
Benzo(a)pyrene	MG/KG	1	3.5	7.8	29	0.075 J	0.29 J
Benzo(b)fluoranthene	MG/KG	1	4.0	7.7	24	0.063 J	0.11 J
Benzo(g,h,i)perylene	MG/KG	100	1.8	8.3	37	0.072 J	0.15 J
Benzo(k)fluoranthene	MG/KG	3.9	1.8	3.0	9.3	0.027 J	0.038 J
Chrysene	MG/KG	3.9	4.7	5.6	29	0.072 J	0.10 J
Dibenz(a,h)anthracene	MG/KG	0.33	0.65 J	2.4	9.8	0.040 J	1.4 U
Fluoranthene	MG/KG	100	11	4.6	13	0.095 J	0.11 J
Fluorene	MG/KG	100	4.7	0.18 J	0.44 J	0.074 J	0.090 J
Indeno(1,2,3-cd)pyrene	MG/KG	0.5	1.8	6.7	24	0.060 J	0.078 J
Naphthalene	MG/KG	100	0.77 J	0.36 J	0.99 J	3.1	3.5
Phenanthrene	MG/KG	100	18	3.1	9.4	0.31	0.40 J
Pyrene	MG/KG	100	11	8.5	33	0.23 J	0.21 J
Total Polynuclear Aromatic Hydrocarbons	MG/KG	-	77.82	64.88	244.24	4.459	5.506

*Criteria- 6 NYCRR Part 375.6, Remedial Program Soil Cleanup Objectives, Effective 12/14/06. Protection of Public Health, Restricted Residential.

Flags assigned during chemistry validation are shown.

Concentration Exceeds Criteria

U - Not detected above the reported quantitation limit.

J - The reported concentration is an estimated value.

Detection Limits shown are PQL

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APPENDIX D
SOIL ANALYTICAL RESULTS - APRIL 2014
COLD SPRING FORMER MGP SITE

Location ID			GP-04B	GP-05	GP-05	GP-06	GP-06
Sample ID			GP-4B 12-13	GP-5 6-7	GP-5 10-11	GP-6 10-11	GP-6 12-13
Matrix			Soil	Soil	Soil	Soil	Soil
Depth Interval (ft)			12.0-13.0	6.0-7.0	10.0-11.0	10.0-11.0	12.0-13.0
Date Sampled			04/14/14	04/15/14	04/15/14	04/15/14	04/15/14
Parameter	**Units**	**Criteria***					
Volatile Organic Compounds							
Benzene	MG/KG	4.8	0.0073 U	0.026 J	0.0061 U	0.080 U	0.0074 U
Ethylbenzene	MG/KG	41	0.0073 U	0.43	0.0012 J	0.11	0.0074 U
Toluene	MG/KG	100	0.0073 U	0.045 J	0.0061 U	0.080 U	0.0074 U
Xylene (total)	MG/KG	100	0.015 U	0.62	0.012 U	0.21	0.026
Total BTEX	MG/KG	-	ND	1.121	0.0012	0.32	0.026
Semivolatile Organic Compounds							
Acenaphthene	MG/KG	100	0.064 J	43	53	0.91	0.0060 J
Acenaphthylene	MG/KG	100	0.027 J	8.7 J	44	0.017 J	0.25 U
Anthracene	MG/KG	100	0.12 J	40	90	0.036 J	0.25 U
Benzo(a)anthracene	MG/KG	1	0.25 U	32 J	65	0.28 U	0.25 U
Benzo(a)pyrene	MG/KG	1	0.17 J	21 J	46	0.033 J	0.017 J
Benzo(b)fluoranthene	MG/KG	1	0.13 J	24 J	50	0.035 J	0.029 J
Benzo(g,h,i)perylene	MG/KG	100	0.12 J	11 J	23 J	0.028 J	0.018 J
Benzo(k)fluoranthene	MG/KG	3.9	0.050 J	9.3 J	17 J	0.017 J	0.011 J
Chrysene	MG/KG	3.9	0.23 J	30 J	61	0.042 J	0.021 J
Dibenz(a,h)anthracene	MG/KG	0.33	0.049 J	5.5 J	6.9 J	0.014 J	0.0080 J
Fluoranthene	MG/KG	100	0.22 J	56	120	0.053 J	0.018 J
Fluorene	MG/KG	100	0.063 J	39	90	0.054 J	0.25 U
Indeno(1,2,3-cd)pyrene	MG/KG	0.5	0.11 J	9.5 J	21 J	0.025 J	0.020 J
Naphthalene	MG/KG	100	0.011 J	70	44	4.4	0.018 J
Phenanthrene	MG/KG	100	0.37	140	300	0.14 J	0.022 J
Pyrene	MG/KG	100	0.58	55	130	0.077 J	0.020 J
Total Polynuclear Aromatic Hydrocarbons	MG/KG	-	2.314	594	1,160.9	5.881	0.208

*Criteria- 6 NYCRR Part 375.6, Remedial Program Soil Cleanup Objectives, Effective 12/14/06. Protection of Public Health, Restricted Residential.

Flags assigned during chemistry validation are shown.

Concentration Exceeds Criteria

U - Not detected above the reported quantitation limit.

J - The reported concentration is an estimated value.

Detection Limits shown are PQL

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APPENDIX D
SOIL ANALYTICAL RESULTS - APRIL 2014
COLD SPRING FORMER MGP SITE

Location ID			GP-07	GP-08	GP-09	GP-09	GP-10
Sample ID			GP-7 5-6	GP-8 6-7	GP-9 10-11	GP-9 15-16	GP-10 10-12
Matrix			Soil	Soil	Soil	Soil	Soil
Depth Interval (ft)			5.0-6.0	6.0-7.0	10.0-11.0	15.0-16.0	10.0-12.0
Date Sampled			04/14/14	04/15/14	04/15/14	04/15/14	04/15/14
Parameter	**Units**	**Criteria***					
Volatile Organic Compounds							
Benzene	MG/KG	4.8	0.0055 U	0.14	0.046 J	0.0075 U	0.0070 U
Ethylbenzene	MG/KG	41	0.0055 U	12	0.96	0.0075 U	0.0070 U
Toluene	MG/KG	100	0.0055 U	0.61	0.16 U	0.0075 U	0.0070 U
Xylene (total)	MG/KG	100	0.011 U	19	1.4	0.015 U	0.014 U
Total BTEX	MG/KG	-	ND	31.75	2.406	ND	ND
Semivolatile Organic Compounds							
Acenaphthene	MG/KG	100	0.0076 J	130	46	0.013 J	0.011 J
Acenaphthylene	MG/KG	100	0.011 J	20 J	4.9 J	0.0029 J	0.24 U
Anthracene	MG/KG	100	0.021 J	110	29	0.010 J	0.24 U
Benzo(a)anthracene	MG/KG	1	0.19 U	88	25 J	0.016 J	0.0067 J
Benzo(a)pyrene	MG/KG	1	0.13 J	61	18 J	0.10 J	0.054 J
Benzo(b)fluoranthene	MG/KG	1	0.11 J	68	16 J	0.014 J	0.24 U
Benzo(g,h,i)perylene	MG/KG	100	0.16 J	31 J	11 J	0.014 J	0.24 U
Benzo(k)fluoranthene	MG/KG	3.9	0.045 J	21 J	4.4 J	0.26 U	0.24 U
Chrysene	MG/KG	3.9	0.11 J	82	26 J	0.011 J	0.0047 J
Dibenz(a,h)anthracene	MG/KG	0.33	0.052 J	9.2 J	4.3 J	0.26 U	0.0081 J
Fluoranthene	MG/KG	100	0.075 J	160	36	0.013 J	0.24 U
Fluorene	MG/KG	100	0.0057 J	100	29	0.0084 J	0.24 U
Indeno(1,2,3-cd)pyrene	MG/KG	0.5	0.13 J	31 J	8.5 J	0.013 J	0.24 U
Naphthalene	MG/KG	100	0.028 J	300	61	0.055 J	0.13 J
Phenanthrene	MG/KG	100	0.082 J	380	120	0.034 J	0.0097 J
Pyrene	MG/KG	100	0.27	160	57	0.020 J	0.0044 J
Total Polynuclear Aromatic Hydrocarbons	MG/KG	-	1.2373	1,751.2	496.1	0.3243	0.2286

*Criteria- 6 NYCRR Part 375.6, Remedial Program Soil Cleanup Objectives, Effective 12/14/06. Protection of Public Health, Restricted Residential.

Flags assigned during chemistry validation are shown.

Concentration Exceeds Criteria

U - Not detected above the reported quantitation limit.

J - The reported concentration is an estimated value.

Detection Limits shown are PQL

APPENDIX D
SOIL ANALYTICAL RESULTS - APRIL 2014
COLD SPRING FORMER MGP SITE

Location ID			GP-10	GP-11	GP-11	GP-11	GT-01
Sample ID			GP-10 13-14	GP-11 5-6	FD-041614	GP-11 10-12	GT-1 8-9
Matrix			Soil	Soil	Soil	Soil	Soil
Depth Interval (ft)			13.0-14.0	5.0-6.0	10.0-12.0	10.0-12.0	8.0-9.0
Date Sampled			04/15/14	04/16/14	04/16/14	04/16/14	04/16/14
Parameter	**Units**	**Criteria***			Field Duplicate (1-1)		
Volatile Organic Compounds							
Benzene	MG/KG	4.8	0.0075 U	0.11 U	0.0048 J	0.092	0.0011 J
Ethylbenzene	MG/KG	41	0.0075 U	0.11 U	0.0074 U	0.91	0.0057 U
Toluene	MG/KG	100	0.0075 U	0.11 U	0.0041 J	0.027 J	0.0013 J
Xylene (total)	MG/KG	100	0.015 U	0.21 U	0.015 U	1.3	0.011 U
Total BTEX	MG/KG	-	ND	ND	0.0089	2.329	0.0024
Semivolatile Organic Compounds							
Acenaphthene	MG/KG	100	0.0050 J	8.1	0.0032 J	3.4	0.086 J
Acenaphthylene	MG/KG	100	0.26 U	1.9 J	0.25 U	0.23 J	0.038 J
Anthracene	MG/KG	100	0.26 U	9.7	0.25 U	0.95 J	0.17 J
Benzo(a)anthracene	MG/KG	1	0.010 J	8.1	0.0091 J	2.8 U	0.36
Benzo(a)pyrene	MG/KG	1	0.099 J	5.9	0.24 J	0.66 J	0.26
Benzo(b)fluoranthene	MG/KG	1	0.26 U	4.1 J	0.25 U	0.75 J	0.25
Benzo(g,h,i)perylene	MG/KG	100	0.26 U	3.4 J	0.0096 J	0.42 J	0.23
Benzo(k)fluoranthene	MG/KG	3.9	0.26 U	1.3 J	0.25 U	2.8 U	0.083 J
Chrysene	MG/KG	3.9	0.0045 J	7.8	0.25 U	0.83 J	0.42
Dibenz(a,h)anthracene	MG/KG	0.33	0.26 U	1.0 J	0.25 U	0.15 J	0.064 J
Fluoranthene	MG/KG	100	0.26 U	9.4	0.0038 J	1.2 J	0.50
Fluorene	MG/KG	100	0.26 U	6.9	0.25 U	1.1 J	0.073 J
Indeno(1,2,3-cd)pyrene	MG/KG	0.5	0.26 U	2.3 J	0.25 U	0.34 J	0.18 J
Naphthalene	MG/KG	100	0.049 J	0.63 J	0.0082 J	12	0.025 J
Phenanthrene	MG/KG	100	0.0087 J	37	0.010 J	4.2	0.17 J
Pyrene	MG/KG	100	0.0049 J	24	0.0062 J	2.2 J	1.0
Total Polynuclear Aromatic Hydrocarbons	MG/KG	-	0.1811	131.53	0.2901	28.43	3.909

*Criteria- 6 NYCRR Part 375.6, Remedial Program Soil Cleanup Objectives, Effective 12/14/06. Protection of Public Health, Restricted Residential.

Flags assigned during chemistry validation are shown.

Concentration Exceeds Criteria

U - Not detected above the reported quantitation limit.

J - The reported concentration is an estimated value.

Detection Limits shown are PQL

APPENDIX D
SOIL ANALYTICAL RESULTS - APRIL 2014
COLD SPRING FORMER MGP SITE

Location ID			GT-01
Sample ID			GT-1 14-15
Matrix			Soil
Depth Interval (ft)			14.0-15.0
Date Sampled			04/16/14
Parameter	**Units**	**Criteria***	
Volatile Organic Compounds			
Benzene	MG/KG	4.8	0.0051 J
Ethylbenzene	MG/KG	41	0.0077 U
Toluene	MG/KG	100	0.0042 J
Xylene (total)	MG/KG	100	0.015 U
Total BTEX	MG/KG	-	0.0093
Semivolatile Organic Compounds			
Acenaphthene	MG/KG	100	0.26 U
Acenaphthylene	MG/KG	100	0.26 U
Anthracene	MG/KG	100	0.26 U
Benzo(a)anthracene	MG/KG	1	0.26 U
Benzo(a)pyrene	MG/KG	1	0.017 J
Benzo(b)fluoranthene	MG/KG	1	0.26 U
Benzo(g,h,i)perylene	MG/KG	100	0.018 J
Benzo(k)fluoranthene	MG/KG	3.9	0.26 U
Chrysene	MG/KG	3.9	0.012 J
Dibenz(a,h)anthracene	MG/KG	0.33	0.26 U
Fluoranthene	MG/KG	100	0.015 J
Fluorene	MG/KG	100	0.26 U
Indeno(1,2,3-cd)pyrene	MG/KG	0.5	0.26 U
Naphthalene	MG/KG	100	0.26 U
Phenanthrene	MG/KG	100	0.029 J
Pyrene	MG/KG	100	0.022 J
Total Polynuclear Aromatic Hydrocarbons	MG/KG	-	0.113

*Criteria- 6 NYCRR Part 375.6, Remedial Program Soil Cleanup Objectives, Effective 12/14/06. Protection of Public Health, Restricted Residential.

Flags assigned during chemistry validation are shown.

Concentration Exceeds Criteria

U - Not detected above the reported quantitation limit.

J - The reported concentration is an estimated value.

Detection Limits shown are PQL

APPENDIX E

DATA USABILITY SUMMARY REPORT (DUSR)

DATA USABILITY SUMMARY REPORT

SOIL SAMPLING
COLD SPRING FORMER MGP SITE
REMEDIAL DESIGN
COLD SPRING, NEW YORK
WORK ASSIGNMENT D007622-12
SITE NUMBER 340026

Analyses Performed by:

TESTAMERICA LABORATORIES, INC.
AMHERST, NY

Prepared for:

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF ENVIRONMENTAL REMEDIATION

Prepared by:

URS CORPORATION
77 GOODELL STREET
BUFFALO, NY 14203

JUNE 2014

TABLE OF CONTENTS

TABLES
(Following Text)

ATTACHMENTS

I. INTRODUCTION

This Data Usability Summary Report (DUSR) has been prepared following the guidelines provided in New York State Department of Environmental Conservation (NYSDEC) Division of Environmental Remediation *DER-10 Technical Guidance for Site Investigation and Remediation, Appendix 2B, Guidance for Data Deliverables and the Development of Data Usability Summary Reports,* May 2010. Discussed in this DUSR are analytical data for twenty (20) soil samples plus one field duplicate collected on April 14-16, 2014. The samples were collected in support of the Remedial Design task assigned to URS under NYSDEC Work Assignment D007622-12 for the Cold Spring Former MGP site (Site Number 340026), located in Village of Cold Spring, New York.

II. SAMPLE COLLECTION AND ANALYTICAL METHODOLOGIES

On April 14-16, 2014 twenty (20) soil samples and one field duplicate were collected from soil borings located on the site. The samples were submitted to the NYSDEC Call-Out analytical laboratory - TestAmerica Laboratories, Inc. (TestAmerica) located in Amherst, NY, a New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program (ELAP) certified laboratory. The soil samples were analyzed for the volatile organic compounds (VOCs) benzene, toluene, ethylbenzene and xylene (BTEX) following United States Environmental Protection Agency (USEPA) Method 8260C and polycyclic aromatic hydrocarbons (PAHs) by USEPA Method 8270D.

In addition, one solid waste characterization sample was collected on April 16, 2014 for informational purposes only. The results for this waste characterization sample did not undergo data validation, however, they are presented in this DUSR as ancillary information.

III. DATA VALIDATION

A limited data validation consisting of a review of the deliverable completeness, quality control (QC) parameters, and verification of sample results, as required by the DUSR guidance document referenced above, was performed on the samples following the requirements of the analytical methods and the general guidelines presented in the following USEPA Region II documents:

- *Validating Volatile Organic Compounds by SW-846 Method 8260B*, HW-24, Revision 2, August 2008; and
- *Validating Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry, SW-846 Method 8270D*, SOP HW-22, Rev. 4, August 2008.

Only QC non-conformances affecting data usability are discussed in this report.

The validated analytical results are presented on Table 1. The waste characterization sample results (un-validated) are presented on Table 2. Copies of the validated laboratory results (i.e., Form I's) are presented in Attachment A. Documentation supporting the qualification of data is presented in Attachment B.

IV. DATA DELIVERABLE COMPLETENESS

Full deliverable data packages (i.e., NYSDEC ASP Category B or equivalent) were provided by the laboratory, and included all reporting forms and raw data necessary to fully evaluate and verify the reported analytical results.

V. PRESERVATION / SAMPLE RECEIPT / HOLDING TIMES

All samples were received by the laboratory intact, properly preserved, and under proper chain-of-custody. All samples were analyzed within the required holding times.

VI. NONCONFORMANCES

There were no nonconformances noted during the data validation.

VII. SAMPLE RESULTS AND REPORTING

All quantitation/reporting limits were reported in accordance with method requirements and were adjusted for sample size, moisture content and dilution factors. Results less than the reporting limits were qualified 'J' by the laboratory.

Several sample analyses required dilutions due to the nature of the matrices and/or high levels of target compounds present in the samples. The non-detect results for affected samples are the lowest achievable at the diluted level.

A field duplicate was collected at location GP-11 (10-12). The results between field duplicate FD-041614 and the above referenced parent sample showed poor field/laboratory analytical precision. The parent sample results are several orders of magnitude higher in concentration; as a conservative measure, the parent sample results should be used over the field duplicate results to make project-specific decisions. Note, USEPA Region II does not require data qualification for field duplicate precision.

All sample analyses were found to be compliant with the method criteria. All sample results are usable as reported. URS does not recommend the recollection of any samples at this time.

Prepared By: Peter R. Fairbanks, Senior Chemist PF **Date:** 6/27/14

Reviewed By: George E. Kisluk, Senior Chemist GEK **Date:** 6/27/14

DEFINITIONS OF USEPA DATA QUALIFIERS

U – The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.

J – The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

UJ – The analyte was analyzed for, but not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

R – The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.

D – The sample result was reported from a secondary dilution analysis.

TABLE 1
SOIL ANALYTICAL RESULTS
COLD SPRING FORMER MGP SITE

Location ID		GP-01	GP-02	GP-03	GP-03B	GP-04B
Sample ID		GP-1 5-6.5	GP-2 5-5.4	GP-3 0.5-2	GP-3B 11-12	GP-4B 10-11
Matrix		Soil	Soil	Soil	Soil	Soil
Depth Interval (ft)		5.0-6.5	5.0-5.4	0.5-2.0	11.0-12.0	10.0-11.0
Date Sampled		04/14/14	04/14/14	04/14/14	04/14/14	04/14/14
Parameter	Units					
Volatile Organic Compounds						
Benzene	MG/KG	0.047 U	0.039 U	0.0055 U	0.0078 U	0.0036 J
Ethylbenzene	MG/KG	0.047 U	0.039 U	0.00041 J	0.0078 U	0.0028 J
Toluene	MG/KG	0.047 U	0.039 U	0.0055 U	0.0078 U	0.0015 J
Xylene (total)	MG/KG	0.019 J	0.017 J	0.011 U	0.016 U	0.11
Total BTEX	MG/KG	0.019	0.017	0.00041	ND	0.1179
Semivolatile Organic Compounds						
Acenaphthene	MG/KG	1.3	0.24 J	0.51 J	0.15 J	0.18 J
Acenaphthylene	MG/KG	1.0	0.30 J	1.0 J	0.015 J	1.4 U
Anthracene	MG/KG	6.6	0.90 J	1.8 J	0.076 J	0.090 J
Benzo(a)anthracene	MG/KG	5.2	5.2	22	0.26 U	0.16 J
Benzo(a)pyrene	MG/KG	3.5	7.8	29	0.075 J	0.29 J
Benzo(b)fluoranthene	MG/KG	4.0	7.7	24	0.063 J	0.11 J
Benzo(g,h,i)perylene	MG/KG	1.8	8.3	37	0.072 J	0.15 J
Benzo(k)fluoranthene	MG/KG	1.8	3.0	9.3	0.027 J	0.038 J
Chrysene	MG/KG	4.7	5.6	29	0.072 J	0.10 J
Dibenz(a,h)anthracene	MG/KG	0.65 J	2.4	9.8	0.040 J	1.4 U
Fluoranthene	MG/KG	11	4.6	13	0.095 J	0.11 J
Fluorene	MG/KG	4.7	0.18 J	0.44 J	0.074 J	0.090 J
Indeno(1,2,3-cd)pyrene	MG/KG	1.8	6.7	24	0.060 J	0.078 J
Naphthalene	MG/KG	0.77 J	0.36 J	0.99 J	3.1	3.5
Phenanthrene	MG/KG	18	3.1	9.4	0.31	0.40 J
Pyrene	MG/KG	11	8.5	33	0.23 J	0.21 J
Total Polynuclear Aromatic Hydrocarbons	MG/KG	77.82	64.88	244.24	4.459	5.506

Flags assigned during chemistry validation are shown.

J - The reported concentration is an estimated value.
U - Not detected above the reported quantitation limit.

Made By: PRF 06/23/2014 Checked By: GEK 06/26/2014

Detection Limits shown are PQL

J:\Projects\Small_Chemistry_Jobs\DB\Program\EDMS.mc
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[SITEID] = '11176853' AND [LOGDATE] BETWEEN #4/14/2014# AND #4/15/2014# AND [MATRIX] = 'SO' AND [LOCID] <> 'W

TABLE 1
SOIL ANALYTICAL RESULTS
COLD SPRING FORMER MGP SITE

Location ID		GP-04B	GP-05	GP-05	GP-06	GP-06
Sample ID		GP-4B 12-13	GP-5 6-7	GP-5 10-11	GP-6 10-11	GP-6 12-13
Matrix		Soil	Soil	Soil	Soil	Soil
Depth Interval (ft)		12.0-13.0	6.0-7.0	10.0-11.0	10.0-11.0	12.0-13.0
Date Sampled		04/14/14	04/15/14	04/15/14	04/15/14	04/15/14
Parameter	Units					
Volatile Organic Compounds						
Benzene	MG/KG	0.0073 U	0.026 J	0.0061 U	0.080 U	0.0074 U
Ethylbenzene	MG/KG	0.0073 U	0.43	0.0012 J	0.11	0.0074 U
Toluene	MG/KG	0.0073 U	0.045 J	0.0061 U	0.080 U	0.0074 U
Xylene (total)	MG/KG	0.015 U	0.62	0.012 U	0.21	0.026
Total BTEX	MG/KG	ND	1.121	0.0012	0.32	0.026
Semivolatile Organic Compounds						
Acenaphthene	MG/KG	0.064 J	43	53	0.91	0.0060 J
Acenaphthylene	MG/KG	0.027 J	8.7 J	44	0.017 J	0.25 U
Anthracene	MG/KG	0.12 J	40	90	0.036 J	0.25 U
Benzo(a)anthracene	MG/KG	0.25 U	32 J	65	0.28 U	0.25 U
Benzo(a)pyrene	MG/KG	0.17 J	21 J	46	0.033 J	0.017 J
Benzo(b)fluoranthene	MG/KG	0.13 J	24 J	50	0.035 J	0.029 J
Benzo(g,h,i)perylene	MG/KG	0.12 J	11 J	23 J	0.028 J	0.018 J
Benzo(k)fluoranthene	MG/KG	0.050 J	9.3 J	17 J	0.017 J	0.011 J
Chrysene	MG/KG	0.23 J	30 J	61	0.042 J	0.021 J
Dibenz(a,h)anthracene	MG/KG	0.049 J	5.5 J	6.9 J	0.014 J	0.0080 J
Fluoranthene	MG/KG	0.22 J	56	120	0.053 J	0.018 J
Fluorene	MG/KG	0.063 J	39	90	0.054 J	0.25 U
Indeno(1,2,3-cd)pyrene	MG/KG	0.11 J	9.5 J	21 J	0.025 J	0.020 J
Naphthalene	MG/KG	0.011 J	70	44	4.4	0.018 J
Phenanthrene	MG/KG	0.37	140	300	0.14 J	0.022 J
Pyrene	MG/KG	0.58	55	130	0.077 J	0.020 J
Total Polynuclear Aromatic Hydrocarbons	MG/KG	2.314	594	1,160.9	5.881	0.208

Flags assigned during chemistry validation are shown.

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U - Not detected above the reported quantitation limit.

Made By: PRF 06/23/2014 Checked By: GEK 06/26/2014

Detection Limits shown are PQL

TABLE 1
SOIL ANALYTICAL RESULTS
COLD SPRING FORMER MGP SITE

Location ID		GP-07	GP-08	GP-09	GP-09	GP-10
Sample ID		GP-7 5-6	GP-8 6-7	GP-9 10-11	GP-9 15-16	GP-10 10-12
Matrix		Soil	Soil	Soil	Soil	Soil
Depth Interval (ft)		5.0-6.0	6.0-7.0	10.0-11.0	15.0-16.0	10.0-12.0
Date Sampled		04/14/14	04/15/14	04/15/14	04/15/14	04/15/14
Parameter	Units					
Volatile Organic Compounds						
Benzene	MG/KG	0.0055 U	0.14	0.046 J	0.0075 U	0.0070 U
Ethylbenzene	MG/KG	0.0055 U	12	0.96	0.0075 U	0.0070 U
Toluene	MG/KG	0.0055 U	0.61	0.16 U	0.0075 U	0.0070 U
Xylene (total)	MG/KG	0.011 U	19	1.4	0.015 U	0.014 U
Total BTEX	MG/KG	ND	31.75	2.406	ND	ND
Semivolatile Organic Compounds						
Acenaphthene	MG/KG	0.0076 J	130	46	0.013 J	0.011 J
Acenaphthylene	MG/KG	0.011 J	20 J	4.9 J	0.0029 J	0.24 U
Anthracene	MG/KG	0.021 J	110	29	0.010 J	0.24 U
Benzo(a)anthracene	MG/KG	0.19 U	88	25 J	0.016 J	0.0067 J
Benzo(a)pyrene	MG/KG	0.13 J	61	18 J	0.10 J	0.054 J
Benzo(b)fluoranthene	MG/KG	0.11 J	68	16 J	0.014 J	0.24 U
Benzo(g,h,i)perylene	MG/KG	0.16 J	31 J	11 J	0.014 J	0.24 U
Benzo(k)fluoranthene	MG/KG	0.045 J	21 J	4.4 J	0.26 U	0.24 U
Chrysene	MG/KG	0.11 J	82	26 J	0.011 J	0.0047 J
Dibenz(a,h)anthracene	MG/KG	0.052 J	9.2 J	4.3 J	0.26 U	0.0081 J
Fluoranthene	MG/KG	0.075 J	160	36	0.013 J	0.24 U
Fluorene	MG/KG	0.0057 J	100	29	0.0084 J	0.24 U
Indeno(1,2,3-cd)pyrene	MG/KG	0.13 J	31 J	8.5 J	0.013 J	0.24 U
Naphthalene	MG/KG	0.028 J	300	61	0.055 J	0.13 J
Phenanthrene	MG/KG	0.082 J	380	120	0.034 J	0.0097 J
Pyrene	MG/KG	0.27	160	57	0.020 J	0.0044 J
Total Polynuclear Aromatic Hydrocarbons	MG/KG	1.2373	1,751.2	496.1	0.3243	0.2286

Flags assigned during chemistry validation are shown.

J - The reported concentration is an estimated value.
U - Not detected above the reported quantitation limit.

Made By: PRF 06/23/2014 Checked By: GEK 06/26/2014

Detection Limits shown are PQL

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[SITEID] = '11176853' AND [LOGDATE] BETWEEN #4/14/2014# AND #4/16/2014# AND [MATRIX] = 'SO' AND [LOCID] <> 'W

TABLE 1
SOIL ANALYTICAL RESULTS
COLD SPRING FORMER MGP SITE

Location ID		GP-10	GP-11	GP-11	GP-11	GT-01
Sample ID		GP-10 13-14	GP-11 5-6	FD-041614	GP-11 10-12	GT-1 8-9
Matrix		Soil	Soil	Soil	Soil	Soil
Depth Interval (ft)		13.0-14.0	5.0-6.0	10.0-12.0	10.0-12.0	8.0-9.0
Date Sampled		04/15/14	04/16/14	04/16/14	04/16/14	04/16/14
Parameter	Units			Field Duplicate (1-1)		
Volatile Organic Compounds						
Benzene	MG/KG	0.0075 U	0.11 U	0.0048 J	0.092	0.0011 J
Ethylbenzene	MG/KG	0.0075 U	0.11 U	0.0074 U	0.91	0.0057 U
Toluene	MG/KG	0.0075 U	0.11 U	0.0041 J	0.027 J	0.0013 J
Xylene (total)	MG/KG	0.015 U	0.21 U	0.015 U	1.3	0.011 U
Total BTEX	MG/KG	ND	ND	0.0089	2.329	0.0024
Semivolatile Organic Compounds						
Acenaphthene	MG/KG	0.0050 J	8.1	0.0032 J	3.4	0.086 J
Acenaphthylene	MG/KG	0.26 U	1.9 J	0.25 U	0.23 J	0.038 J
Anthracene	MG/KG	0.26 U	9.7	0.25 U	0.95 J	0.17 J
Benzo(a)anthracene	MG/KG	0.010 J	8.1	0.0091 J	2.8 U	0.36
Benzo(a)pyrene	MG/KG	0.099 J	5.9	0.24 J	0.66 J	0.26
Benzo(b)fluoranthene	MG/KG	0.26 U	4.1 J	0.25 U	0.75 J	0.25
Benzo(g,h,i)perylene	MG/KG	0.26 U	3.4 J	0.0096 J	0.42 J	0.23
Benzo(k)fluoranthene	MG/KG	0.26 U	1.3 J	0.25 U	2.8 U	0.083 J
Chrysene	MG/KG	0.0045 J	7.8	0.25 U	0.83 J	0.42
Dibenz(a,h)anthracene	MG/KG	0.26 U	1.0 J	0.25 U	0.15 J	0.064 J
Fluoranthene	MG/KG	0.26 U	9.4	0.0038 J	1.2 J	0.50
Fluorene	MG/KG	0.26 U	6.9	0.25 U	1.1 J	0.073 J
Indeno(1,2,3-cd)pyrene	MG/KG	0.26 U	2.3 J	0.25 U	0.34 J	0.18 J
Naphthalene	MG/KG	0.049 J	0.63 J	0.0082 J	12	0.025 J
Phenanthrene	MG/KG	0.0087 J	37	0.010 J	4.2	0.17 J
Pyrene	MG/KG	0.0049 J	24	0.0062 J	2.2 J	1.0
Total Polynuclear Aromatic Hydrocarbons	MG/KG	0.1811	131.53	0.2901	28.43	3.909

Flags assigned during chemistry validation are shown

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U - Not detected above the reported quantitation limit.

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Detection Limits shown are PQL

TABLE 1
SOIL ANALYTICAL RESULTS
COLD SPRING FORMER MGP SITE

Location ID		GT-01
Sample ID		GT-1 14-15
Matrix		Soil
Depth Interval (ft)		14.0-15.0
Date Sampled		04/16/14
Parameter	**Units**	
Volatile Organic Compounds		
Benzene	MG/KG	0.0051 J
Ethylbenzene	MG/KG	0.0077 U
Toluene	MG/KG	0.0042 J
Xylene (total)	MG/KG	0.015 U
Total BTEX	MG/KG	0.0093
Semivolatile Organic Compounds		
Acenaphthene	MG/KG	0.26 U
Acenaphthylene	MG/KG	0.26 U
Anthracene	MG/KG	0.26 U
Benzo(a)anthracene	MG/KG	0.26 U
Benzo(a)pyrene	MG/KG	0.017 J
Benzo(b)fluoranthene	MG/KG	0.26 U
Benzo(g,h,i)perylene	MG/KG	0.018 J
Benzo(k)fluoranthene	MG/KG	0.26 U
Chrysene	MG/KG	0.012 J
Dibenz(a,h)anthracene	MG/KG	0.26 U
Fluoranthene	MG/KG	0.015 J
Fluorene	MG/KG	0.26 U
Indeno(1,2,3-cd)pyrene	MG/KG	0.26 U
Naphthalene	MG/KG	0.26 U
Phenanthrene	MG/KG	0.029 J
Pyrene	MG/KG	0.022 J
Total Polynuclear Aromatic Hydrocarbons	MG/KG	0.113

Flags assigned during chemistry validation are shown.

J - The reported concentration is an estimated value.
U - Not detected above the reported quantitation limit

Made By: PRF 06/23/2014 Checked By: GEK 06/26/2014

Detection Limits shown are PQL

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[SITEID] = '11176853' AND [LOGDATE] BETWEEN #4/14/2014# AND #4/16/2014# AND [MATRIX] = 'SO' AND [LOCID] <> 'W

TABLE 2
WASTE CHARACTERIZATION ANALYTICAL RESULTS
COLD SPRING FORMER MGP SITE

Location ID		WC
Sample ID		WC 5-6
Matrix		Soil
Depth Interval (ft)		5.0-6.0
Date Sampled		04/16/14
Parameter	**Units**	
TCLP Volatile Organic Compounds		
1,1-Dichloroethene	MG/L	0.010 U
1,2-Dichloroethane	MG/L	0.010 U
Benzene	MG/L	0.11
Carbon tetrachloride	MG/L	0.010 U
Chlorobenzene	MG/L	0.010 U
Chloroform	MG/L	0.010 U
Methyl ethyl ketone (2-Butanone)	MG/L	0.050 U
Tetrachloroethene	MG/L	0.010 U
Trichloroethene	MG/L	0.010 U
Vinyl chloride	MG/L	0.010 U
TCLP Semivolatile Organic Compounds		
1,4-Dichlorobenzene	MG/L	0.010 U
2,4,5-Trichlorophenol	MG/L	0.0050 U
2,4,6-Trichlorophenol	MG/L	0.0050 U
2,4-Dinitrotoluene	MG/L	0.0050 U
2-Methylphenol (o-cresol)	MG/L	0.12
3-Methylphenol (m-cresol)	MG/L	0.30
4-Methylphenol (p-cresol)	MG/L	0.30
Hexachlorobenzene	MG/L	0.0050 U
Hexachlorobutadiene	MG/L	0.0050 U
Hexachloroethane	MG/L	0.0050 U
Nitrobenzene	MG/L	0.0050 U
Pentachlorophenol	MG/L	0.010 U

Flags assigned during chemistry validation are shown.

J - The reported concentration is an estimated value.
U - Not detected above the reported quantitation limit.
B - Compound detected in an associated laboratory method blank.
Ignitabilty result is >176 degree F, did not flash.

Detection Limits shown are PQL

TABLE 2
WASTE CHARACTERIZATION ANALYTICAL RESULTS
COLD SPRING FORMER MGP SITE

Location ID		WC
Sample ID		WC 5-6
Matrix		Soil
Depth Interval (ft)		5.0-6.0
Date Sampled		04/16/14
Parameter	**Units**	
TCLP Semivolatile Organic Compounds		
Pyridine	MG/L	0.025 U
TCLP Pesticide Organic Compounds		
Endrin	MG/L	0.0020 U
gamma-BHC (Lindane)	MG/L	0.00059 JB
Heptachlor	MG/L	0.0020 U
Heptachlor epoxide	MG/L	0.0020 U
Methoxychlor	MG/L	0.0020 U
Technical Chlordane	MG/L	0.020 U
Toxaphene	MG/L	0.020 U
TCLP Herbicides		
2,4,5-TP (Silvex)	MG/L	0.0020 U
2,4-D	MG/L	0.0020 U
Polychlorinated Biphenyls		
Aroclor 1016	mg/Kg	0.39 U
Aroclor 1221	mg/Kg	0.39 U
Aroclor 1232	mg/Kg	0.39 U
Aroclor 1242	mg/Kg	0.39 U
Aroclor 1248	mg/Kg	0.39 U
Aroclor 1254	mg/Kg	0.39 U
Aroclor 1260	mg/Kg	0.39 U
TCLP Metals		
Arsenic	MG/L	0.0098 J
Barium	MG/L	0.52 B

Flags assigned during chemistry validation are shown.

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U - Not detected above the reported quantitation limit.
B - Compound detected in an associated laboratory method blank.
Ignitabilty result is >176 degree F, did not flash.

Detection Limits shown are PQL

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TABLE 2
WASTE CHARACTERIZATION ANALYTICAL RESULTS
COLD SPRING FORMER MGP SITE

Location ID		WC
Sample ID		WC 5-6
Matrix		Soil
Depth Interval (ft)		5.0-6.0
Date Sampled		04/16/14
Parameter	Units	
TCLP Metals		
Cadmium	MG/L	0.00063 J
Chromium	MG/L	0.0014 JB
Lead	MG/L	0.010 U
Mercury	MG/L	0.00020 U
Selenium	MG/L	0.011 J
Silver	MG/L	0.0060 U
RCRA Characteristics		
Corrosivity (pH)	S.U.	10.3
Ignitability	DEG F	176.0 >
Reactive Cyanide	MG/KG	10.0 U
Reactive Sulfide	MG/KG	80.2

Flags assigned during chemistry validation are shown.

J - The reported concentration is an estimated value.
U - Not detected above the reported quantitation limit.
B - Compound detected in an associated laboratory method blank.
Ignitabilty result is >176 degree F, did not flash.

Detection Limits shown are PQL

ATTACHMENT A

VALIDATED FORM I'S

Client: New York State D.E.C. Job Number: 480-58380-1

Client Sample ID: **GP-1 5-6.5**

Lab Sample ID: 480-58380-1 Date Sampled: 04/14/2014 1000
Client Matrix: Solid % Moisture: 8.2 Date Received: 04/21/2014 0800

8260C Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	Analysis Batch:	480-177297	Instrument ID:	HP5973F
Prep Method:	5035A	Prep Batch:	480-177317	Lab File ID:	F7753.D
Dilution:	1.0			Initial Weight/Volume:	0.58 g
Analysis Date:	04/22/2014 0141			Final Weight/Volume:	5 g
Prep Date:	04/21/2014 2340				

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Benzene		ND		2.3	47
Toluene		ND		3.6	47
Ethylbenzene		ND		3.2	47
m-Xylene & p-Xylene		19	J	7.9	94
o-Xylene		ND		6.1	47
Xylenes, Total		19	J	7.9	94
Total BTEX		ND		47	94

Surrogate	%Rec	Qualifier	Acceptance Limits
Toluene-d8 (Surr)	100		71 - 125
1,2-Dichloroethane-d4 (Surr)	98		64 - 126
4-Bromofluorobenzene (Surr)	100		72 - 126

Client: New York State D.E.C.

Job Number: 480-58380-1

Client Sample ID: **GP-2 5-5.4**

Lab Sample ID: 480-58380-2
Client Matrix: Solid

% Moisture: 9.9

Date Sampled: 04/14/2014 1020
Date Received: 04/21/2014 0800

8260C Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	Analysis Batch:	480-177297	Instrument ID:	HP5973F
Prep Method:	5035A	Prep Batch:	480-177317	Lab File ID:	F7754.D
Dilution:	1.0			Initial Weight/Volume:	0.72 g
Analysis Date:	04/22/2014 0206			Final Weight/Volume:	5 g
Prep Date:	04/21/2014 2340				

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Benzene		ND		1.9	39
Toluene		ND		2.9	39
Ethylbenzene		ND		2.7	39
m-Xylene & p-Xylene		9.4	J	6.5	77
o-Xylene		7.9	J	5.0	39
Xylenes, Total		17	J	6.5	77
Total BTEX		ND		39	77

Surrogate	%Rec	Qualifier	Acceptance Limits
Toluene-d8 (Surr)	100		71 - 125
1,2-Dichloroethane-d4 (Surr)	96		64 - 126
4-Bromofluorobenzene (Surr)	100		72 - 126

Client: New York State D E.C.

Job Number: 480-58380-1

Client Sample ID: **GP-3 0.5-2**

Lab Sample ID: 480-58380-3
Client Matrix: Solid

% Moisture: 9.3

Date Sampled: 04/14/2014 1030
Date Received: 04/21/2014 0800

8260C Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	Analysis Batch:	480-177297	Instrument ID:	HP5973F
Prep Method:	5035A	Prep Batch:	480-177317	Lab File ID:	F7755.D
Dilution:	1.0			Initial Weight/Volume:	5.01 g
Analysis Date:	04/22/2014 0232			Final Weight/Volume:	5 g
Prep Date:	04/21/2014 2340				

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Benzene		ND		0.27	5.5
Toluene		ND		0.42	5.5
Ethylbenzene		0.41	J	0.38	5.5
m-Xylene & p-Xylene		ND		0.92	11
o-Xylene		ND		0.72	5.5
Xylenes, Total		ND		0.92	11
Total BTEX		ND		5.5	11

Surrogate	%Rec	Qualifier	Acceptance Limits
Toluene-d8 (Surr)	105		71 - 125
1,2-Dichloroethane-d4 (Surr)	100		64 - 126
4-Bromofluorobenzene (Surr)	104		72 - 126

Client: New York State D.E.C. Job Number: 480-58380-1

Client Sample ID: **GP-3B 11-12**

Lab Sample ID: 480-58380-4 Date Sampled: 04/14/2014 1245
Client Matrix: Solid % Moisture: 36.1 Date Received: 04/21/2014 0800

8260C Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	Analysis Batch:	480-177297	Instrument ID:	HP5973F
Prep Method:	5035A	Prep Batch:	480-177317	Lab File ID:	F7756.D
Dilution:	1.0			Initial Weight/Volume:	5.04 g
Analysis Date:	04/22/2014 0258			Final Weight/Volume:	5 g
Prep Date:	04/21/2014 2340				

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Benzene		ND		0.38	7.8
Toluene		ND		0.59	7.8
Ethylbenzene		ND		0.54	7.8
m-Xylene & p-Xylene		ND		1.3	16
o-Xylene		ND		1.0	7.8
Xylenes, Total		ND		1.3	16
Total BTEX		ND		7.8	16

Surrogate	%Rec	Qualifier	Acceptance Limits
Toluene-d8 (Surr)	105		71 - 125
1,2-Dichloroethane-d4 (Surr)	100		64 - 126
4-Bromofluorobenzene (Surr)	104		72 - 126

Client: New York State D.E.C.

Job Number: 480-58380-1

Client Sample ID: **GP-4B 10-11**

Lab Sample ID: 480-58380-5
Client Matrix: Solid

% Moisture: 41.7

Date Sampled: 04/14/2014 1415
Date Received: 04/21/2014 0800

8260C Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	Analysis Batch:	480-177409	Instrument ID:	HP5973F
Prep Method:	5035A	Prep Batch:	480-177426	Lab File ID:	F7781.D
Dilution:	1.0			Initial Weight/Volume:	5.02 g
Analysis Date:	04/22/2014 1440			Final Weight/Volume:	5 g
Prep Date:	04/22/2014 0954				

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Benzene		3.6	J	0.42	8.5
Toluene		1.5	J	0.65	8.5
Ethylbenzene		2.8	J	0.59	8.5
m-Xylene & p-Xylene		49		1.4	17
o-Xylene		64		1.1	8.5
Xylenes, Total		110		1.4	17
Total BTEX		120		8.5	17

Surrogate	%Rec	Qualifier	Acceptance Limits
Toluene-d8 (Surr)	100		71 - 125
1,2-Dichloroethane-d4 (Surr)	110		64 - 126
4-Bromofluorobenzene (Surr)	101		72 - 126

Client: New York State D.E.C. Job Number: 480-58380-1

Client Sample ID: **GP-4B 12-13**

Lab Sample ID: 480-58380-6 Date Sampled: 04/14/2014 1420
Client Matrix: Solid % Moisture: 33.5 Date Received: 04/21/2014 0800

8260C Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	Analysis Batch:	480-177297	Instrument ID:	HP5973F
Prep Method:	5035A	Prep Batch:	480-177317	Lab File ID:	F7758.D
Dilution:	1.0			Initial Weight/Volume:	5.16 g
Analysis Date:	04/22/2014 0349			Final Weight/Volume:	5 g
Prep Date:	04/21/2014 2340				

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Benzene		ND		0.36	7.3
Toluene		ND		0.55	7.3
Ethylbenzene		ND		0.50	7.3
m-Xylene & p-Xylene		ND		1.2	15
o-Xylene		ND		0.95	7.3
Xylenes, Total		ND		1.2	15
Total BTEX		ND		7.3	15

Surrogate	%Rec	Qualifier	Acceptance Limits
Toluene-d8 (Surr)	106		71 - 125
1,2-Dichloroethane-d4 (Surr)	106		64 - 126
4-Bromofluorobenzene (Surr)	107		72 - 126

Client: New York State D.E.C. Job Number: 480-58380-1

Client Sample ID: **GP-7 5-6**

Lab Sample ID: 480-58380-7 Date Sampled: 04/14/2014 1525
Client Matrix: Solid % Moisture: 12.5 Date Received: 04/21/2014 0800

8260C Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	Analysis Batch:	480-177297	Instrument ID:	HP5973F
Prep Method:	5035A	Prep Batch:	480-177317	Lab File ID:	F7759.D
Dilution:	1.0			Initial Weight/Volume:	5.17 g
Analysis Date:	04/22/2014 0415			Final Weight/Volume:	5 g
Prep Date:	04/21/2014 2340				

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Benzene		ND		0.27	5.5
Toluene		ND		0.42	5.5
Ethylbenzene		ND		0.38	5.5
m-Xylene & p-Xylene		ND		0.93	11
o-Xylene		ND		0.72	5.5
Xylenes, Total		ND		0.93	11
Total BTEX		ND		5.5	11

Surrogate	%Rec	Qualifier	Acceptance Limits
Toluene-d8 (Surr)	104		71 - 125
1,2-Dichloroethane-d4 (Surr)	104		64 - 126
4-Bromofluorobenzene (Surr)	105		72 - 126

Client: New York State D.E.C.

Job Number: 480-58380-1

Client Sample ID: GP-6 10-11

Lab Sample ID: 480-58380-8
Client Matrix: Solid

% Moisture: 39.6

Date Sampled: 04/15/2014 0850
Date Received: 04/21/2014 0800

8260C Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	Analysis Batch:	480-177297	Instrument ID:	HP5973F
Prep Method:	5035A	Prep Batch:	480-177317	Lab File ID:	F7760.D
Dilution:	1.0			Initial Weight/Volume:	0.52 g
Analysis Date:	04/22/2014 0441			Final Weight/Volume:	5 g
Prep Date:	04/21/2014 2340				

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Benzene		ND		3.9	80
Toluene		ND		6.0	80
Ethylbenzene		110		5.5	80
m-Xylene & p-Xylene		67	J	13	160
o-Xylene		140		10	80
Xylenes, Total		210		13	160
Total BTEX		320		80	160

Surrogate	%Rec	Qualifier	Acceptance Limits
Toluene-d8 (Surr)	102		71 - 125
1,2-Dichloroethane-d4 (Surr)	96		64 - 126
4-Bromofluorobenzene (Surr)	102		72 - 126

Client: New York State D.E.C. Job Number: 480-58380-1

Client Sample ID: GP-6 12-13

Lab Sample ID: 480-58380-9 Date Sampled: 04/15/2014 0900
Client Matrix: Solid % Moisture: 32.8 Date Received: 04/21/2014 0800

8260C Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	Analysis Batch:	480-177297	Instrument ID:	HP5973F
Prep Method:	5035A	Prep Batch:	480-177317	Lab File ID:	F7761.D
Dilution:	1.0			Initial Weight/Volume:	5.02 g
Analysis Date:	04/22/2014 0506			Final Weight/Volume:	5 g
Prep Date:	04/21/2014 2340				

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Benzene		ND		0.36	7.4
Toluene		ND		0.56	7.4
Ethylbenzene		ND		0.51	7.4
m-Xylene & p-Xylene		7.6	J	1.2	15
o-Xylene		18		0.97	7.4
Xylenes, Total		26		1.2	15
Total BTEX		26		7.4	15

Surrogate	%Rec	Qualifier	Acceptance Limits
Toluene-d8 (Surr)	103		71 - 125
1,2-Dichloroethane-d4 (Surr)	102		64 - 126
4-Bromofluorobenzene (Surr)	105		72 - 126

Client: New York State D.E.C.

Job Number: 480-58380-1

Client Sample ID: GP-5 6-7

Lab Sample ID: 480-58380-10
Client Matrix: Solid

% Moisture: 11.1

Date Sampled: 04/15/2014 0955
Date Received: 04/21/2014 0800

8260C Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	Analysis Batch:	480-177571	Instrument ID:	HP5973G
Prep Method:	5035A	Prep Batch:	480-177543	Lab File ID:	G29669.D
Dilution:	1.0			Initial Weight/Volume:	5.03 g
Analysis Date:	04/23/2014 0330			Final Weight/Volume:	10 mL
Prep Date:	04/22/2014 1808				

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Benzene		26	J	21	110
Toluene		45	J	30	110
Ethylbenzene		430		33	110
m-Xylene & p-Xylene		270		62	220
o-Xylene		350		15	110
Xylenes, Total		620		19	220
Total BTEX		1100		110	220

Surrogate	%Rec	Qualifier	Acceptance Limits
Toluene-d8 (Surr)	104		50 - 149
1,2-Dichloroethane-d4 (Surr)	103		53 - 146
4-Bromofluorobenzene (Surr)	108		49 - 148

Client: New York State D.E.C.

Job Number: 480-58380-1

Client Sample ID: **GP-5 10-11**

Lab Sample ID: 480-58380-11
Client Matrix: Solid
% Moisture: 17.4

Date Sampled: 04/15/2014 1000
Date Received: 04/21/2014 0800

8260C Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	Analysis Batch:	480-177297	Instrument ID:	HP5973F
Prep Method:	5035A	Prep Batch:	480-177317	Lab File ID:	F7762.D
Dilution:	1.0			Initial Weight/Volume:	5 g
Analysis Date:	04/22/2014 0532			Final Weight/Volume:	5 g
Prep Date:	04/21/2014 2340				

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Benzene		ND		0.30	6.1
Toluene		ND		0.46	6.1
Ethylbenzene		1.2	J	0.42	6.1
m-Xylene & p-Xylene		ND		1.0	12
o-Xylene		ND		0.79	6.1
Xylenes, Total		ND		1.0	12
Total BTEX		ND		6.1	12

Surrogate	%Rec	Qualifier	Acceptance Limits
Toluene-d8 (Surr)	103		71 - 125
1,2-Dichloroethane-d4 (Surr)	102		64 - 126
4-Bromofluorobenzene (Surr)	106		72 - 126

Client: New York State D.E.C. Job Number: 480-58380-1

Client Sample ID: GP-8 6-7

Lab Sample ID: 480-58380-12 Date Sampled: 04/15/2014 1020
Client Matrix: Solid % Moisture: 16.0 Date Received: 04/21/2014 0800

8260C Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	Analysis Batch:	480-177571	Instrument ID:	HP5973G
Prep Method:	5035A	Prep Batch:	480-177543	Lab File ID:	G29670.D
Dilution:	1.0			Initial Weight/Volume:	4.28 g
Analysis Date:	04/23/2014 0353			Final Weight/Volume:	10 mL
Prep Date:	04/22/2014 1808				

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Benzene		140		26	140
Toluene		610		37	140
Ethylbenzene		12000		40	140
m-Xylene & p-Xylene		12000		77	280
o-Xylene		7200		18	140
Xylenes, Total		19000		23	280
Total BTEX		32000		140	280

Surrogate	%Rec	Qualifier	Acceptance Limits
Toluene-d8 (Surr)	99		50 - 149
1,2-Dichloroethane-d4 (Surr)	102		53 - 146
4-Bromofluorobenzene (Surr)	109		49 - 148

Client: New York State D.E.C.

Job Number: 480-58380-1

Client Sample ID: **GP-9 10-11**

Lab Sample ID: 480-58380-13
Client Matrix: Solid

% Moisture: 40.2

Date Sampled: 04/15/2014 1120
Date Received: 04/21/2014 0800

8260C Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	Analysis Batch:	480-177571	Instrument ID:	HP5973G
Prep Method:	5035A	Prep Batch:	480-177543	Lab File ID:	G29671.D
Dilution:	1.0			Initial Weight/Volume:	5.3 g
Analysis Date:	04/23/2014 0416			Final Weight/Volume:	10 mL
Prep Date:	04/22/2014 1808				

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Benzene		46	J	30	160
Toluene		ND		42	160
Ethylbenzene		960		46	160
m-Xylene & p-Xylene		480		87	320
o-Xylene		890		20	160
Xylenes, Total		1400		26	320
Total BTEX		2400		160	320

Surrogate	%Rec	Qualifier	Acceptance Limits
Toluene-d8 (Surr)	122		50 - 149
1,2-Dichloroethane-d4 (Surr)	117		53 - 146
4-Bromofluorobenzene (Surr)	129		49 - 148

Client: New York State D.E.C.

Job Number: 480-58380-1

Client Sample ID: **GP-9 15-16**

Lab Sample ID: 480-58380-14
Client Matrix: Solid
% Moisture: 34.4

Date Sampled: 04/15/2014 1130
Date Received: 04/21/2014 0800

8260C Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	Analysis Batch:	480-177297	Instrument ID:	HP5973F
Prep Method:	5035A	Prep Batch:	480-177317	Lab File ID:	F7763.D
Dilution:	1.0			Initial Weight/Volume:	5.1 g
Analysis Date:	04/22/2014 0558			Final Weight/Volume:	5 g
Prep Date:	04/21/2014 2340				

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Benzene		ND		0.37	7.5
Toluene		ND		0.57	7.5
Ethylbenzene		ND		0.52	7.5
m-Xylene & p-Xylene		ND		1.3	15
o-Xylene		ND		0.98	7.5
Xylenes, Total		ND		1.3	15
Total BTEX		ND		7.5	15

Surrogate	%Rec	Qualifier	Acceptance Limits
Toluene-d8 (Surr)	105		71 - 125
1,2-Dichloroethane-d4 (Surr)	101		64 - 126
4-Bromofluorobenzene (Surr)	106		72 - 126

Client: New York State D.E.C.

Job Number: 480-58380-1

Client Sample ID: **GP-10 10-12**

Lab Sample ID: 480-58380-15
Client Matrix: Solid
% Moisture: 30.2

Date Sampled: 04/15/2014 1410
Date Received: 04/21/2014 0800

8260C Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	Analysis Batch:	480-177297	Instrument ID:	HP5973F
Prep Method:	5035A	Prep Batch:	480-177317	Lab File ID:	F7764.D
Dilution:	1.0			Initial Weight/Volume:	5.13 g
Analysis Date:	04/22/2014 0624			Final Weight/Volume:	5 g
Prep Date:	04/21/2014 2340				

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Benzene		ND		0.34	7.0
Toluene		ND		0.53	7.0
Ethylbenzene		ND		0.48	7.0
m-Xylene & p-Xylene		ND		1.2	14
o-Xylene		ND		0.91	7.0
Xylenes, Total		ND		1.2	14
Total BTEX		ND		7.0	14

Surrogate	%Rec	Qualifier	Acceptance Limits
Toluene-d8 (Surr)	104		71 - 125
1,2-Dichloroethane-d4 (Surr)	103		64 - 126
4-Bromofluorobenzene (Surr)	106		72 - 126

Client: New York State D.E.C. Job Number: 480-58380-1

Client Sample ID: **GP-10 13-14**

Lab Sample ID: 480-58380-16 Date Sampled: 04/15/2014 1415
Client Matrix: Solid % Moisture: 34.2 Date Received: 04/21/2014 0800

8260C Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	Analysis Batch:	480-177297	Instrument ID:	HP5973F
Prep Method:	5035A	Prep Batch:	480-177317	Lab File ID:	F7765.D
Dilution:	1.0			Initial Weight/Volume:	5.05 g
Analysis Date:	04/22/2014 0649			Final Weight/Volume:	5 g
Prep Date:	04/21/2014 2340				

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Benzene		ND		0.37	7.5
Toluene		ND		0.57	7.5
Ethylbenzene		ND		0.52	7.5
m-Xylene & p-Xylene		ND		1.3	15
o-Xylene		ND		0.98	7.5
Xylenes, Total		ND		1.3	15
Total BTEX		ND		7.5	15

Surrogate	%Rec	Qualifier	Acceptance Limits
Toluene-d8 (Surr)	105		71 - 125
1,2-Dichloroethane-d4 (Surr)	105		64 - 126
4-Bromofluorobenzene (Surr)	104		72 - 126

Client: New York State D.E.C. Job Number: 480-58380-1

Client Sample ID: **GP-11 5-6**

Lab Sample ID: 480-58380-17 Date Sampled: 04/16/2014 1007
Client Matrix: Solid % Moisture: 13.1 Date Received: 04/21/2014 0800

8260C Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	Analysis Batch:	480-177571	Instrument ID:	HP5973G
Prep Method:	5035A	Prep Batch:	480-177543	Lab File ID:	G29672.D
Dilution:	1.0			Initial Weight/Volume:	5.44 g
Analysis Date:	04/23/2014 0439			Final Weight/Volume:	10 mL
Prep Date:	04/22/2014 1808				

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Benzene		ND		20	110
Toluene		ND		28	110
Ethylbenzene		ND		31	110
m-Xylene & p-Xylene		ND		59	210
o-Xylene		ND		14	110
Xylenes, Total		ND		18	210
Total BTEX		ND		110	210

Surrogate	%Rec	Qualifier	Acceptance Limits
Toluene-d8 (Surr)	106		50 - 149
1,2-Dichloroethane-d4 (Surr)	96		53 - 146
4-Bromofluorobenzene (Surr)	111		49 - 148

Client: New York State D.E.C. Job Number: 480-58380-1

Client Sample ID: **GP-11 10-12**

Lab Sample ID: 480-58380-18 Date Sampled: 04/16/2014 1030
Client Matrix: Solid % Moisture: 40.1 Date Received: 04/21/2014 0800

8260C Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	Analysis Batch:	480-177297	Instrument ID:	HP5973F
Prep Method:	5035A	Prep Batch:	480-177317	Lab File ID:	F7766.D
Dilution:	1.0			Initial Weight/Volume:	0.66 g
Analysis Date:	04/22/2014 0715			Final Weight/Volume:	5 g
Prep Date:	04/21/2014 2340				

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Benzene		92		3.1	63
Toluene		27	J	4.8	63
Ethylbenzene		910		4.4	63
m-Xylene & p-Xylene		570		11	130
o-Xylene		720		8.3	63
Xylenes, Total		1300		11	130
Total BTEX		2300		63	130

Surrogate	%Rec	Qualifier	Acceptance Limits
Toluene-d8 (Surr)	99		71 - 125
1,2-Dichloroethane-d4 (Surr)	99		64 - 126
4-Bromofluorobenzene (Surr)	100		72 - 126

Client: New York State D.E.C.

Job Number: 480-58380-1

Client Sample ID: FD-041614 [GP-11 (10-12)]

Lab Sample ID: 480-58380-19

Client Matrix: Solid

% Moisture: 33.1

Date Sampled: 04/16/2014 0000

Date Received: 04/21/2014 0800

8260C Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	Analysis Batch:	480-177297	Instrument ID:	HP5973F
Prep Method:	5035A	Prep Batch:	480-177317	Lab File ID:	F7767.D
Dilution:	1.0			Initial Weight/Volume:	5.04 g
Analysis Date:	04/22/2014 0741			Final Weight/Volume:	5 g
Prep Date:	04/21/2014 2340				

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Benzene		4.8	J	0.36	7.4
Toluene		4.1	J	0.56	7.4
Ethylbenzene		ND		0.51	7.4
m-Xylene & p-Xylene		ND		1.2	15
o-Xylene		ND		0.97	7.4
Xylenes, Total		ND		1.2	15
Total BTEX		8.9	J	7.4	15

Surrogate	%Rec	Qualifier	Acceptance Limits
Toluene-d8 (Surr)	105		71 - 125
1,2-Dichloroethane-d4 (Surr)	107		64 - 126
4-Bromofluorobenzene (Surr)	107		72 - 126

Client: New York State D.E.C. Job Number: 480-58380-1

Client Sample ID: **GT-1 8-9**

Lab Sample ID: 480-58380-20 Date Sampled: 04/16/2014 1000
Client Matrix: Solid % Moisture: 12.2 Date Received: 04/21/2014 0800

8260C Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	Analysis Batch:	480-177409	Instrument ID:	HP5973F
Prep Method:	5035A	Prep Batch:	480-177426	Lab File ID:	F7783.D
Dilution:	1.0			Initial Weight/Volume:	5.02 g
Analysis Date:	04/22/2014 1532			Final Weight/Volume:	5 g
Prep Date:	04/22/2014 0954				

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Benzene		1.1	J	0.28	5.7
Toluene		1.3	J	0.43	5.7
Ethylbenzene		ND		0.39	5.7
m-Xylene & p-Xylene		ND		0.95	11
o-Xylene		ND		0.74	5.7
Xylenes, Total		ND		0.95	11
Total BTEX		ND		5.7	11

Surrogate	%Rec	Qualifier	Acceptance Limits
Toluene-d8 (Surr)	103		71 - 125
1,2-Dichloroethane-d4 (Surr)	104		64 - 126
4-Bromofluorobenzene (Surr)	104		72 - 126

Client: New York State D.E.C.

Job Number: 480-58380-1

Client Sample ID: GT-1 14-15

Lab Sample ID: 480-58380-21
Client Matrix: Solid
% Moisture: 35.6

Date Sampled: 04/16/2014 1223
Date Received: 04/21/2014 0800

8260C Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	Analysis Batch:	480-177297	Instrument ID:	HP5973F
Prep Method:	5035A	Prep Batch:	480-177317	Lab File ID:	F7769.D
Dilution:	1.0			Initial Weight/Volume:	5.05 g
Analysis Date:	04/22/2014 0859			Final Weight/Volume:	5 g
Prep Date:	04/21/2014 2340				

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Benzene		5.1	J	0.38	7.7
Toluene		4.2	J	0.58	7.7
Ethylbenzene		ND		0.53	7.7
m-Xylene & p-Xylene		ND		1.3	15
o-Xylene		ND		1.0	7.7
Xylenes, Total		ND		1.3	15
Total BTEX		9.3	J	7.7	15

Surrogate	%Rec	Qualifier	Acceptance Limits
Toluene-d8 (Surr)	105		71 - 125
1,2-Dichloroethane-d4 (Surr)	103		64 - 126
4-Bromofluorobenzene (Surr)	106		72 - 126

Client: New York State D.E.C. Job Number: 480-58380-1

Client Sample ID: **GP-1 5-6.5**

Lab Sample ID: 480-58380-1 Date Sampled: 04/14/2014 1000
Client Matrix: Solid % Moisture: 8.2 Date Received: 04/21/2014 0800

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270D	Analysis Batch:	480-178188	Instrument ID:	HP5973X
Prep Method:	3550C	Prep Batch:	480-177927	Lab File ID:	X00891818.D
Dilution:	5.0			Initial Weight/Volume:	+30.15 g
Analysis Date:	04/25/2014 1727			Final Weight/Volume:	1 mL
Prep Date:	04/24/2014 0806			Injection Volume:	1 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		1300		11	920
Acenaphthylene		1000		7.5	920
Anthracene		6600		23	920
Benzo[a]anthracene		5200		16	920
Benzo[a]pyrene		3500		22	920
Benzo[b]fluoranthene		4000		18	920
Benzo[g,h,i]perylene		1800		11	920
Benzo[k]fluoranthene		1800		10	920
Chrysene		4700		9.2	920
Dibenz(a,h)anthracene		650	J	11	920
Fluoranthene		11000		13	920
Fluorene		4700		21	920
Indeno[1,2,3-cd]pyrene		1800		25	920
Naphthalene		770	J	15	920
Phenanthrene		18000		19	920
Pyrene		11000		5.9	920

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	94		37 - 120
Nitrobenzene-d5 (Surr)	85		34 - 132
p-Terphenyl-d14 (Surr)	115		65 - 153

Client: New York State D.E.C. Job Number: 480-58380-1

Client Sample ID: **GP-2 5-5.4**

Lab Sample ID: 480-58380-2 Date Sampled: 04/14/2014 1020
Client Matrix: Solid % Moisture: 9.9 Date Received: 04/21/2014 0800

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270D	Analysis Batch:	480-178188	Instrument ID:	HP5973X
Prep Method:	3550C	Prep Batch:	480-177927	Lab File ID:	X00891819.D
Dilution:	10			Initial Weight/Volume:	+30.03 g
Analysis Date:	04/25/2014 1750			Final Weight/Volume:	1 mL
Prep Date:	04/24/2014 0806			Injection Volume:	1 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		240	J	22	1900
Acenaphthylene		300	J	15	1900
Anthracene		900	J	48	1900
Benzo[a]anthracene		5200		32	1900
Benzo[a]pyrene		7800		45	1900
Benzo[b]fluoranthene		7700		36	1900
Benzo[g,h,i]perylene		8300		22	1900
Benzo[k]fluoranthene		3000		21	1900
Chrysene		5600		19	1900
Dibenz(a,h)anthracene		2400		22	1900
Fluoranthene		4600		27	1900
Fluorene		180	J	43	1900
Indeno[1,2,3-cd]pyrene		6700		52	1900
Naphthalene		360	J	31	1900
Phenanthrene		3100		39	1900
Pyrene		8500		12	1900

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	90		37 - 120
Nitrobenzene-d5 (Surr)	80		34 - 132
p-Terphenyl-d14 (Surr)	104		65 - 153

Client: New York State D.E.C. Job Number: 480-58380-1

Client Sample ID: **GP-3 0.5-2**

Lab Sample ID: 480-58380-3 Date Sampled: 04/14/2014 1030
Client Matrix: Solid % Moisture: 9.3 Date Received: 04/21/2014 0800

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270D	Analysis Batch:	480-178458	Instrument ID:	HP5973X
Prep Method:	3550C	Prep Batch:	480-177927	Lab File ID:	X00891871.D
Dilution:	40			Initial Weight/Volume:	+30.61 g
Analysis Date:	04/26/2014 1843			Final Weight/Volume:	1 mL
Prep Date:	04/24/2014 0806			Injection Volume:	1 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		510	J	86	7400
Acenaphthylene		1000	J	60	7400
Anthracene		1800	J	190	7400
Benzo[a]anthracene		22000		130	7400
Benzo[a]pyrene		29000		180	7400
Benzo[b]fluoranthene		24000		140	7400
Benzo[g,h,i]perylene		37000		88	7400
Benzo[k]fluoranthene		9300		80	7400
Chrysene		29000		73	7400
Dibenz(a,h)anthracene		9800		86	7400
Fluoranthene		13000		110	7400
Fluorene		440	J	170	7400
Indeno[1,2,3-cd]pyrene		24000		200	7400
Naphthalene		990	J	120	7400
Phenanthrene		9400		150	7400
Pyrene		33000		47	7400

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	104		37 - 120
Nitrobenzene-d5 (Surr)	88		34 - 132
p-Terphenyl-d14 (Surr)	123		65 - 153

Client: New York State D.E.C. Job Number: 480-58380-1

Client Sample ID: **GP-3B 11-12**

Lab Sample ID: 480-58380-4 Date Sampled: 04/14/2014 1245
Client Matrix: Solid % Moisture: 36.1 Date Received: 04/21/2014 0800

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270D	Analysis Batch:	480-178188	Instrument ID:	HP5973X
Prep Method:	3550C	Prep Batch:	480-177927	Lab File ID:	X00891821.D
Dilution:	1.0			Initial Weight/Volume:	+30.62 g
Analysis Date:	04/25/2014 1838			Final Weight/Volume:	1 mL
Prep Date:	04/24/2014 0806			Injection Volume:	1 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		150	J	3.0	260
Acenaphthylene		15	J	2.1	260
Anthracene		76	J	6.6	260
Benzo[a]anthracene		ND		4.5	260
Benzo[a]pyrene		75	J	6.2	260
Benzo[b]fluoranthene		63	J	5.0	260
Benzo[g,h,i]perylene		72	J	3.1	260
Benzo[k]fluoranthene		27	J	2.8	260
Chrysene		72	J	2.6	260
Dibenz(a,h)anthracene		40	J	3.0	260
Fluoranthene		95	J	3.8	260
Fluorene		74	J	6.0	260
Indeno[1,2,3-cd]pyrene		60	J	7.2	260
Naphthalene		3100		4.3	260
Phenanthrene		310		5.4	260
Pyrene		230	J	1.7	260

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	86		37 - 120
Nitrobenzene-d5 (Surr)	76		34 - 132
p-Terphenyl-d14 (Surr)	121		65 - 153

Client: New York State D.E.C. Job Number: 480-58380-1

Client Sample ID: **GP-4B 10-11**

Lab Sample ID: 480-58380-5 Date Sampled: 04/14/2014 1415
Client Matrix: Solid % Moisture: 41.7 Date Received: 04/21/2014 0800

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270D	Analysis Batch:	480-178458	Instrument ID:	HP5973X
Prep Method:	3550C	Prep Batch:	480-177927	Lab File ID:	X00891872.D
Dilution:	5.0			Initial Weight/Volume:	+30.29 g
Analysis Date:	04/26/2014 1906			Final Weight/Volume:	1 mL
Prep Date:	04/24/2014 0806			Injection Volume:	1 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		180	J	17	1400
Acenaphthylene		ND		12	1400
Anthracene		90	J	37	1400
Benzo[a]anthracene		160	J	25	1400
Benzo[a]pyrene		290	J	35	1400
Benzo[b]fluoranthene		110	J	28	1400
Benzo[g,h,i]perylene		150	J	17	1400
Benzo[k]fluoranthene		38	J	16	1400
Chrysene		100	J	14	1400
Dibenz(a,h)anthracene		ND		17	1400
Fluoranthene		110	J	21	1400
Fluorene		90	J	33	1400
Indeno[1,2,3-cd]pyrene		78	J	40	1400
Naphthalene		3500		24	1400
Phenanthrene		400	J	30	1400
Pyrene		210	J	9.3	1400

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	92		37 - 120
Nitrobenzene-d5 (Surr)	76		34 - 132
p-Terphenyl-d14 (Surr)	107		65 - 153

Client: New York State D.E.C. Job Number: 480-58380-1

Client Sample ID: **GP-4B 12-13**

Lab Sample ID: 480-58380-6 Date Sampled: 04/14/2014 1420
Client Matrix: Solid % Moisture: 33.5 Date Received: 04/21/2014 0800

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270D	Analysis Batch:	480-178188	Instrument ID:	HP5973X
Prep Method:	3550C	Prep Batch:	480-177927	Lab File ID:	X00891823.D
Dilution:	1.0			Initial Weight/Volume:	+30.91 g
Analysis Date:	04/25/2014 1924			Final Weight/Volume:	1 mL
Prep Date:	04/24/2014 0806			Injection Volume:	1 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		64	J	2.9	250
Acenaphthylene		27	J	2.0	250
Anthracene		120	J	6.3	250
Benzo[a]anthracene		ND		4.3	250
Benzo[a]pyrene		170	J	5.9	250
Benzo[b]fluoranthene		130	J	4.8	250
Benzo[g,h,i]perylene		120	J	3.0	250
Benzo[k]fluoranthene		50	J	2.7	250
Chrysene		230	J	2.5	250
Dibenz(a,h)anthracene		49	J	2.9	250
Fluoranthene		220	J	3.6	250
Fluorene		63	J	5.7	250
Indeno[1,2,3-cd]pyrene		110	J	6.8	250
Naphthalene		11	J	4.1	250
Phenanthrene		370		5.2	250
Pyrene		580		1.6	250

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	92		37 - 120
Nitrobenzene-d5 (Surr)	82		34 - 132
p-Terphenyl-d14 (Surr)	130		65 - 153

Client: New York State D.E.C. Job Number: 480-58380-1

Client Sample ID: **GP-7 5-6**

Lab Sample ID: 480-58380-7 Date Sampled: 04/14/2014 1525
Client Matrix: Solid % Moisture: 12.5 Date Received: 04/21/2014 0800

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270D	Analysis Batch:	480-178188	Instrument ID:	HP5973X
Prep Method:	3550C	Prep Batch:	480-177927	Lab File ID:	X00891826.D
Dilution:	1.0			Initial Weight/Volume:	+30.49 g
Analysis Date:	04/25/2014 2035			Final Weight/Volume:	1 mL
Prep Date:	04/24/2014 0806			Injection Volume:	1 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		7.6	J	2.2	190
Acenaphthylene		11	J	1.6	190
Anthracene		21	J	4.9	190
Benzo[a]anthracene		ND		3.3	190
Benzo[a]pyrene		130	J	4.6	190
Benzo[b]fluoranthene		110	J	3.7	190
Benzo[g,h,i]perylene		160	J	2.3	190
Benzo[k]fluoranthene		45	J	2.1	190
Chrysene		110	J	1.9	190
Dibenz(a,h)anthracene		52	J	2.2	190
Fluoranthene		75	J	2.8	190
Fluorene		5.7	J	4.4	190
Indeno[1,2,3-cd]pyrene		130	J	5.3	190
Naphthalene		28	J	3.2	190
Phenanthrene		82	J	4.0	190
Pyrene		270		1.2	190

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	90		37 - 120
Nitrobenzene-d5 (Surr)	78		34 - 132
p-Terphenyl-d14 (Surr)	129		65 - 153

Client: New York State D.E.C. Job Number: 480-58380-1

Client Sample ID: **GP-6 10-11**

Lab Sample ID: 480-58380-8 Date Sampled: 04/15/2014 0850
Client Matrix: Solid % Moisture: 39.6 Date Received: 04/21/2014 0800

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270D	Analysis Batch:	480-178458	Instrument ID:	HP5973X
Prep Method:	3550C	Prep Batch:	480-177927	Lab File ID:	X00891858.D
Dilution:	1.0			Initial Weight/Volume:	+30.07 g
Analysis Date:	04/26/2014 1342			Final Weight/Volume:	1 mL
Prep Date:	04/24/2014 0806			Injection Volume:	1 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		910		3.3	280
Acenaphthylene		17	J	2.3	280
Anthracene		36	J	7.1	280
Benzo[a]anthracene		ND		4.8	280
Benzo[a]pyrene		33	J	6.7	280
Benzo[b]fluoranthene		35	J	5.4	280
Benzo[g,h,i]perylene		28	J	3.3	280
Benzo[k]fluoranthene		17	J	3.1	280
Chrysene		42	J	2.8	280
Dibenz(a,h)anthracene		14	J	3.3	280
Fluoranthene		53	J	4.0	280
Fluorene		54	J	6.4	280
Indeno[1,2,3-cd]pyrene		25	J	7.7	280
Naphthalene		4400		4.6	280
Phenanthrene		140	J	5.9	280
Pyrene		77	J	1.8	280

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	79		37 - 120
Nitrobenzene-d5 (Surr)	66		34 - 132
p-Terphenyl-d14 (Surr)	96		65 - 153

Client: New York State D.E.C.

Job Number: 480-58380-1

Client Sample ID: **GP-6 12-13**

Lab Sample ID: 480-58380-9
Client Matrix: Solid

% Moisture: 32.8

Date Sampled: 04/15/2014 0900
Date Received: 04/21/2014 0800

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270D	Analysis Batch:	480-178458	Instrument ID:	HP5973X
Prep Method:	3550C	Prep Batch:	480-177927	Lab File ID:	X00891859.D
Dilution:	1.0			Initial Weight/Volume:	+30.62 g
Analysis Date:	04/26/2014 1405			Final Weight/Volume:	1 mL
Prep Date:	04/24/2014 0806			Injection Volume:	1 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		6.0	J	2.9	250
Acenaphthylene		ND		2.0	250
Anthracene		ND		6.3	250
Benzo[a]anthracene		ND		4.3	250
Benzo[a]pyrene		17	J	5.9	250
Benzo[b]fluoranthene		29	J	4.8	250
Benzo[g,h,i]perylene		18	J	3.0	250
Benzo[k]fluoranthene		11	J	2.7	250
Chrysene		21	J	2.5	250
Dibenz(a,h)anthracene		8.0	J	2.9	250
Fluoranthene		18	J	3.6	250
Fluorene		ND		5.7	250
Indeno[1,2,3-cd]pyrene		20	J	6.8	250
Naphthalene		18	J	4.1	250
Phenanthrene		22	J	5.2	250
Pyrene		20	J	1.6	250

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	87		37 - 120
Nitrobenzene-d5 (Surr)	73		34 - 132
p-Terphenyl-d14 (Surr)	93		65 - 153

Client: New York State D.E.C. Job Number: 480-58380-1

Client Sample ID: **GP-5 6-7**

Lab Sample ID: 480-58380-10 Date Sampled: 04/15/2014 0955
Client Matrix: Solid % Moisture: 11.1 Date Received: 04/21/2014 0800

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270D	Analysis Batch:	480-178458	Instrument ID:	HP5973X
Prep Method:	3550C	Prep Batch:	480-177927	Lab File ID:	X00891860.D
Dilution:	200			Initial Weight/Volume:	+30.31 g
Analysis Date:	04/26/2014 1428			Final Weight/Volume:	1 mL
Prep Date:	04/24/2014 0806			Injection Volume:	1 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		43000		440	38000
Acenaphthylene		8700	J	310	38000
Anthracene		40000		960	38000
Benzo[a]anthracene		32000	J	650	38000
Benzo[a]pyrene		21000	J	910	38000
Benzo[b]fluoranthene		24000	J	730	38000
Benzo[g,h,i]perylene		11000	J	450	38000
Benzo[k]fluoranthene		9300	J	410	38000
Chrysene		30000	J	380	38000
Dibenz(a,h)anthracene		5500	J	440	38000
Fluoranthene		56000		540	38000
Fluorene		39000		870	38000
Indeno[1,2,3-cd]pyrene		9500	J	1000	38000
Naphthalene		70000		630	38000
Phenanthrene		140000		790	38000
Pyrene		55000		240	38000

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	87		37 - 120
Nitrobenzene-d5 (Surr)	69		34 - 132
p-Terphenyl-d14 (Surr)	97		65 - 153

Client: New York State D.E.C. Job Number: 480-58380-1

Client Sample ID: **GP-5 10-11**

Lab Sample ID: 480-58380-11 Date Sampled: 04/15/2014 1000
Client Matrix: Solid % Moisture: 17.4 Date Received: 04/21/2014 0800

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270D	Analysis Batch:	480-178458	Instrument ID:	HP5973X
Prep Method:	3550C	Prep Batch:	480-177927	Lab File ID:	X00891861.D
Dilution:	200			Initial Weight/Volume:	+30.08 g
Analysis Date:	04/26/2014 1451			Final Weight/Volume:	1 mL
Prep Date:	04/24/2014 0806			Injection Volume:	1 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		53000		480	41000
Acenaphthylene		44000		330	41000
Anthracene		90000		1000	41000
Benzo[a]anthracene		65000		700	41000
Benzo[a]pyrene		46000		980	41000
Benzo[b]fluoranthene		50000		790	41000
Benzo[g,h,i]perylene		23000	J	490	41000
Benzo[k]fluoranthene		17000	J	450	41000
Chrysene		61000		410	41000
Dibenz(a,h)anthracene		6900	J	480	41000
Fluoranthene		120000		590	41000
Fluorene		90000		940	41000
Indeno[1,2,3-cd]pyrene		21000	J	1100	41000
Naphthalene		44000		680	41000
Phenanthrene		300000		860	41000
Pyrene		130000		260	41000

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	127	X	37 - 120
Nitrobenzene-d5 (Surr)	104		34 - 132
p-Terphenyl-d14 (Surr)	121		65 - 153

Client: New York State D.E.C. Job Number: 480-58380-1

Client Sample ID: **GP-8 6-7**

Lab Sample ID: 480-58380-12 Date Sampled: 04/15/2014 1020
Client Matrix: Solid % Moisture: 16.0 Date Received: 04/21/2014 0800

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270D	Analysis Batch:	480-178458	Instrument ID:	HP5973X
Prep Method:	3550C	Prep Batch:	480-177927	Lab File ID:	X00891862.D
Dilution:	200			Initial Weight/Volume:	+30.43 g
Analysis Date:	04/26/2014 1514			Final Weight/Volume:	1 mL
Prep Date:	04/24/2014 0806			Injection Volume:	1 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		130000		470	40000
Acenaphthylene		20000	J	320	40000
Anthracene		110000		1000	40000
Benzo[a]anthracene		88000		680	40000
Benzo[a]pyrene		61000		950	40000
Benzo[b]fluoranthene		68000		770	40000
Benzo[g,h,i]perylene		31000	J	480	40000
Benzo[k]fluoranthene		21000	J	440	40000
Chrysene		82000		400	40000
Dibenz(a,h)anthracene		9200	J	470	40000
Fluoranthene		160000		570	40000
Fluorene		100000		910	40000
Indeno[1,2,3-cd]pyrene		31000	J	1100	40000
Naphthalene		300000		660	40000
Phenanthrene		380000		830	40000
Pyrene		160000		260	40000

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	88		37 - 120
Nitrobenzene-d5 (Surr)	93		34 - 132
p-Terphenyl-d14 (Surr)	106		65 - 153

Client: New York State D.E.C. Job Number: 480-58380-1

Client Sample ID: **GP-9 10-11**

Lab Sample ID: 480-58380-13 Date Sampled: 04/15/2014 1120
Client Matrix: Solid % Moisture: 40.2 Date Received: 04/21/2014 0800

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270D	Analysis Batch:	480-178458	Instrument ID:	HP5973X
Prep Method:	3550C	Prep Batch:	480-177927	Lab File ID:	X00891863.D
Dilution:	100			Initial Weight/Volume:	+30.08 g
Analysis Date:	04/26/2014 1537			Final Weight/Volume:	1 mL
Prep Date:	04/24/2014 0806			Injection Volume:	1 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		46000		330	28000
Acenaphthylene		4900	J	230	28000
Anthracene		29000		720	28000
Benzo[a]anthracene		25000	J	490	28000
Benzo[a]pyrene		18000	J	680	28000
Benzo[b]fluoranthene		16000	J	550	28000
Benzo[g,h,i]perylene		11000	J	340	28000
Benzo[k]fluoranthene		4400	J	310	28000
Chrysene		26000	J	280	28000
Dibenz(a,h)anthracene		4300	J	330	28000
Fluoranthene		36000		410	28000
Fluorene		29000		650	28000
Indeno[1,2,3-cd]pyrene		8500	J	780	28000
Naphthalene		61000		470	28000
Phenanthrene		120000		590	28000
Pyrene		57000		180	28000

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	121	X	37 - 120
Nitrobenzene-d5 (Surr)	94		34 - 132
p-Terphenyl-d14 (Surr)	105		65 - 153

Client: New York State D.E.C. Job Number: 480-58380-1

Client Sample ID: **GP-9 15-16**

Lab Sample ID: 480-58380-14 Date Sampled: 04/15/2014 1130
Client Matrix: Solid % Moisture: 34.4 Date Received: 04/21/2014 0800

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270D	Analysis Batch:	480-178458	Instrument ID:	HP5973X
Prep Method:	3550C	Prep Batch:	480-177927	Lab File ID:	X00891864.D
Dilution:	1.0			Initial Weight/Volume:	+30.04 g
Analysis Date:	04/26/2014 1601			Final Weight/Volume:	1 mL
Prep Date:	04/24/2014 0806			Injection Volume:	1 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		13	J	3.0	260
Acenaphthylene		2.9	J	2.1	260
Anthracene		10	J	6.6	260
Benzo[a]anthracene		16	J	4.4	260
Benzo[a]pyrene		100	J	6.2	260
Benzo[b]fluoranthene		14	J	5.0	260
Benzo[g,h,i]perylene		14	J	3.1	260
Benzo[k]fluoranthene		ND		2.8	260
Chrysene		11	J	2.6	260
Dibenz(a,h)anthracene		ND		3.0	260
Fluoranthene		13	J	3.7	260
Fluorene		8.4	J	5.9	260
Indeno[1,2,3-cd]pyrene		13	J	7.1	260
Naphthalene		55	J	4.3	260
Phenanthrene		34	J	5.4	260
Pyrene		20	J	1.7	260

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	91		37 - 120
Nitrobenzene-d5 (Surr)	76		34 - 132
p-Terphenyl-d14 (Surr)	101		65 - 153

Client: New York State D.E.C. Job Number: 480-58380-1

Client Sample ID: **GP-10 10-12**

Lab Sample ID: 480-58380-15 Date Sampled: 04/15/2014 1410
Client Matrix: Solid % Moisture: 30.2 Date Received: 04/21/2014 0800

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270D	Analysis Batch:	480-178458	Instrument ID:	HP5973X
Prep Method:	3550C	Prep Batch:	480-177927	Lab File ID:	X00891865.D
Dilution:	1.0			Initial Weight/Volume:	+30.42 g
Analysis Date:	04/26/2014 1624			Final Weight/Volume:	1 mL
Prep Date:	04/24/2014 0806			Injection Volume:	1 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		11	J	2.8	240
Acenaphthylene		ND		2.0	240
Anthracene		ND		6.1	240
Benzo[a]anthracene		6.7	J	4.1	240
Benzo[a]pyrene		54	J	5.7	240
Benzo[b]fluoranthene		ND		4.6	240
Benzo[g,h,i]perylene		ND		2.9	240
Benzo[k]fluoranthene		ND		2.6	240
Chrysene		4.7	J	2.4	240
Dibenz(a,h)anthracene		8.1	J	2.8	240
Fluoranthene		ND		3.5	240
Fluorene		ND		5.5	240
Indeno[1,2,3-cd]pyrene		ND		6.6	240
Naphthalene		130	J	4.0	240
Phenanthrene		9.7	J	5.0	240
Pyrene		4.4	J	1.5	240

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	95		37 - 120
Nitrobenzene-d5 (Surr)	80		34 - 132
p-Terphenyl-d14 (Surr)	108		65 - 153

Client: New York State D.E.C. Job Number: 480-58380-1

Client Sample ID: **GP-10 13-14**

Lab Sample ID: 480-58380-16 Date Sampled: 04/15/2014 1415
Client Matrix: Solid % Moisture: 34.2 Date Received: 04/21/2014 0800

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270D	Analysis Batch:	480-178458	Instrument ID:	HP5973X
Prep Method:	3550C	Prep Batch:	480-177927	Lab File ID:	X00891866.D
Dilution:	1.0			Initial Weight/Volume:	+30.35 g
Analysis Date:	04/26/2014 1647			Final Weight/Volume:	1 mL
Prep Date:	04/24/2014 0806			Injection Volume:	1 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		5.0	J	3.0	260
Acenaphthylene		ND		2.1	260
Anthracene		ND		6.5	260
Benzo[a]anthracene		10	J	4.4	260
Benzo[a]pyrene		99	J	6.1	260
Benzo[b]fluoranthene		ND		4.9	260
Benzo[g,h,i]perylene		ND		3.0	260
Benzo[k]fluoranthene		ND		2.8	260
Chrysene		4.5	J	2.5	260
Dibenz(a,h)anthracene		ND		3.0	260
Fluoranthene		ND		3.7	260
Fluorene		ND		5.8	260
Indeno[1,2,3-cd]pyrene		ND		7.0	260
Naphthalene		49	J	4.2	260
Phenanthrene		8.7	J	5.3	260
Pyrene		4.9	J	1.6	260

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	90		37 - 120
Nitrobenzene-d5 (Surr)	77		34 - 132
p-Terphenyl-d14 (Surr)	107		65 - 153

Client: New York State D.E.C. Job Number: 480-58380-1

Client Sample ID: **GP-11 5-6**

Lab Sample ID: 480-58380-17 Date Sampled: 04/16/2014 1007
Client Matrix: Solid % Moisture: 13.1 Date Received: 04/21/2014 0800

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270D	Analysis Batch:	480-178458	Instrument ID:	HP5973X
Prep Method:	3550C	Prep Batch:	480-177927	Lab File ID:	X00891867.D
Dilution:	25			Initial Weight/Volume:	+30.14 g
Analysis Date:	04/26/2014 1710			Final Weight/Volume:	1 mL
Prep Date:	04/24/2014 0806			Injection Volume:	1 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		8100		57	4900
Acenaphthylene		1900	J	40	4900
Anthracene		9700		120	4900
Benzo[a]anthracene		8100		83	4900
Benzo[a]pyrene		5900		120	4900
Benzo[b]fluoranthene		4100	J	94	4900
Benzo[g,h,i]perylene		3400	J	58	4900
Benzo[k]fluoranthene		1300	J	53	4900
Chrysene		7800		48	4900
Dibenz(a,h)anthracene		1000	J	57	4900
Fluoranthene		9400		70	4900
Fluorene		6900		110	4900
Indeno[1,2,3-cd]pyrene		2300	J	130	4900
Naphthalene		630	J	80	4900
Phenanthrene		37000		100	4900
Pyrene		24000		31	4900

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	60		37 - 120
Nitrobenzene-d5 (Surr)	44		34 - 132
p-Terphenyl-d14 (Surr)	62	X	65 - 153

Client: New York State D.E.C. Job Number: 480-58380-1

Client Sample ID: **GP-11 10-12**

Lab Sample ID: 480-58380-18 Date Sampled: 04/16/2014 1030
Client Matrix: Solid % Moisture: 40.1 Date Received: 04/21/2014 0800

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270D	Analysis Batch:	480-178458	Instrument ID:	HP5973X
Prep Method:	3550C	Prep Batch:	480-177927	Lab File ID:	X00891868.D
Dilution:	10			Initial Weight/Volume:	+30.24 g
Analysis Date:	04/26/2014 1733			Final Weight/Volume:	1 mL
Prep Date:	04/24/2014 0806			Injection Volume:	1 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		3400		33	2800
Acenaphthylene		230	J	23	2800
Anthracene		950	J	72	2800
Benzo[a]anthracene		ND		48	2800
Benzo[a]pyrene		660	J	67	2800
Benzo[b]fluoranthene		750	J	54	2800
Benzo[g,h,i]perylene		420	J	34	2800
Benzo[k]fluoranthene		ND		31	2800
Chrysene		830	J	28	2800
Dibenz(a,h)anthracene		150	J	33	2800
Fluoranthene		1200	J	41	2800
Fluorene		1100	J	64	2800
Indeno[1,2,3-cd]pyrene		340	J	77	2800
Naphthalene		12000		47	2800
Phenanthrene		4200		59	2800
Pyrene		2200	J	18	2800

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	86		37 - 120
Nitrobenzene-d5 (Surr)	73		34 - 132
p-Terphenyl-d14 (Surr)	95		65 - 153

Client: New York State D.E.C. Job Number: 480-58380-1

Client Sample ID: **FD-041614** [GP-11 (10-12)]

Lab Sample ID: 480-58380-19 Date Sampled: 04/16/2014 0000

Client Matrix: Solid % Moisture: 33.1 Date Received: 04/21/2014 0800

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270D	Analysis Batch:	480-178458	Instrument ID:	HP5973X
Prep Method:	3550C	Prep Batch:	480-177927	Lab File ID:	X00891869.D
Dilution:	1.0			Initial Weight/Volume:	+30.31 g
Analysis Date:	04/26/2014 1756			Final Weight/Volume:	1 mL
Prep Date:	04/24/2014 0806			Injection Volume:	1 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		3.2	J	2.9	250
Acenaphthylene		ND		2.0	250
Anthracene		ND		6.4	250
Benzo[a]anthracene		9.1	J	4.3	250
Benzo[a]pyrene		240	J	6.0	250
Benzo[b]fluoranthene		ND		4.8	250
Benzo[g,h,i]perylene		9.6	J	3.0	250
Benzo[k]fluoranthene		ND		2.7	250
Chrysene		ND		2.5	250
Dibenz(a,h)anthracene		ND		2.9	250
Fluoranthene		3.8	J	3.6	250
Fluorene		ND		5.8	250
Indeno[1,2,3-cd]pyrene		ND		6.9	250
Naphthalene		8.2	J	4.2	250
Phenanthrene		10	J	5.2	250
Pyrene		6.2	J	1.6	250

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	88		37 - 120
Nitrobenzene-d5 (Surr)	75		34 - 132
p-Terphenyl-d14 (Surr)	105		65 - 153

Client: New York State D.E.C. Job Number: 480-58380-1

Client Sample ID: **GT-1 8-9**

Lab Sample ID: 480-58380-20 Date Sampled: 04/16/2014 1000
Client Matrix: Solid % Moisture: 12.2 Date Received: 04/21/2014 0800

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270D	Analysis Batch:	480-178458	Instrument ID:	HP5973X
Prep Method:	3550C	Prep Batch:	480-177927	Lab File ID:	X00891870.D
Dilution:	1.0			Initial Weight/Volume:	+30.49 g
Analysis Date:	04/26/2014 1820			Final Weight/Volume:	1 mL
Prep Date:	04/24/2014 0806			Injection Volume:	1 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		86	J	2.2	190
Acenaphthylene		38	J	1.5	190
Anthracene		170	J	4.8	190
Benzo[a]anthracene		360		3.3	190
Benzo[a]pyrene		260		4.6	190
Benzo[b]fluoranthene		250		3.7	190
Benzo[g,h,i]perylene		230		2.3	190
Benzo[k]fluoranthene		83	J	2.1	190
Chrysene		420		1.9	190
Dibenz(a,h)anthracene		64	J	2.2	190
Fluoranthene		500		2.7	190
Fluorene		73	J	4.4	190
Indeno[1,2,3-cd]pyrene		180	J	5.2	190
Naphthalene		25	J	3.1	190
Phenanthrene		170	J	4.0	190
Pyrene		1000		1.2	190

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	91		37 - 120
Nitrobenzene-d5 (Surr)	76		34 - 132
p-Terphenyl-d14 (Surr)	106		65 - 153

Client: New York State D.E.C. Job Number: 480-58380-1

Client Sample ID: **GT-1 14-15**

Lab Sample ID: 480-58380-21 Date Sampled: 04/16/2014 1223
Client Matrix: Solid % Moisture: 35.6 Date Received: 04/21/2014 0800

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270D	Analysis Batch:	480-178336	Instrument ID:	HP5973V
Prep Method:	3550C	Prep Batch:	480-177931	Lab File ID:	V9819.D
Dilution:	1.0			Initial Weight/Volume:	+30.75 g
Analysis Date:	04/26/2014 0454			Final Weight/Volume:	1 mL
Prep Date:	04/24/2014 0811			Injection Volume:	1 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		ND		3.0	260
Acenaphthylene		ND		2.1	260
Anthracene		ND		6.5	260
Benzo[a]anthracene		ND		4.4	260
Benzo[a]pyrene		17	J	6.2	260
Benzo[b]fluoranthene		ND		5.0	260
Benzo[g,h,i]perylene		18	J	3.1	260
Benzo[k]fluoranthene		ND		2.8	260
Chrysene		12	J	2.6	260
Dibenz(a,h)anthracene		ND		3.0	260
Fluoranthene		15	J	3.7	260
Fluorene		ND		5.9	260
Indeno[1,2,3-cd]pyrene		ND		7.1	260
Naphthalene		ND		4.3	260
Phenanthrene		29	J	5.4	260
Pyrene		22	J	1.7	260

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	100		37 - 120
Nitrobenzene-d5 (Surr)	90		34 - 132
p-Terphenyl-d14 (Surr)	110		65 - 153

ATTACHMENT B

SUPPORT DOCUMENTATION

C DY RECORD

480-58380 Chain of Custody

URS

PROJECT NO. 11176853.00003

SITE NAME Cold Spring

SAMPLERS (PRINT/SIGNATURE) Tim DeRouch / Tim Lukowicz

LAB Test America

COOLER 1 of 2

PAGE 1 of 2

DELIVERY SERVICE: Drop off AIRBILL NO.: —

LOCATION IDENTIFIER	DATE	TIME	COMP/ GRAB	SAMPLE ID	MATRIX	TOTAL NO.# OF CONTAINERS	TESTS: BTEX 8260	Moisture	PAH 8270D					REMARKS	SAMPLE TYPE	BEGINNING DEPTH (IN FEET)	ENDING DEPTH (IN FEET)	FIELD LOT NO.# (IRPIMS ONLY)
							BOTTLE TYPE AND PRESERVATIVE: 2oz Jar clear	2oz Jar clear	4oz Jar									
GP-1	4/14/14	1000	G	GP-1 5-6.5	SO	4	2	1	1						N	5	6.5	
GP-2	4/14/14	1020	G	GP-2 5-5.4	SO	4	2	1	1						N	5	5.4	
GP-3	4/14/14	1030	G	GP-3 0.5-2	SO	4	2	1	1						N	0.5	2	
GP-3B	4/14/14	1245	G	GP-3B 11-12	SO	4	2	1	1						N	11	12	
GP-4B	4/14/14	1415	G	GP-4B 10-11	SO	4	2	1	1						N	10	11	
GP-4B	4/14/14	1420	G	GP-4B 12-13	SO	4	2	1	1						N	12	13	
GP-7	4/14/14	1525	G	GP-7 5-6	SO	4	2	1	1						N	10	11	
GP-6	4/15/14	850	G	GP-6 10-11	SO	4	2	1	1						N	12	13	
GP-6	4/15/14	900	G	GP-6 12-13	SO	4	2	1	1						N	12	13	
GP-5	4/15/14	955	G	GP-5 6-7	SO	4	2	1	1						N	6	7	
GP-5	4/15/14	1000	G	GP-5 10-11	SO	4	2	1	1						N	10	11	
GP-8	4/15/14	1020	G	GP-8 6-7	SO	4	2	1	1						N	6	7	
GP-9	4/15/14	1120	G	GP-9 10-11	SO	4	2	1	1						N	10	11	

MATRIX CODES: AA - AMBIENT AIR; SE - SEDIMENT; SH - HAZARDOUS SOLID WASTE; SL - SLUDGE; WP - DRINKING WATER; WW - WASTE WATER; WG - GROUND WATER; SO - SOIL; DC - DRILL CUTTINGS; WL - LEACHATE; GS - SOIL GAS; WC - DRILLING WATER; WO - OCEAN WATER; WS - SURFACE WATER; WQ - WATER FIELD QC; LH - HAZARDOUS LIQUID WASTE; LF - FLOATING/FREE PRODUCT ON GW TABLE

SAMPLE TYPE CODES: TB# - TRIP BLANK; SD# - MATRIX SPIKE DUPLICATE; RB# - RINSE BLANK; FR# - FIELD REPLICATE; N# - NORMAL ENVIRONMENTAL SAMPLE; MS# - MATRIX SPIKE; (# - SEQUENTIAL NUMBER (FROM 1 TO 9) TO ACCOMMODATE MULTIPLE SAMPLES IN A SINGLE DAY)

RELINQUISHED BY (SIGNATURE)	DATE	TIME	RECEIVED BY (SIGNATURE)	DATE	TIME
Tim Lukowicz	4/21/14	0800		4/21/14	0800
RELINQUISHED BY (SIGNATURE)	DATE	TIME	RECEIVED FOR LAB BY (SIGNATURE)	DATE	TIME

SPECIAL INSTRUCTIONS: For questions contact George Kisluk @ 716-856-5636

Distribution: Original accompanies shipment, copy to coordinator field files

URSF-075C/1 OF 1/CofCR/GCM

2.9,3.3 #1

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04/29/2014

CHAIN OF CUSTODY RECORD

URS

PROJECT NO.	SITE NAME
11176853.00003	Cold Spring

SAMPLERS (PRINT/SIGNATURE): Tim Dykovich / Tim Dykovich

LAB: Test America

COOLER: 1 of 2

PAGE: 2 of 2

DELIVERY SERVICE: Drop off AIRBILL NO.: —

TESTS / BOTTLE TYPE AND PRESERVATIVE

LOCATION IDENTIFIER	DATE	TIME	COMP/ GRAB	SAMPLE ID	MATRIX	TOTAL NO.# OF CONTAINERS	BTEX 8260C (2oz Jar)	Moisture (2oz Jar)	PAH 8270D (4oz Jar)	TCLP VOCs (4oz Jar)	TCLP Pest, Herbs, Metals, mercury (4oz Jar)	SVOCs, Cyanide, Field PCBs, Flashpoint, pH (4oz)			REMARKS	SAMPLE TYPE	BEGINNING DEPTH (IN FEET)	ENDING DEPTH (IN FEET)	FIELD LOT NO.# (IRPIMS ONLY)
GP-9	4/15/14	1130	G	GP-9 15-16	SO	4	2	1	1							N	15	16	
GP-10	4/15/14	1410	G	GP-10 10-12	SO	4	2	1	1							N	10	12	
GP-10	4/15/14	1415	G	GP-10 13-14	SO	4	2	1	1							N	13	14	
GP-11	4/16/14	1007	G	GP-11 5-6	SO	4	2	1	1							N	5	6	
GP-11	4/16/14	1030	G	GP-11 10-12	SO	4	2	1	1							N	10	12	
Field Dup.	4/16/14	—	G	FD-041614	SO	4	2	1	1							FD	—	—	
GT-1	4/16/14	1000	G	GT-1 8-9	SO	4	2	1	1							N	8	9	
GT-1	4/16/14	1223	G	GT-1 14-15	SO	4	2	1	1							N	14	15	
WC	4/16/14	1445	G	WC 5-6	SO	3	—	—	—	1	2			←	TCLP RCRA Limited Volume				

MATRIX CODES: AA - AMBIENT AIR; SE - SEDIMENT; SH - HAZARDOUS SOLID WASTE; SL - SLUDGE; WP - DRINKING WATER; WW - WASTE WATER; WG - GROUND WATER; SO - SOIL; DC - DRILL CUTTINGS; WL - LEACHATE; GS - SOIL GAS; WC - DRILLING WATER; WO - OCEAN WATER; WS - SURFACE WATER; WQ - WATER FIELD QC; LH - HAZARDOUS LIQUID WASTE; LF - FLOATING/FREE PRODUCT ON GW TABLE

SAMPLE TYPE CODES: TB# - TRIP BLANK; SD# - MATRIX SPIKE DUPLICATE; RB# - RINSE BLANK; FR# - FIELD REPLICATE; N# - NORMAL ENVIRONMENTAL SAMPLE; MS# - MATRIX SPIKE; (# - SEQUENTIAL NUMBER (FROM 1 TO 9) TO ACCOMMODATE MULTIPLE SAMPLES IN A SINGLE DAY)

RELINQUISHED BY (SIGNATURE)	DATE	TIME	RECEIVED BY (SIGNATURE)	DATE	TIME
Tim Dykovich	4/2/14	0900		4/2/14	0900
RELINQUISHED BY (SIGNATURE)	DATE	TIME	RECEIVED FOR LAB BY (SIGNATURE)	DATE	TIME

SPECIAL INSTRUCTIONS: For questions contact George Kislak @ 716-856-5636

Distribution: Original accompanies shipment, copy to coordinator field files

URSF-075C/1 OF 1/ColCR/GCM

2-9, 3:3 #1

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04/29/2014

Job Narrative
480-58380-1

Receipt
The samples were received on 4/21/2014 8:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 2.9° C and 3.3° C.

GC/MS VOA
Method(s) 8260C: Reported analyte concentrations in the following sample(s) are below 200ug/kg and may be biased low due to the sample(s) not being collected according to 5035-L/5035A-L low-level specifications: FD-041614 (480-58380-19), GP-1 5-6.5 (480-58380-1), GP-10 10-12 (480-58380-15), GP-10 13-14 (480-58380-16), GP-11 10-12 (480-58380-18), GP-2 5-5.4 (480-58380-2), GP-3 0.5-2 (480-58380-3), GP-3B 11-12 (480-58380-4), GP-4B 12-13 (480-58380-6), GP-5 10-11 (480-58380-11), GP-6 10-11 (480-58380-8), GP-6 12-13 (480-58380-9), GP-7 5-6 (480-58380-7), GP-9 15-16 (480-58380-14), GT-1 14-15 (480-58380-21).

Method(s) 8260C: The following sample(s) was analyzed at approximately 0.5 gram due to the nature of the sample matrix: GP-1 5-6.5 (480-58380-1), GP-11 10-12 (480-58380-18), GP-2 5-5.4 (480-58380-2), GP-6 10-11 (480-58380-8). Elevated reporting limits (RLs) are provided.

Method(s) 8260C: Reported analyte concentrations in the following sample(s) are below 200ug/kg and may be biased low due to the sample(s) not being collected according to 5035-L/5035A-L low-level specifications: (480-58380-20 MS), (480-58380-20 MSD), GP-4B 10-11 (480-58380-5), GT-1 8-9 (480-58380-20).

Method(s) 8260C: The following sample(s) was analyzed medium level to bring the concentration of target analytes within the calibration range: GP-5 6-7 (480-58380-10), GP-8 6-7 (480-58380-12), GP-9 10-11 (480-58380-13). Elevated reporting limits (RLs) are provided.

Method(s) 8260C: The following sample(s) was analyzed medium level due to the nature of the sample matrix: GP-11 5-6 (480-58380-17). Elevated reporting limits (RLs) are provided.

No other analytical or quality issues were noted.

GC/MS Semi VOA
Method(s) 8270D: The following samples were diluted due to the nature of the sample matrix: GP-1 5-6.5 (480-58380-1), GP-2 5-5.4 (480-58380-2). Elevated reporting limits (RLs) are provided.

Method(s) 8270D: The following samples were diluted due to the nature of the sample matrix: GP-11 5-6 (480-58380-17), GP-3 0.5-2 (480-58380-3), GP-5 10-11 (480-58380-11), GP-5 6-7 (480-58380-10), GP-8 6-7 (480-58380-12), GP-9 10-11 (480-58380-13). As such, surrogate recoveries are below the calibration range or are not reported, and elevated reporting limits (RLs) are provided.

Method(s) 8270D: The following sample was diluted due to the nature of the sample matrix: GP-4B 10-11 (480-58380-5). Elevated reporting limits (RLs) are provided.

Method(s) 8270D: The following sample(s) was diluted due to the nature of the sample matrix: GP-11 10-12 (480-58380-18). Elevated reporting limits (RLs) are provided.

No other analytical or quality issues were noted.

Organic Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

APPENDIX F

GEOPHYSICAL SURVEY REPORT

Radar Solutions International, Inc.™ Geophysics for the 21St Century

April 30, 2014

Mr. Chuck Dusel
Mr. George Kisluk
URS Corporation, Inc.
257 West Genessee Street
4th Floor
Buffalo, NY 14203

Via Email: chuck.dusel@urs.com , george.kisluk@urs.com

Re: Report on Borehole Clearance and Utility Survey
Former MGP Site
5 New Street
Cold Spring, New York
RSI Job no: 114-020

Dear Gentlemen,

Please find attached our finalized GPR, and EM induction (EMI) interpretations for the above-referenced Cold Spring, New York site, investigated on April 14, 2014. The area around the current building, belonging to the Cold Spring Yacht Club, was investigated using GPR, EM-61, and EM induction (EMI). The purpose of this investigation was to locate possible utilities on the site so the boreholes may be drilled successfully. In all, three areas were investigated around the building: Area 1, which is an approximately 75 by 25 foot area located west of the building's reinforced concrete apron/patio, Area 2, which is located northwest (Area 2A), north, and northeast (Area 2A) of the building, in the parking lot area and immediately adjacent to New Street, and Area 3, an approximate 75 by 90 foot area located immediately east of the building, in the east parking lot. RSI's finalized figures and interpretation are presented on the attached figures. Thank you again for the opportunity to work with URS Corporation.

RESULTS

GPR signal penetration was typically no greater than 5 feet below grade, although deeper investigative depths were achieved in the areas furthest away from the road, toward the bedrock outcrops and grass areas. Figure 1 shows contoured EM-61 results, while Figure 2 presents our interpreted results from the visual inspection of the 3D GPR volume. Figure 3 is a composite of all three methods. Key results are highlighted below, in Table 1, and on the attached figures.

- Figure 1, contoured EM-61 results, indicate that there could be two small pipes emanating from the west side of the building parallel to 43N, from 5W to about 12.5W, and parallel to 56N, from 5W to 15W. While none of the six proposed boring locations were near these

possible pipes/pipe fragments, the proposed boring at 5W, 72.5N was moved slightly (2 feet north) to avoid a possible obstruction observed in the GPR data (Figures 2 and 3).

- The large EM-61 anomaly observed north of 95N in Area 1 (west of building) is attributed to a boat, located west of 20W and to a large propane AST. However, RSI personnel used EM induction to clamp onto a water spigot located outside of the building and a sink inside the building, and used the 60 hz and radio frequency receiver of our Radio Detection RD8000 unit, to trace out the water, telecommunications, and electrical lines as they serviced the boat docking area. These three utilities appear to be in the same trench, and within a foot of one another, trending roughly parallel between 97N and 98N (Figure 1).

- The EM-61 anomaly observed in Area 2/2A, located northwest of the building between 25W and 30W, and from 105N to 115N, is attributed to a parked car (Figure 1). Likewise, we believe that the anomaly located near 16W and 105N, is attributed to an above ground metal.

- EM-61 located the general area in which the water and sewer are located: between 12E and 17E, trending perpendicular to RSI's survey grid from New Street and into the building. RSI's interpretation was later verified when RSI personnel clamped onto the sink and traced out the induced signal using EMI, the position of which is shown on Figures 1 through 3 approximately parallel to 14E, and a representative from the Cold Spring Water and Sewer Department confirmed RSI's mark out. Neither RSI nor the Water and Sewer Department were able to locate the sewer utility. However, based on RSI's GPR and EM-61 results, an area of excavation appears to extend up to 19E, suggesting that the sewer utility line is east of the water line, possibly parallel to 16.5 to 17E (Figures 2 and 3). Because of the proximity of the proposed boring to the water line, RSI recommended that the boring be relocated to about 10E and 108N.

- The source of the EM anomaly between 25E and 30E, from about 108N to 115N, observed on Figure 1, is unknown. No GPR reflections from a significantly sized target were observed coincident with the EM anomaly, although the area does appear to have been excavated (Figures 2 and 3).

- The EM anomaly at 41E and 110N is attributed to the existing monitoring well, while the large EM anomalies observed near 73E and 93E are attributed to the metal gate posts from the wood stockade fence (Figure 1).

- Two high-amplitude EM anomalies are observed in Area 3, west of the building. One is attributed to a utility, which appears to trend from about 32N, 50E to 62.5E, 31N, to about 77E, 28N (Figure 1). The second anomalous area appears circular, centered around 102E and 50N, and could feasibly correspond to a former foundation/pad or footprint to a large AST. The diameter of this anomalous area is approximately 30 feet. We also observe a linear EM anomaly trending from it to the northwest, from about 66N, 95E to 76N, 85E (Figure 1). No significant GPR target was observed in this area (Figures 2 and 3), suggesting a target or targets not within the resolution limits of the GPR (i.e. too shallow or too deep).

- GPR signal did not reveal the location of water, sewer, and/or gas services present in the sidewalk across the street. However, one electrical service was detected using EMI, as plotted on Figures 1 through 3.

TABLE 1

Proposed Boring Location at:	Recommended Location	Comments
5W, 29N	N/A	DRILLERS BEGAN BEFORE GEOPHYSICS COMPLETE
5W, 48N	N/A	Looks OK. Small metal scraps nearby
5W, 72N	N/A	Looks OK.
15W, 29N	N/A	Looks OK.
15W, 48N	N/A	Looks OK.
15W, 72N	N/A	Looks OK.
36W, 111N	N/A	Looks OK.
23W, 107N	N/A	Looks OK.
6W, 107N	N/A	Looks OK.
15E, 108N	10E, 108N	Proposed located in the water-sewer trench, too close to water line.
70.5E, 115N	N/A	Looks OK.
105E, 114N	N/A	Looks OK.
106.5E, 90N	N/A	Looks OK.
106E, 78N	N/A	Looks OK.
105.5E, 68N	N/A	Looks OK.

Please drill with caution as not all utilities may have been detected in the field. We appreciate this opportunity to work with URS Corporation, Inc. again. Please call should you have any inquiries regarding this or future assignments.

Sincerely,
RADAR SOLUTIONS INTERNATIONAL

Doria L. Kutrubes

Doria L. Kutrubes, M.Sc., P.G.
President and Sr. Geophysicist

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(781) 736-0550 - (781) 736-0004 (fax)
radar-solutions.com

NEW STREET

OVERHANG

overhead electrric

metal gate post

metal gate post

BOTTOM COIL MEASUREMENTS (mVolts)

← Background → ← Increasing Metal Content →

LEGEND

- Proposed Boring Location
- Wood Stockade Fence
- Possible Metal Utility (from EM-61)
- Utilities Detected by EMI:
  - Electrical (60 Hz) Live
  - Gas
  - Telephone
  - Storm Drain
  - Water
  - Sewer
- Area in which buried metal and/or reinforced concrete may be present

SCALE: 1 Inch = 10 Feet

10 0 10 Feet

FIGURE 1
CONTOURED EM-61 RESULTS
FORMER MGP SITE
5 NEW STREET
COLD SPRING, NEW YORK
Prepared for
URS CORPORATION, INC.
APRIL 2014

RSI Geophysics for People and the Environment
Radar Solutions International, Inc.

NEW STREET

OVERHANG

overhead electrric

overhead electrric

overhead electrric

metal gate post

metal gate post

?

BOTTOM COIL MEASUREMENTS (mVolts)

Background → Increasing Metal Content

LEGEND

- Proposed Boring Location
- Wood Stockade Fence
- Possible Metal Utility (from EM-61)
- Utilities Detected by EMI:
  - Electrical (60 Hz) Live
  - Gas
  - Telephone
  - Storm Drain
  - Water
  - Sewer
- Area in which buried metal and/or reinforced concrete may be present
- Small GPR Reflector (small pipe, cobble, metal scrap); depth as indicated by color
- Small, weak GPR reflector (probable cobble); depth as indicated by color
- Possible Area of Excavation (Interpreted from visual inspection of GPR data)
- Tentative Utility (Interpreted from visual inspection of GPR data)
- Large, high-amplitude GPR reflector (possible reflection from a UST, large diameter utility or metal scrap); depth as indicated below:
  - 0.0 FT. to 0.5 FT.
  - 0.5 FT. to 1.0 FT.
  - 1.0 FT. to 1.5 FT.
  - 1.5 FT. to 2.0 FT.
  - 2.0 FT. to 2.5 FT.
  - 2.5 FT. to 3.0 FT.
  - 3.0 FT. to 3.5 FT.
  - 3.5 FT. to 4.0 FT.
  - 4.0 FT. to 4.5 FT.
  - 4.5 FT. to 5.0 FT.
  - 5.0 FT. to 5.5 FT.
  - 5.5 FT. to 6.0 FT.
  - 6.0 FT. to 7.0 FT.
  - 7.0 FT. to 8.0 FT.
- Large, Weak-Amplitude Reflector (possible utility, boulder); Depth as indicated above
- Irregular GPR Reflector; Depth as indicated above
- Possible UST (Interpreted from visual inspection of data)

SCALE: 1 Inch = 10 Feet

10 0 10 Feet

FIGURE 2
INTERPRETED GPR RESULTS FROM THE VISUAL INSPECTION OF DATA
FORMER MGP SITE
5 NEW STREET
COLD SPRING, NEW YORK
Prepared for
URS CORPORATION, INC.
APRIL 2014

RSI Geophysics for Insights and Risk Assessment
Radar Solutions International, Inc.

NEW STREET

overhead electrric

overhead electrric

overhead electrric

metal gate post

metal gate post

OVERHANG

?

BOTTOM COIL MEASUREMENTS (mVolts)

Background → Increasing Metal Content

LEGEND

- Proposed Boring Location
- Wood Stockade Fence
- Possible Metal Utility (from EM-61)
- Utilities Detected by EMI:
  - Electrical (60 Hz) Live
  - Gas
  - Telephone
  - Storm Drain
  - Water
  - Sewer
- Area in which buried metal and/or reinforced concrete may be present
- Small GPR Reflector (small pipe, cobble, metal scrap); depth as indicated by color
- Small, weak GPR reflector (probable cobble); depth as indicated by color
- Possible Area of Excavation (Interpreted from visual inspection of GPR data)
- Tentative Utility (Interpreted from visual inspection of GPR data)
- Large, high-amplitude GPR reflector (possible reflection from a UST, large diameter utility or metal scrap); depth as indicated below:
  - 0.0 FT. to 0.5 FT.
  - 0.5 FT. to 1.0 FT.
  - 1.0 FT. to 1.5 FT.
  - 1.5 FT. to 2.0 FT.
  - 2.0 FT. to 2.5 FT.
  - 2.5 FT. to 3.0 FT.
  - 3.0 FT. to 3.5 FT.
  - 3.5 FT. to 4.0 FT.
  - 4.0 FT. to 4.5 FT.
  - 4.5 FT. to 5.0 FT.
  - 5.0 FT. to 5.5 FT.
  - 5.5 FT. to 6.0 FT.
  - 6.0 FT. to 7.0 FT.
  - 7.0 FT. to 8.0 FT.
- Large, Weak-Amplitude Reflector (possible utility, boulder); Depth as indicated above
- Irregular GPR Reflector; Depth as indicated above
- Possible UST (Interpreted from visual inspection of data)

SCALE: 1 Inch = 10 Feet

10 0 10 Feet

FIGURE 3
COMBINED GEOPHYSICAL RESULTS
FORMER MGP SITE
5 NEW STREET
COLD SPRING, NEW YORK
Prepared for
URS CORPORATION, INC.
APRIL 2014

RSI Geophysics for People and the Environment
Radar Solutions International, Inc.

APPENDIX G

SLUG TEST RESULTS AND CALCULATIONS

Cold Spring - Slug Tests
Well Construction Details

Well ID	Formation	Screen Length		Radii			Aquifer Thickness	Depth from Aquifer Top	
		Total	Submerged	Screen (*)	Casing			to Top of Screen	to Bottom of Screen
					Actual	Equivalent			
		L_e	$L_{e\text{-}sub}$	r_w	r_c	$r_{c\text{-}eq}$ (**)	H	d	L_w
		[ft]	[ft]	[in]	[in]	[in]	[ft]	[ft]	[ft]
MW-A	Overburden	9.0	8.69	1.50	1.00	1.17	8.69	-0.31	8.69
MW-B	Overburden	4.0	2.06	1.50	1.00	1.17	2.56	-1.94	2.06
GW-01	Overburden	10.0	10.00	1.40	1.00	1.00	10.69	0.69	10.69
GW-02	Overburden	10.0	9.68	1.40	1.00	1.13	9.68	-0.32	9.68
GW-03	Overburden	10.0	9.96	1.40	1.00	1.13	9.96	-0.04	9.96
GW-04	Overburden	10.0	10.00	1.40	1.00	1.00	10.44	0.44	10.44
GW-05	Overburden	10.0	10.00	1.40	1.00	1.00	10.13	0.13	10.13

Notes:

(*) - sand pack (overburden wells); GW- series wells consisted of prepack screens (2.8" diameter)

(**) - $r_{c\text{-}eq} = [(1 - n)\, r_c^2 + n\, r_w^2]^{1/2}$ if $L_{e\text{-}sub} < L_e$

$r_{c\text{-}eq} = r_c$ if $L_{e\text{-}sub} = L_e$

NM - not measured

N/A - not applicable

Assumptions:

(1) AQTESOLV ver. 3.50 was used for slug test analyses.

(2) Sandpack porosity of 0.3 was used for wells that were not fully submerged during testing.

(3) Bouwer and Rice (1976) solution was used for unconfined aquifers.

(4) Formulas and parameters used for this slug test analysis can be found in:

Bouwer, H., 1989. The Bouwer and Rice slug test--an update, Ground Water, vol. 27, no. 3, pp. 304-309.

Summary of Results
Cold Spring
Slug Tests

Well ID	Hydraulic Conductivity [cm/sec]						
	FH	RH	FH2	RH2	FH3	N(**)	Mean (***)
MW-A	6.35E-03	5.73E-03	NA	NA	NA	2	6.03E-03
MW-B	NA	NA	NA	NA	NA	0	NA
GW-01	2.41E-04	2.11E-04	NA	NA	NA	2	2.25E-04
GW-02	1.77E-03	1.22E-03	1.56E-03	1.47E-03	NA	4	1.49E-03
GW-03	9.97E-04	1.27E-03	2.34E-03	1.72E-03	NA	4	1.50E-03
GW-04	5.59E-04	5.59E-04	6.32E-04	NA	4.49E-04	4	5.46E-04
GW-05	8.54E-04	2.12E-03	2.85E-03	3.11E-03	NA	4	2.00E-03

(**) - number of valid tests
(***) - geometric mean

FH - Falling Head test
RH - Rising Head test

Note:
-For all graphs, normalized head is defined as H(t)/Ho, where H(t) is the displacement measured at time t and Ho is the initial displacement at time t=0.

-Results that are bold and italicized are considered invalid (see Data Useability sheet).

-While the geometric mean for both the falling and rising head tests are given, it is understood that the rising head tests more accurately describe the overall hydraulic characteristics of the aquifer.
(See attached reference, *The Bouwer and Rice Slug Test - An Update*)

Cold Spring - Slug Tests
Useability of Data

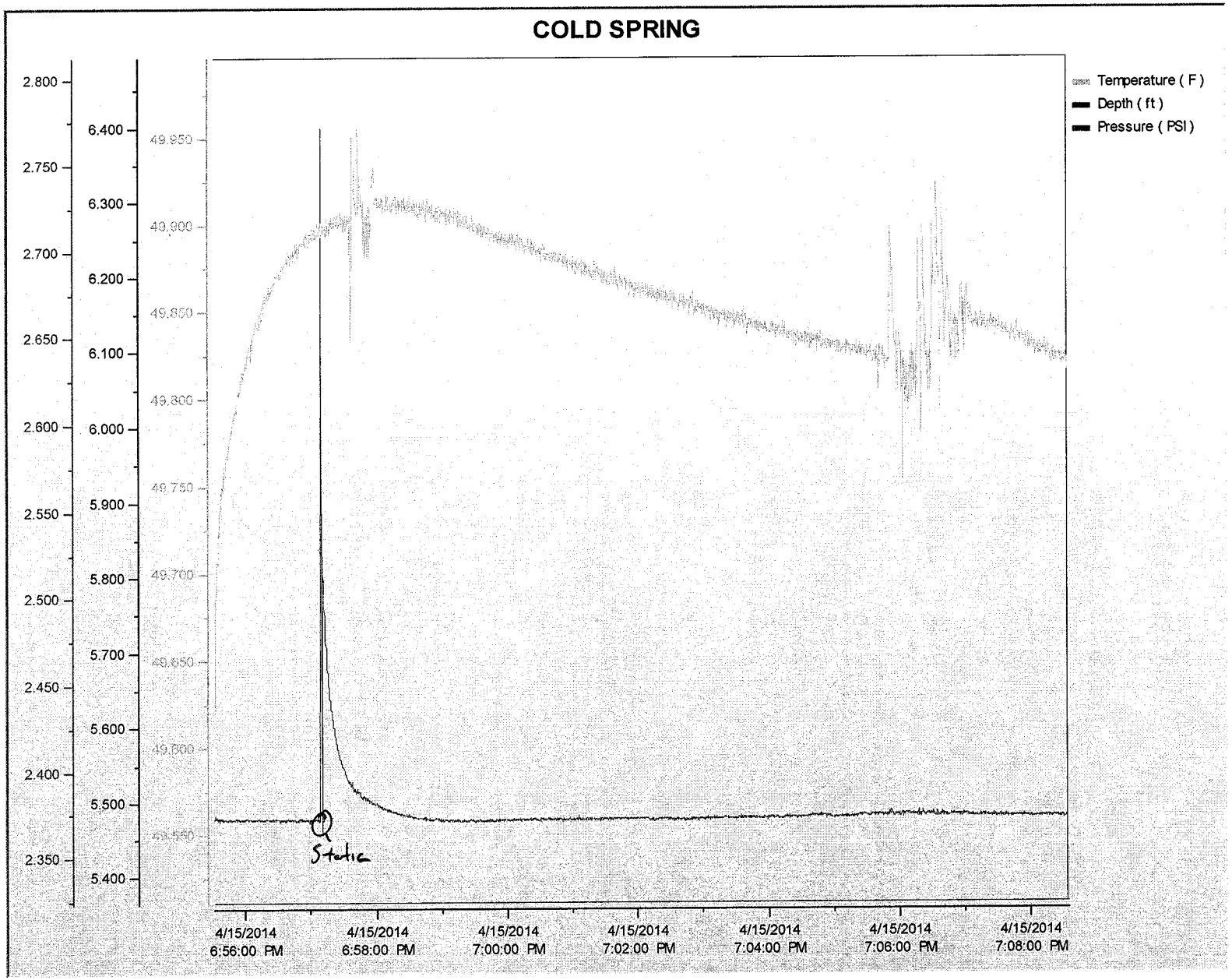
Well ID	Remarks				
	FH	RH	FH2	RH2	FH3
MW-A	**OK**	**OK**	NA	NA	NA
MW-B[1]	NA	NA	NA	NA	NA
GW-01	**OK**	**OK**	NA	NA	NA
GW-02	**OK**	**OK**	**OK**	**OK**	NA
GW-03[2]	**OK**	**OK**	**OK**	**OK**	NA
GW-04[2]	**OK**	**OK**	**OK**	NA	**OK**
GW-05	**OK**	**OK**	**OK**	**OK**	NA

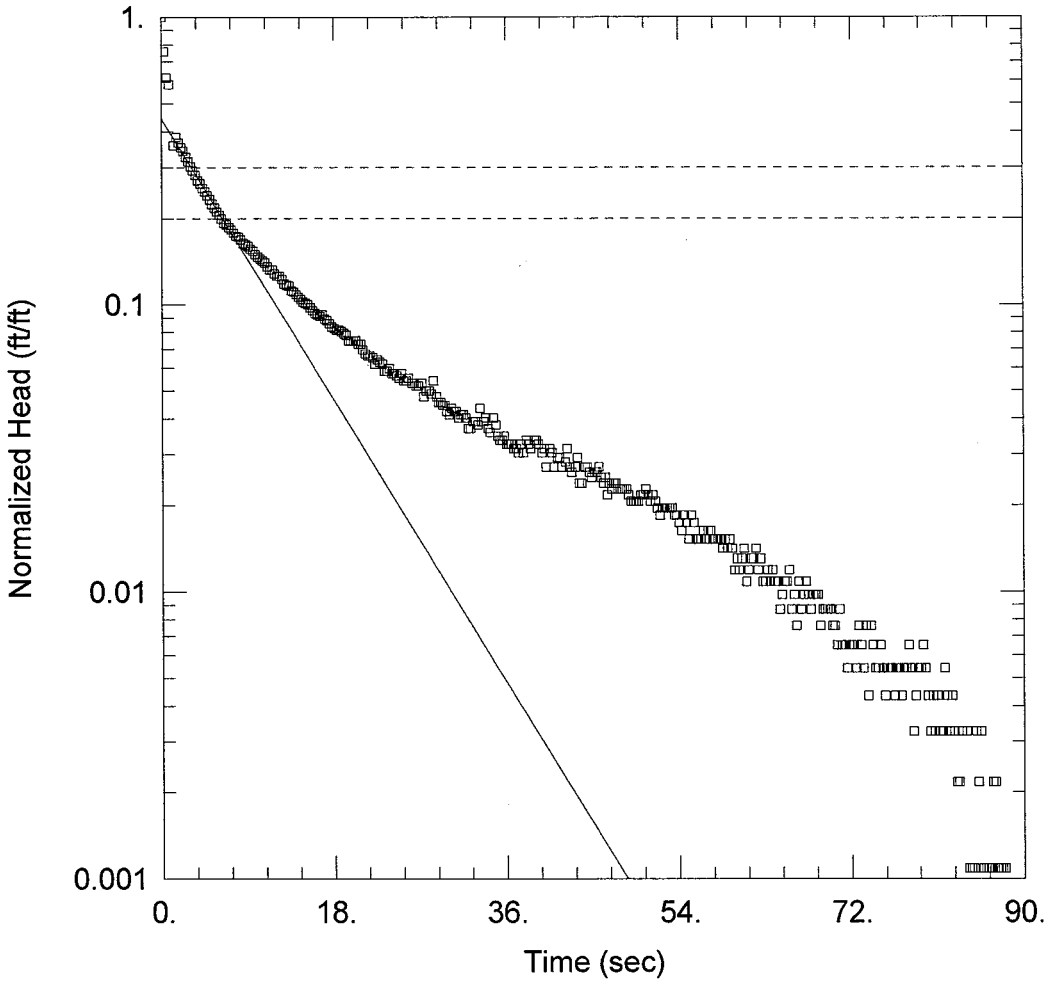
Notes:

1: Water level insufficient, no tests conducted.

2: Water level appears to be tidally influenced. Tests analyzed but results may be affected.

MW-A FH


COLD SPRING
Temperature (F)
Depth (ft)
Pressure (PSI)
2.800
2.750
2.700
2.650
2.600
2.550
2.500
2.450
2.400
2.350
6.400
6.300
6.200
6.100
6.000
5.900
5.800
5.700
5.600
5.500
5.400
49.950
49.900
49.850
49.800
49.750
49.700
49.650
49.600
49.550
Static
4/15/2014 6:56:00 PM
4/15/2014 6:58:00 PM
4/15/2014 7:00:00 PM
4/15/2014 7:02:00 PM
4/15/2014 7:04:00 PM
4/15/2014 7:06:00 PM
4/15/2014 7:08:00 PM



WELL TEST ANALYSIS

Data Set: J:\Projects\11176853\Deliverables\Slug Tests\CSV Files\MW-A-FH.aqt
Date: 06/26/14 Time: 19:59:49

PROJECT INFORMATION

Company: URS
Client: NYSDEC
Location: Cold Spring
Test Well: MW-A
Test Date: 4/15/14

AQUIFER DATA

Saturated Thickness: 8.69 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-A)

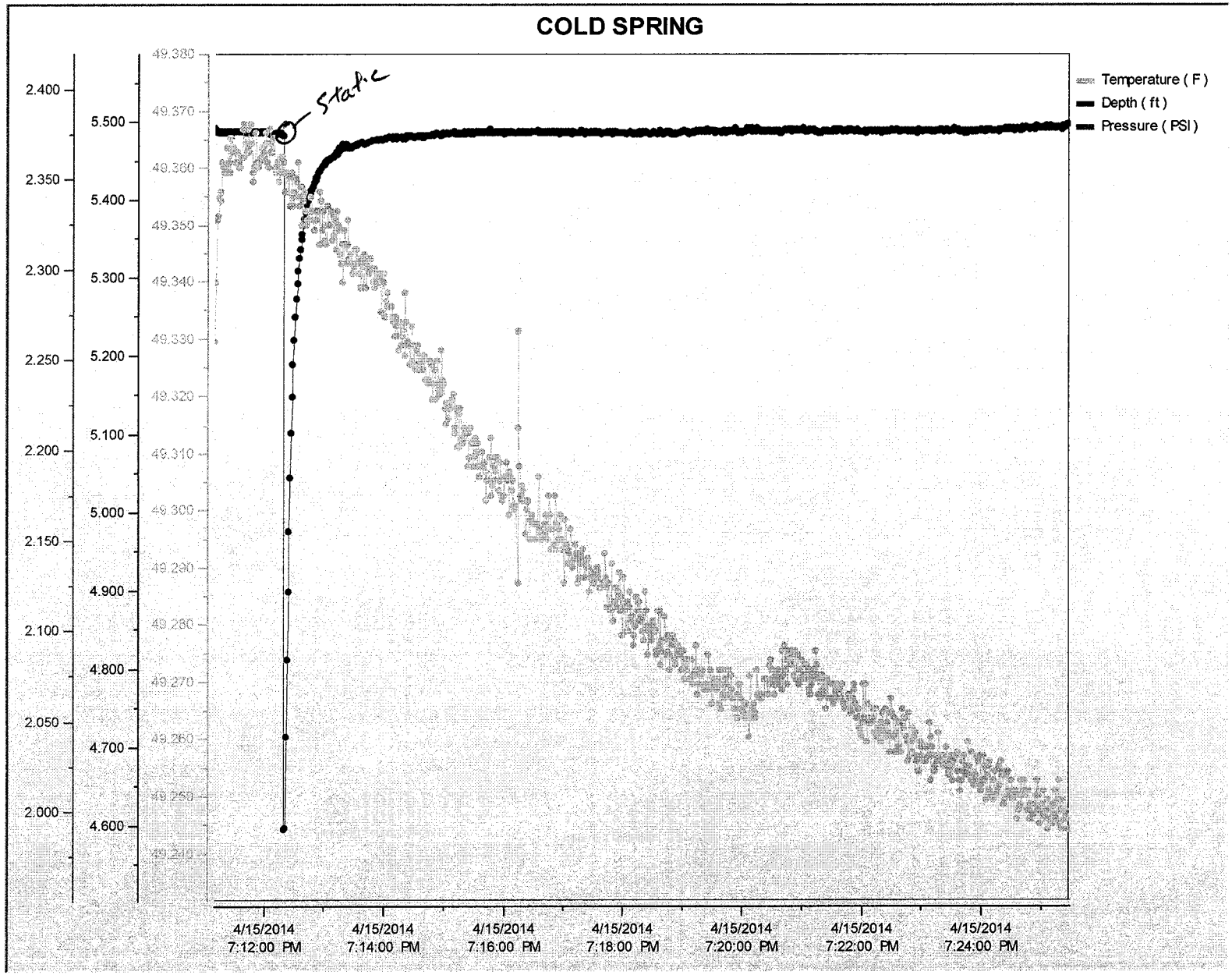
Initial Displacement: 1. ft
Total Well Penetration Depth: 8.69 ft
Casing Radius: 0.08 ft
Static Water Column Height: 8.69 ft
Screen Length: 9. ft
Wellbore Radius: 0.125 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.006348 cm/sec y0 = 0.442 ft

MW-A RH


COLD SPRING
Static
Temperature (F)
Depth (ft)
Pressure (PSI)
2.400
2.350
2.300
2.250
2.200
2.150
2.100
2.050
2.000
5.500
5.400
5.300
5.200
5.100
5.000
4.900
4.800
4.700
4.600
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49.370
49.360
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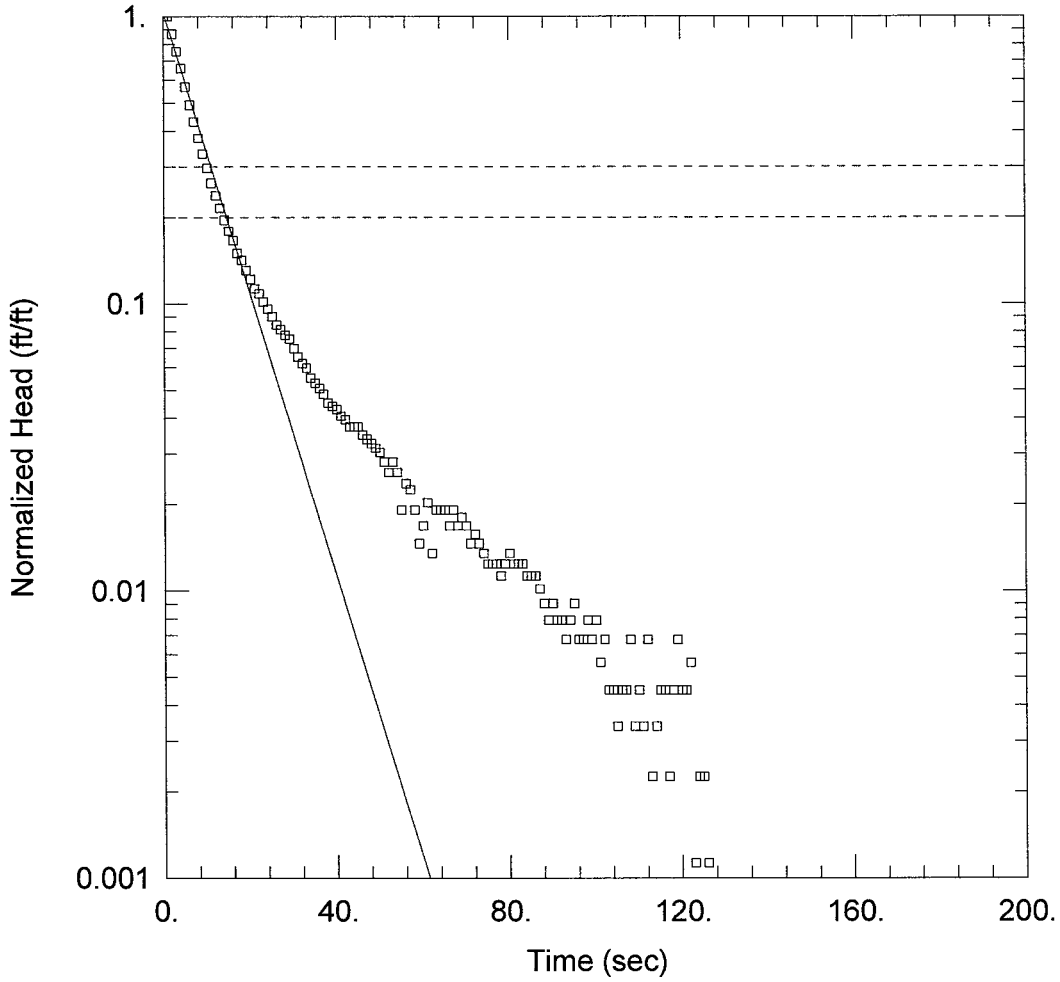

WELL TEST ANALYSIS

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Date: 06/26/14 Time: 20:05:41

PROJECT INFORMATION

Company: URS
Client: NYSDEC
Location: Cold Spring
Test Well: MW-A
Test Date: 4/15/14

AQUIFER DATA

Saturated Thickness: 8.69 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-A)

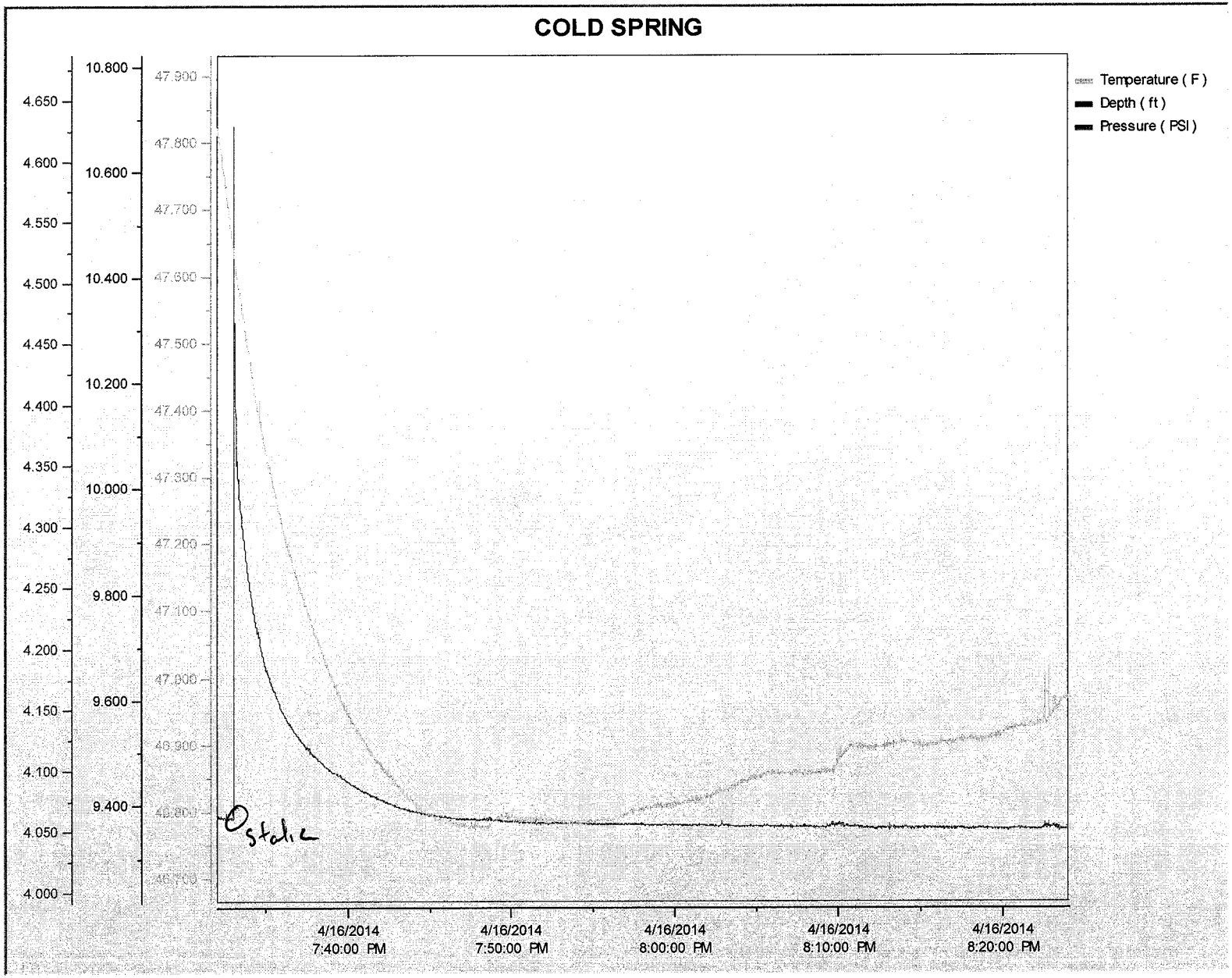
Initial Displacement: 1. ft
Total Well Penetration Depth: 8.69 ft
Casing Radius: 0.08 ft
Static Water Column Height: 8.69 ft
Screen Length: 9. ft
Wellbore Radius: 0.125 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.005734 cm/sec y0 = 1.034 ft

GW-01 - FH


COLD SPRING
Temperature (F)
Depth (ft)
Pressure (PSI)
4.650
4.600
4.550
4.500
4.450
4.400
4.350
4.300
4.250
4.200
4.150
4.100
4.050
4.000
10.800
10.600
10.400
10.200
10.000
9.800
9.600
9.400
47.900
47.800
47.700
47.600
47.500
47.400
47.300
47.200
47.100
47.000
46.900
4/16/2014
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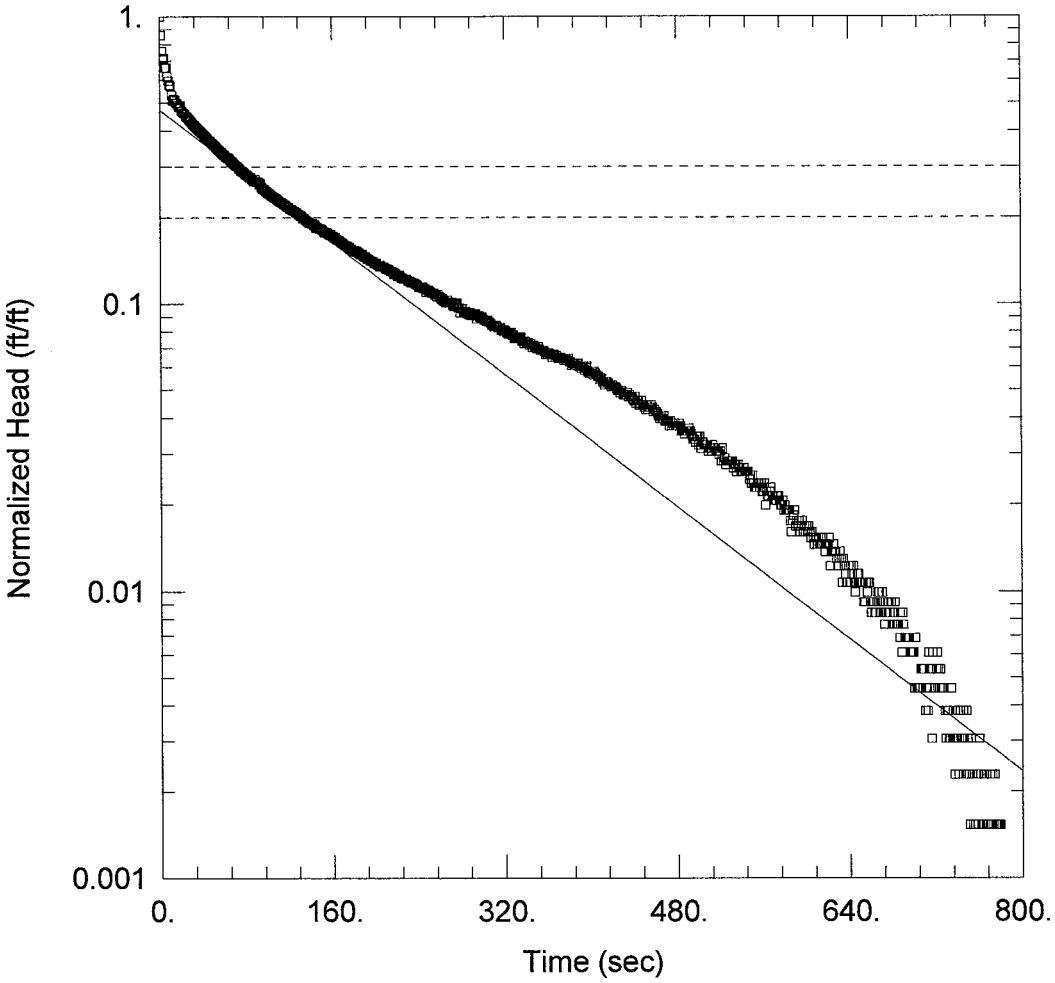
8:10:00 PM
4/16/2014
8:20:00 PM
Static



WELL TEST ANALYSIS

Data Set: J:\Projects\11176853\Deliverables\Slug Tests\CSV Files\GW-01-FH.aqt
Date: 07/02/14 Time: 17:11:48

PROJECT INFORMATION

Company: URS
Client: NYSDEC
Location: Cold Spring
Test Well: GW-01

AQUIFER DATA

Saturated Thickness: 10.69 ft Anisotropy Ratio (Kz/Kr): 1.

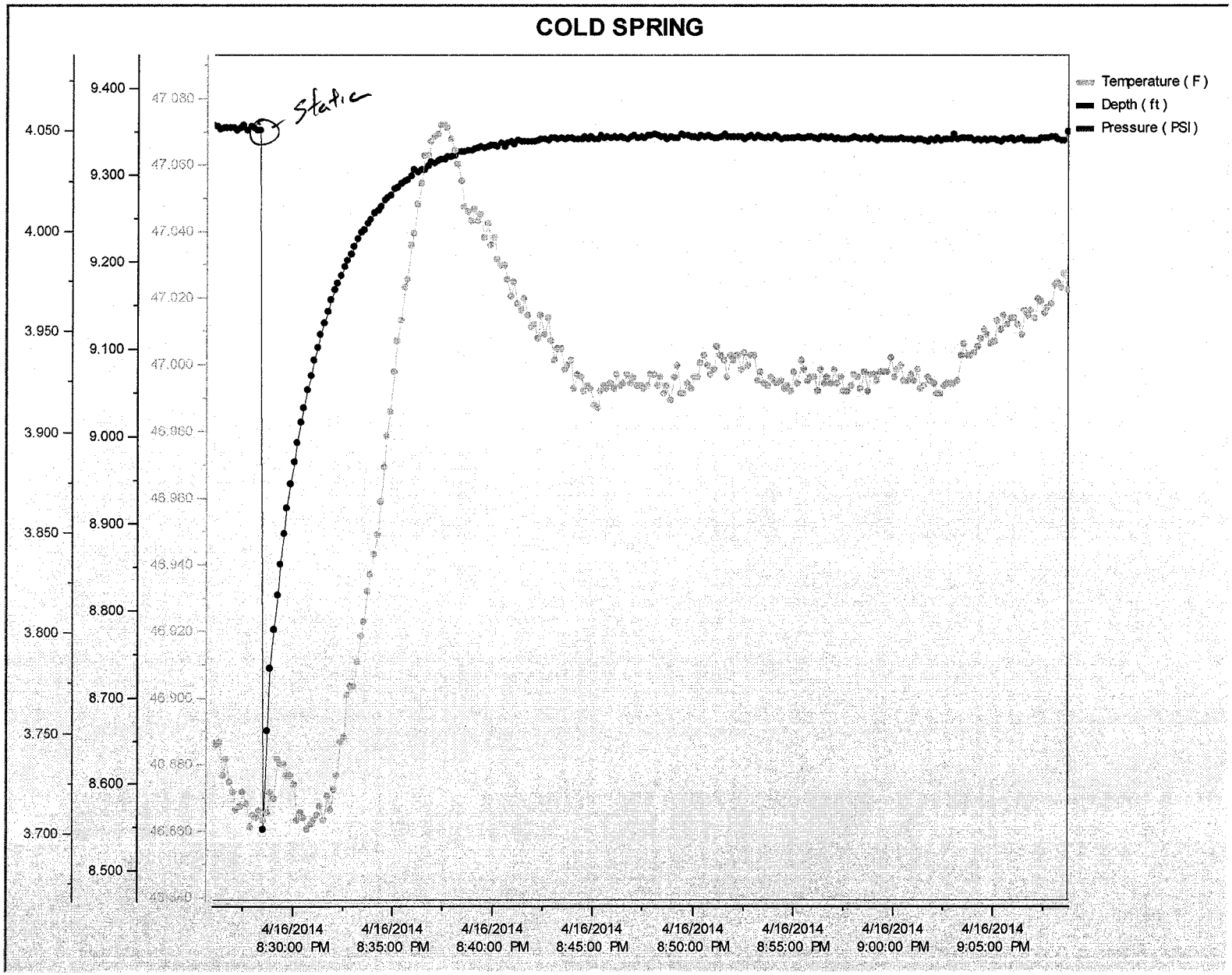
WELL DATA (GW-01)

Initial Displacement: 1. ft
Total Well Penetration Depth: 10.69 ft
Casing Radius: 0.083 ft
Static Water Column Height: 10.69 ft
Screen Length: 10. ft
Wellbore Radius: 0.117 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.0002408 cm/sec
y0 = 0.472 ft

GW-01 – RH


COLD SPRING
Static
Temperature (F)
Depth (ft)
Pressure (PSI)
4.050
4.000
3.950
3.900
3.850
3.800
3.750
3.700
9.400
9.300
9.200
9.100
9.000
8.900
8.800
8.700
8.600
8.500
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47.060
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47.000
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46.980
46.940
46.920
46.900
46.680
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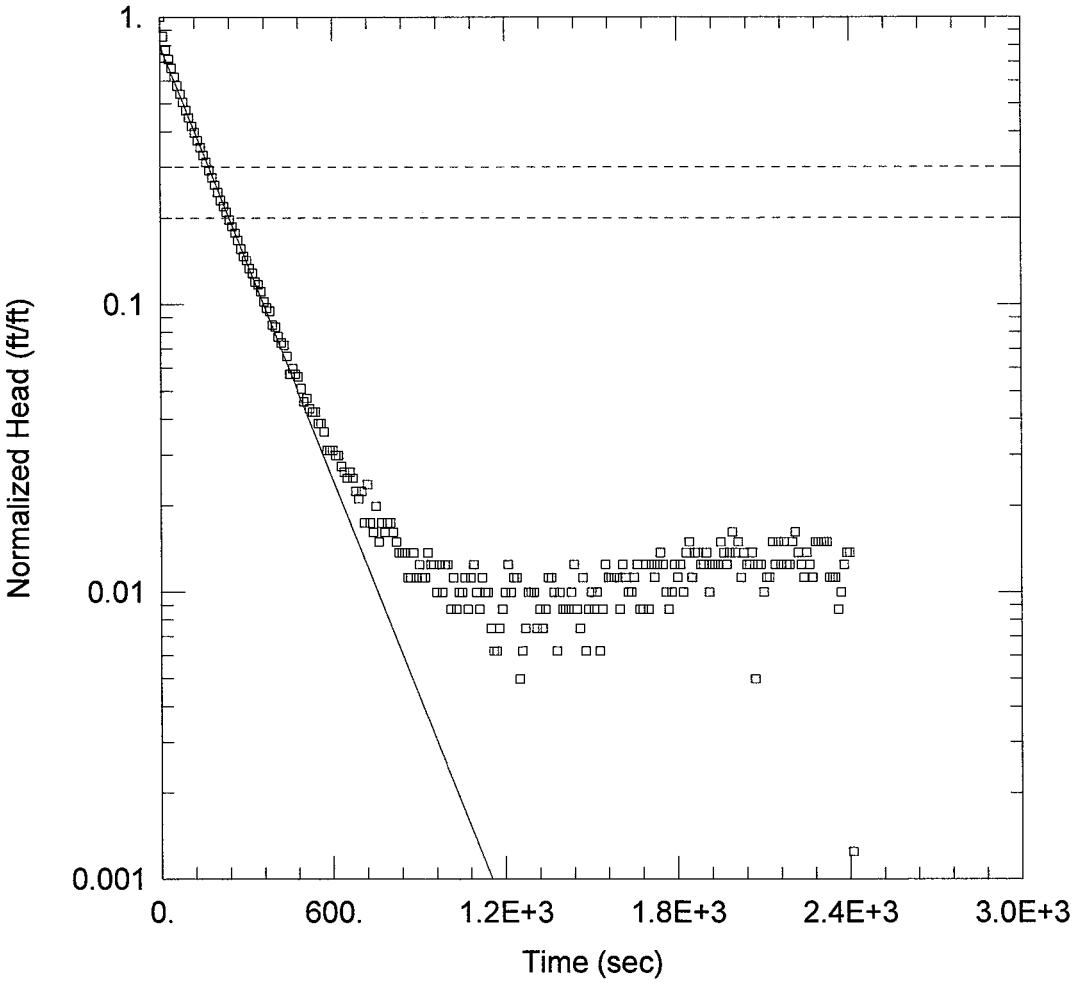

WELL TEST ANALYSIS

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PROJECT INFORMATION

Company: URS
Client: NYSDEC
Location: Cold Spring
Test Well: GW-01

AQUIFER DATA

Saturated Thickness: 10.69 ft Anisotropy Ratio (Kz/Kr): 1.

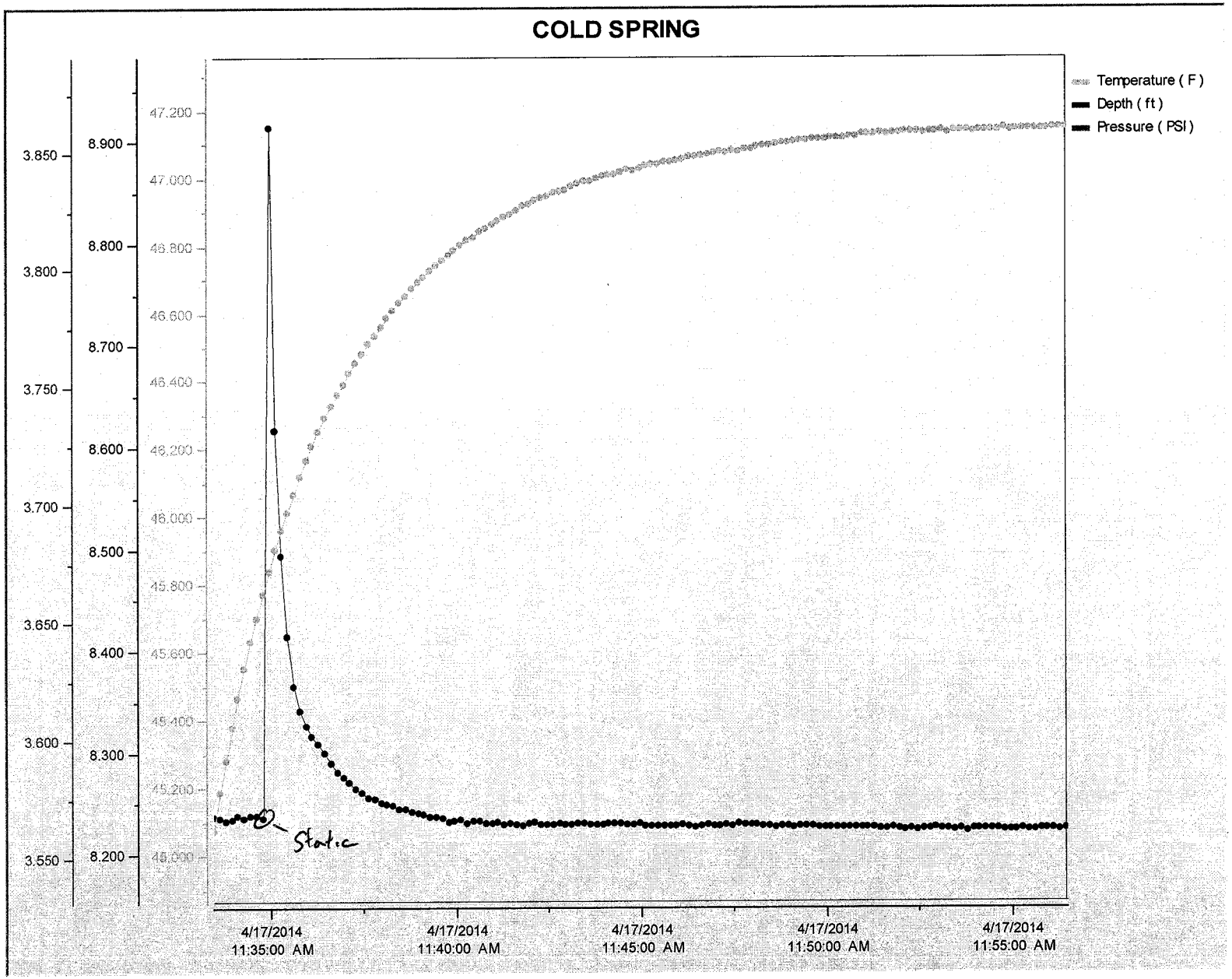
WELL DATA (GW-01)

Initial Displacement: 1. ft
Total Well Penetration Depth: 10.69 ft
Casing Radius: 0.083 ft
Static Water Column Height: 10.69 ft
Screen Length: 10. ft
Wellbore Radius: 0.117 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.0002107 cm/sec
y0 = 0.7982 ft

GW-02 - FH


COLD SPRING
Temperature (F)
Depth (ft)
Pressure (PSI)
3.850
3.800
3.750
3.700
3.650
3.600
3.550
8.900
8.800
8.700
8.600
8.500
8.400
8.300
8.200
47.200
47.000
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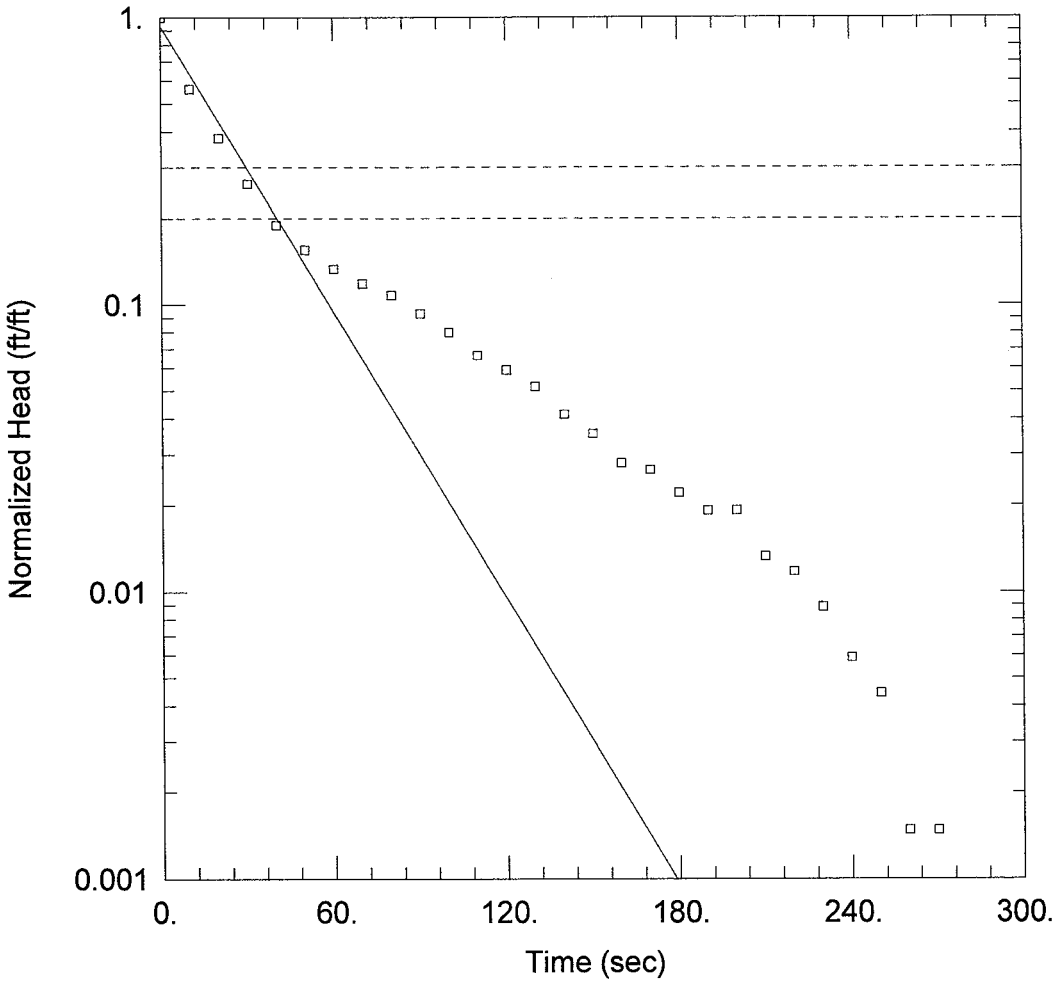
46.600
46.400
46.200
46.000
45.800
45.600
45.400
45.200
45.000
Static
4/17/2014 11:35:00 AM
4/17/2014 11:40:00 AM
4/17/2014 11:45:00 AM
4/17/2014 11:50:00 AM
4/17/2014 11:55:00 AM



WELL TEST ANALYSIS

Data Set: J:\Projects\11176853\Deliverables\Slug Tests\CSV Files\GW-02-FH.aqt
Date: 07/02/14 Time: 17:14:41

PROJECT INFORMATION

Company: URS
Client: NYSDEC
Location: Cold Spring
Test Well: GW-02

AQUIFER DATA

Saturated Thickness: 9.68 ft
Anisotropy Ratio (Kz/Kr): 1.

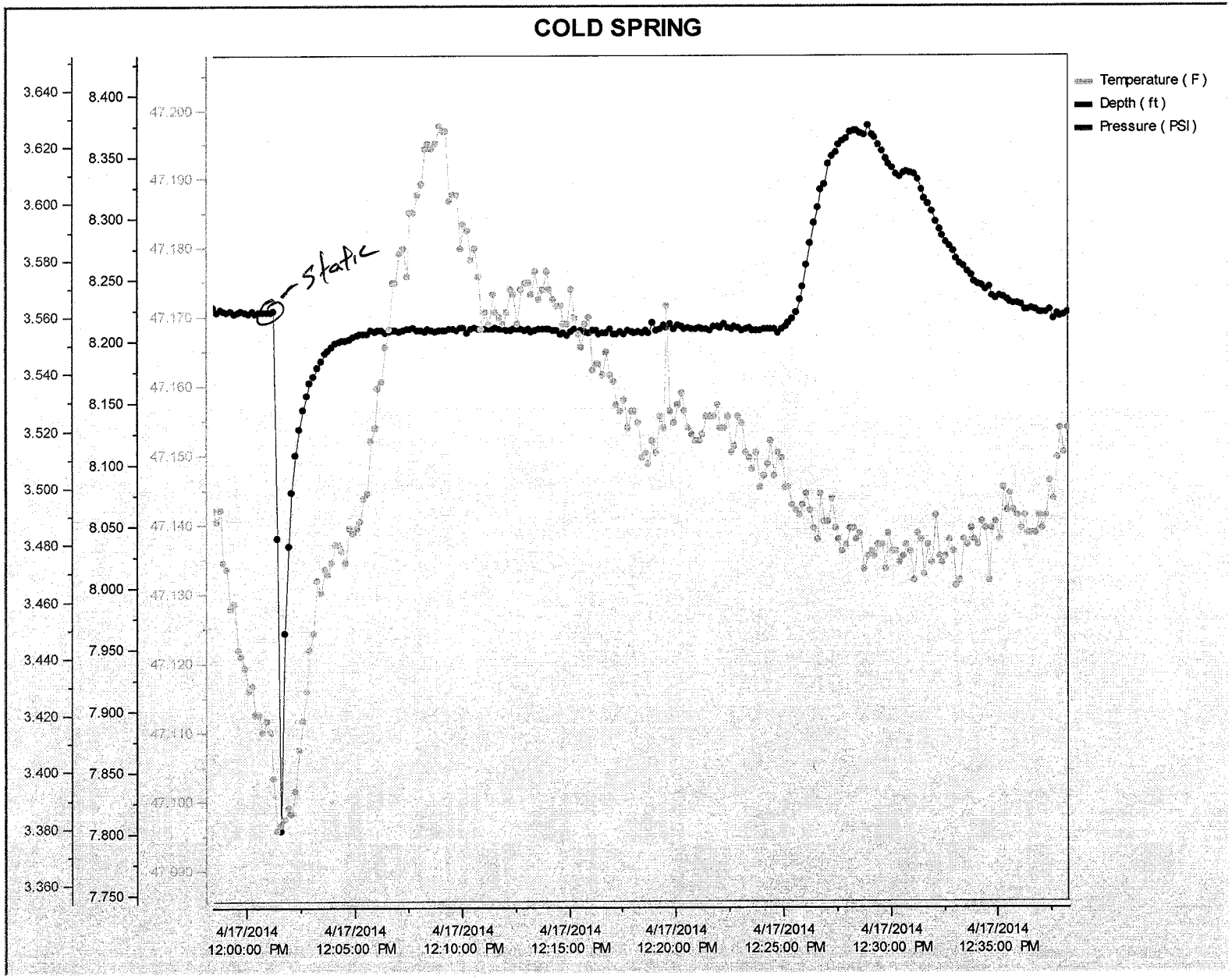
WELL DATA (GW-02)

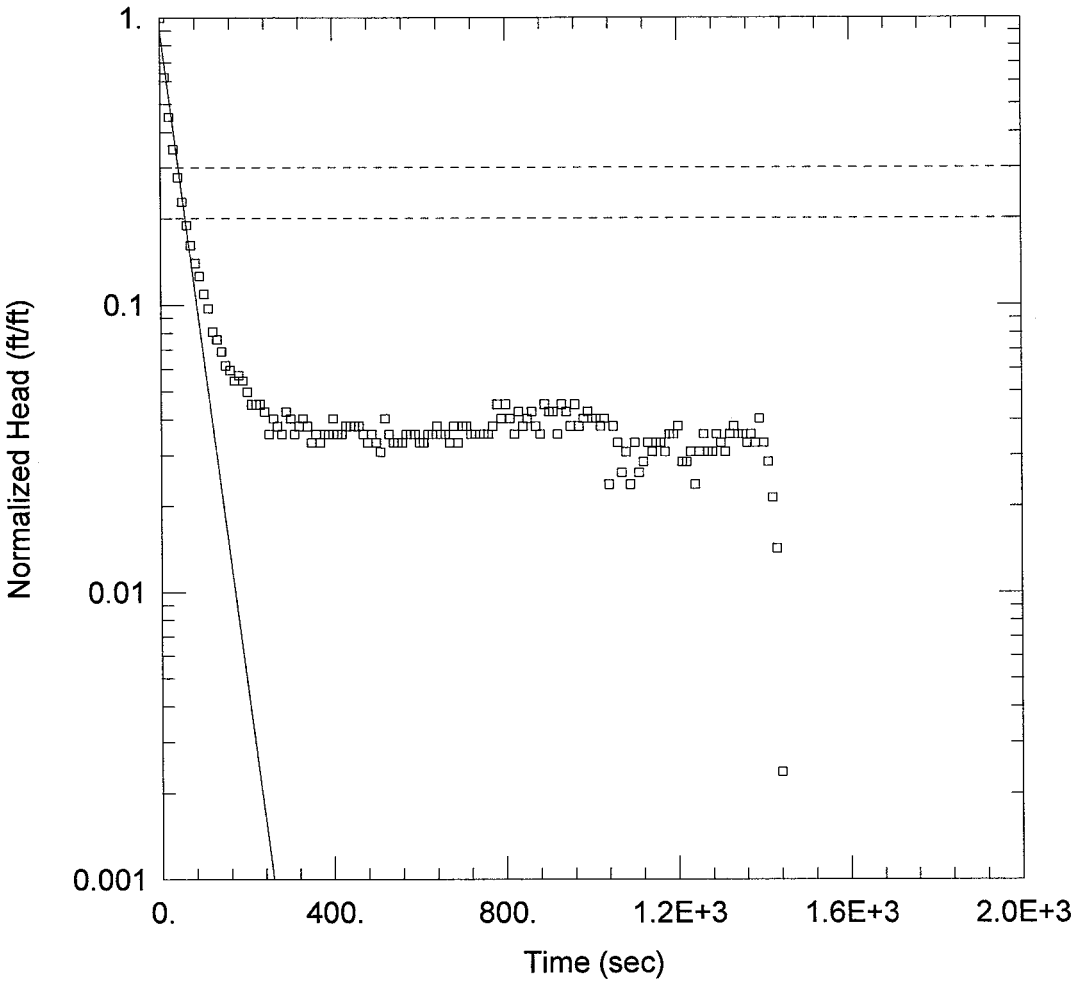
Initial Displacement: 1. ft
Total Well Penetration Depth: 9.68 ft
Casing Radius: 0.083 ft
Static Water Column Height: 9.68 ft
Screen Length: 10. ft
Wellbore Radius: 0.117 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.001769 cm/sec
y0 = 0.9305 ft

GW-02-RH


COLD SPRING
Temperature (F)
Depth (ft)
Pressure (PSI)
Static
3.640
3.620
3.600
3.580
3.560
3.540
3.520
3.500
3.480
3.460
3.440
3.420
3.400
3.380
3.360
8.400
8.350
8.300
8.250
8.200
8.150
8.100
8.050
8.000
7.950
7.900
7.850
7.800
7.750
47.200
47.190
47.180
47.170
47.160
47.150
47.140
47.130
47.120
47.110
47.100
47.090
4/17/2014 12:00:00 PM
4/17/2014 12:05:00 PM
4/17/2014 12:10:00 PM
4/17/2014 12:15:00 PM
4/17/2014 12:20:00 PM
4/17/2014 12:25:00 PM
4/17/2014 12:30:00 PM
4/17/2014 12:35:00 PM



WELL TEST ANALYSIS

Data Set: J:\Projects\11176853\Deliverables\Slug Tests\CSV Files\GW-02-RH.aqt
Date: 07/02/14 Time: 17:36:51

PROJECT INFORMATION

Company: URS
Client: NYSDEC
Location: Cold Spring
Test Well: GW-02

AQUIFER DATA

Saturated Thickness: 9.68 ft
Anisotropy Ratio (Kz/Kr): 1.

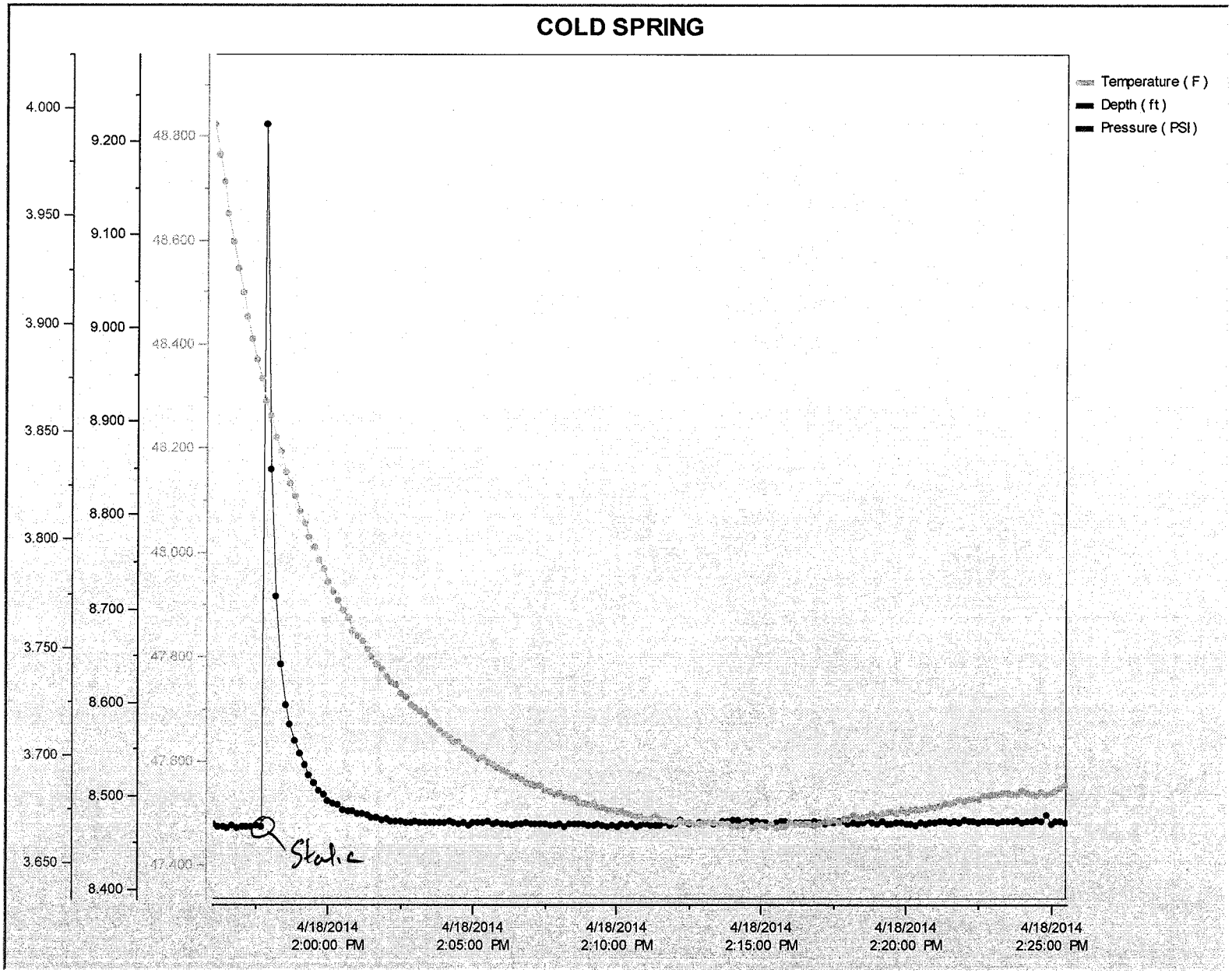
WELL DATA (GW-02)

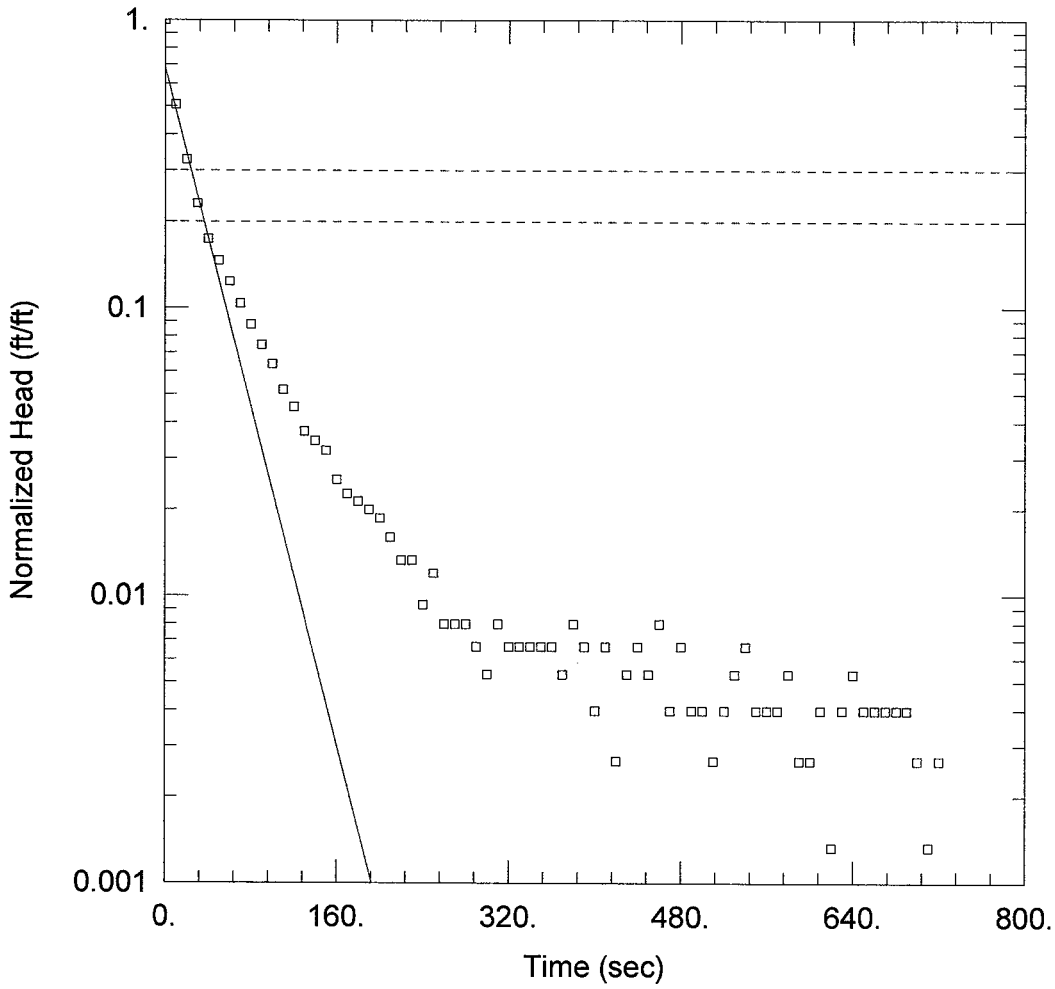
Initial Displacement: 1. ft
Total Well Penetration Depth: 9.68 ft
Casing Radius: 0.083 ft
Static Water Column Height: 9.68 ft
Screen Length: 10. ft
Wellbore Radius: 0.117 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.001217 cm/sec
y0 = 0.8914 ft

GW-02-FH2


COLD SPRING
Temperature (F)
Depth (ft)
Pressure (PSI)
4.000
3.950
3.900
3.850
3.800
3.750
3.700
3.650
9.200
9.100
9.000
8.900
8.800
8.700
8.600
8.500
8.400
48.800
48.600
48.400
48.200
48.000
47.800
47.600
47.400
Static
4/18/2014 2:00:00 PM
4/18/2014 2:05:00 PM
4/18/2014 2:10:00 PM
4/18/2014 2:15:00 PM
4/18/2014 2:20:00 PM
4/18/2014 2:25:00 PM



WELL TEST ANALYSIS

Data Set: J:\Projects\11176853\Deliverables\Slug Tests\CSV Files\GW-02-FH2.aqt
Date: 07/02/14 Time: 17:15:27

PROJECT INFORMATION

Company: URS
Client: NYSDEC
Location: Cold Spring
Test Well: GW-02

AQUIFER DATA

Saturated Thickness: 9.68 ft
Anisotropy Ratio (Kz/Kr): 1.

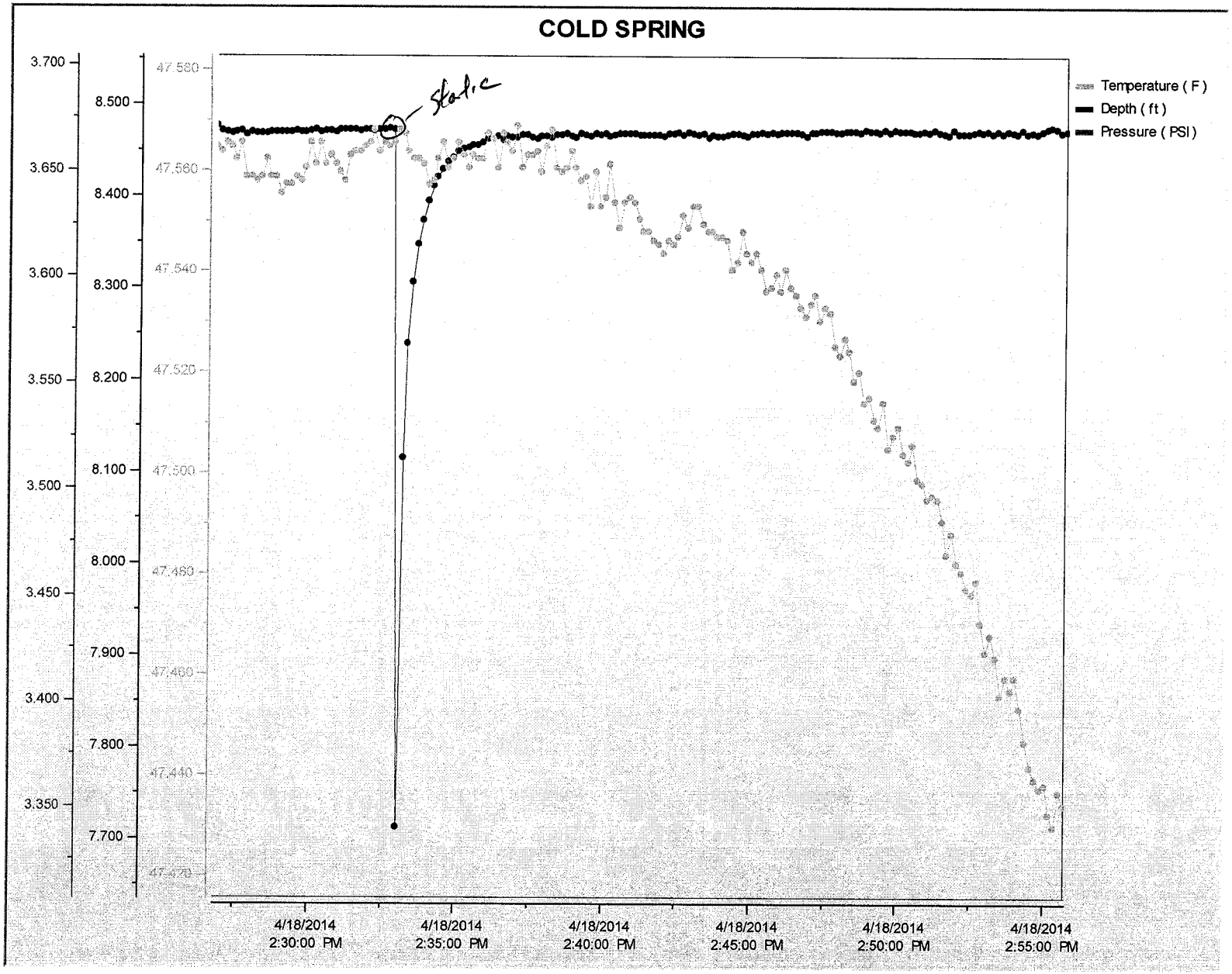
WELL DATA (GW-02)

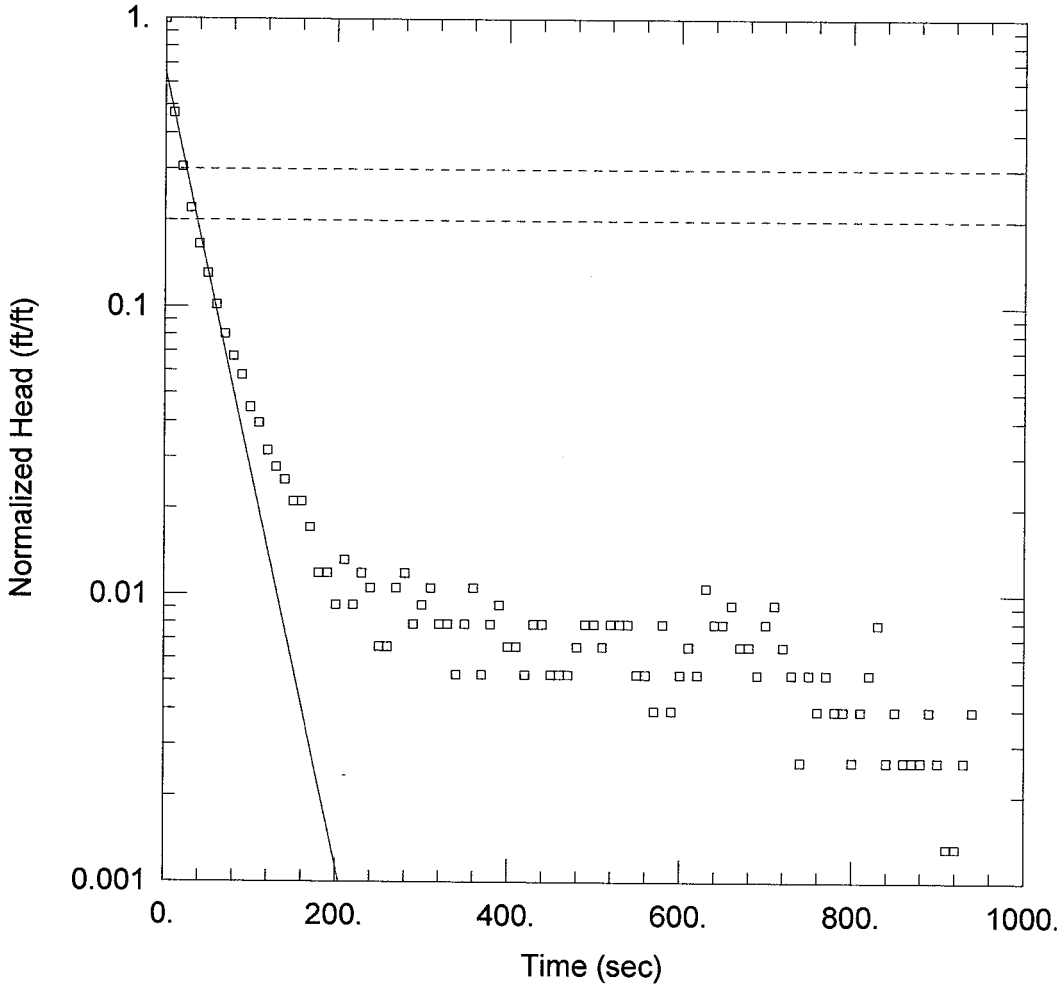
Initial Displacement: 1. ft
Total Well Penetration Depth: 9.68 ft
Casing Radius: 0.083 ft
Static Water Column Height: 9.68 ft
Screen Length: 10. ft
Wellbore Radius: 0.117 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.001564 cm/sec
y0 = 0.6783 ft

GW-02-RH2


COLD SPRING
Temperature (F)
Depth (ft)
Pressure (PSI)
static
3.700
3.650
3.600
3.550
3.500
3.450
3.400
3.350
8.500
8.400
8.300
8.200
8.100
8.000
7.900
7.800
7.700
47.580
47.560
47.540
47.520
47.500
47.480
47.460
47.440
47.420
4/18/2014 2:30:00 PM
4/18/2014 2:35:00 PM
4/18/2014 2:40:00 PM
4/18/2014 2:45:00 PM
4/18/2014 2:50:00 PM
4/18/2014 2:55:00 PM



WELL TEST ANALYSIS

Data Set: J:\Projects\11176853\Deliverables\Slug Tests\CSV Files\GW-02-RH2.aqt
Date: 07/02/14 Time: 17:17:54

PROJECT INFORMATION

Company: URS
Client: NYSDEC
Location: Cold Spring
Test Well: GW-02

AQUIFER DATA

Saturated Thickness: 9.68 ft
Anisotropy Ratio (Kz/Kr): 1.

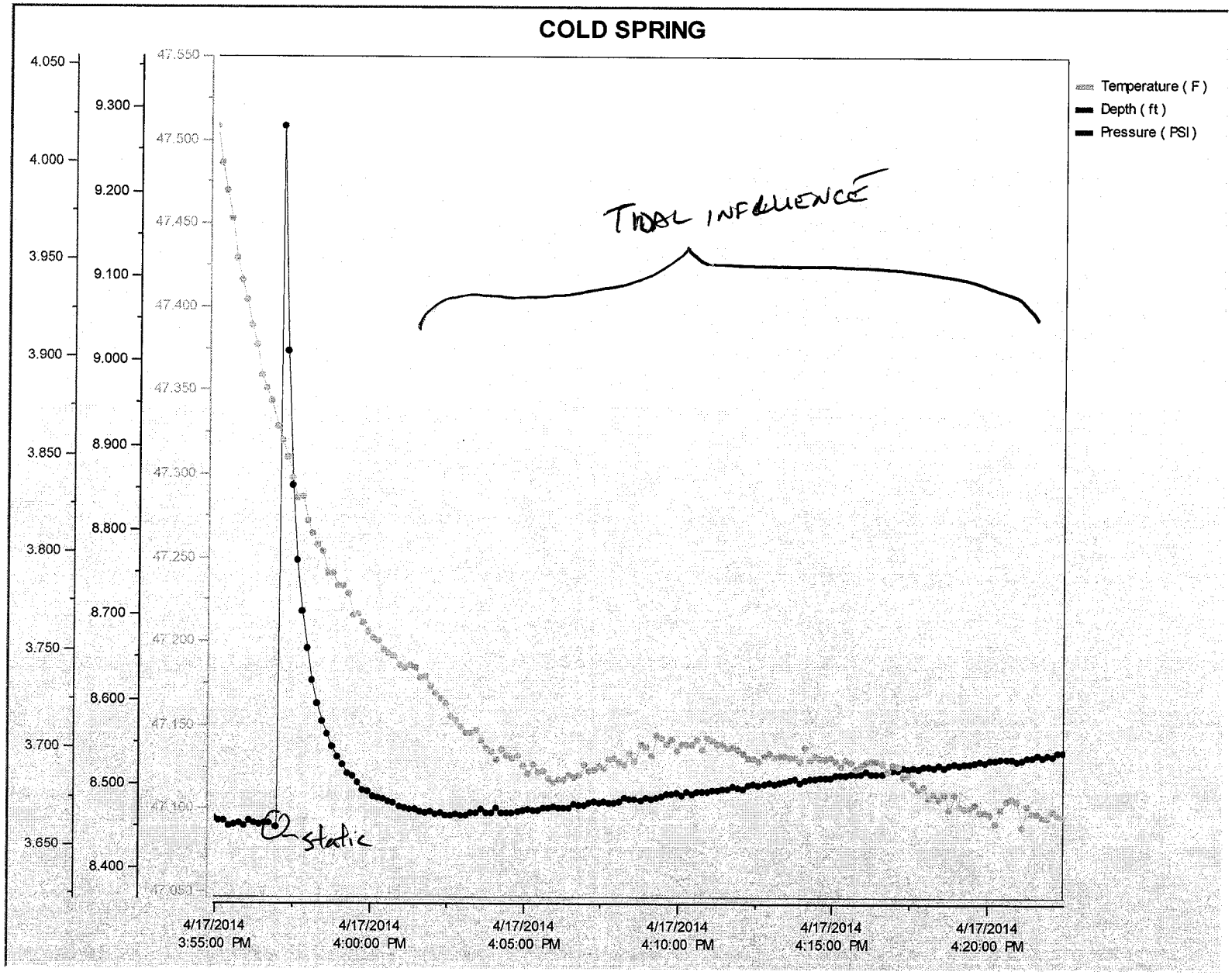
WELL DATA (GW-02)

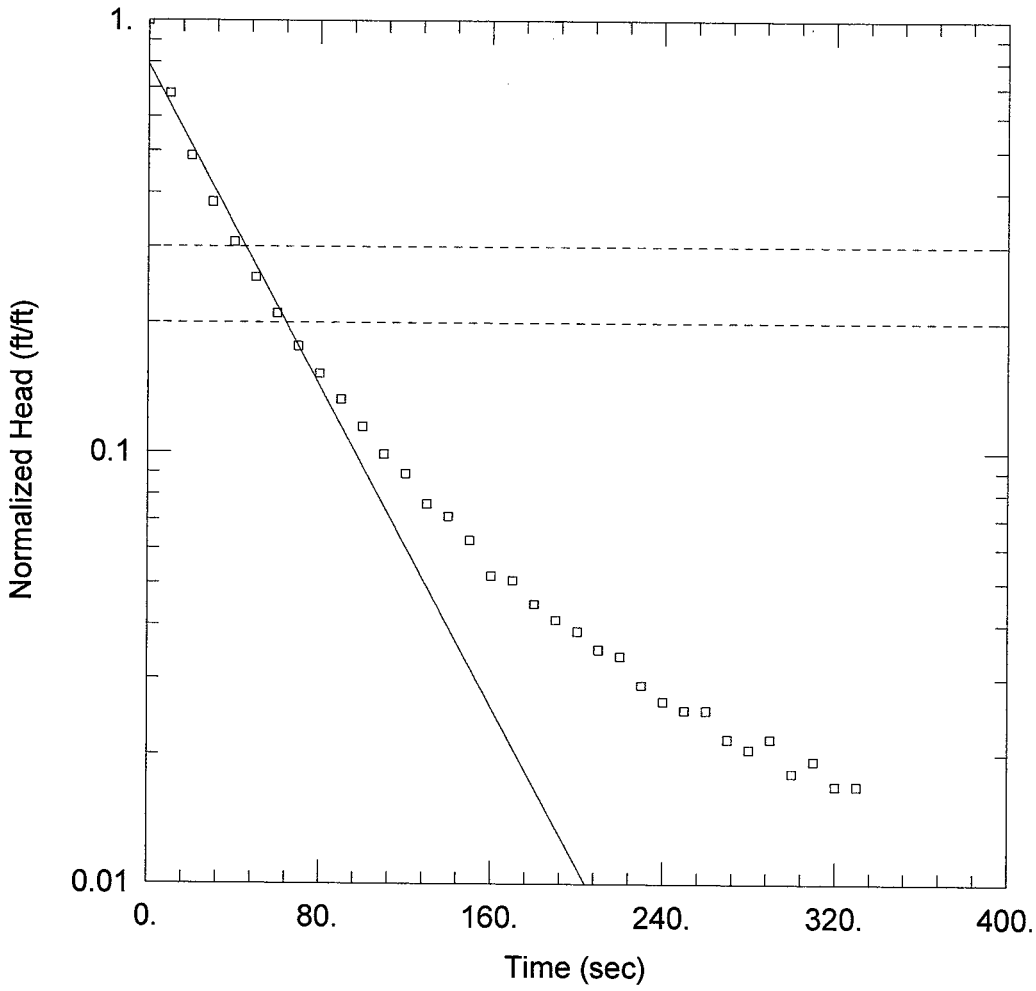
Initial Displacement: 1. ft
Total Well Penetration Depth: 9.68 ft
Casing Radius: 0.083 ft
Static Water Column Height: 9.68 ft
Screen Length: 10. ft
Wellbore Radius: 0.117 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.001467 cm/sec
y0 = 0.6488 ft

GW-03-FH


COLD SPRING
Temperature (F)
Depth (ft)
Pressure (PSI)
4.050
4.000
3.950
3.900
3.850
3.800
3.750
3.700
3.650
9.300
9.200
9.100
9.000
8.900
8.800
8.700
8.600
8.500
8.400
47.550
47.500
47.450
47.400
47.350
47.300
47.250
47.200
47.150
47.100
47.050
TIDAL INFLUENCE
static
4/17/2014 3:55:00 PM
4/17/2014 4:00:00 PM
4/17/2014 4:05:00 PM
4/17/2014 4:10:00 PM
4/17/2014 4:15:00 PM
4/17/2014 4:20:00 PM



WELL TEST ANALYSIS

Data Set: J:\Projects\11176853\Deliverables\Slug Tests\CSV Files\GW-03-FH.aqt
Date: 07/02/14 Time: 17:18:58

PROJECT INFORMATION

Company: URS
Client: NYSDEC
Location: Cold Spring
Test Well: GW-03

AQUIFER DATA

Saturated Thickness: 9.96 ft
Anisotropy Ratio (Kz/Kr): 1.

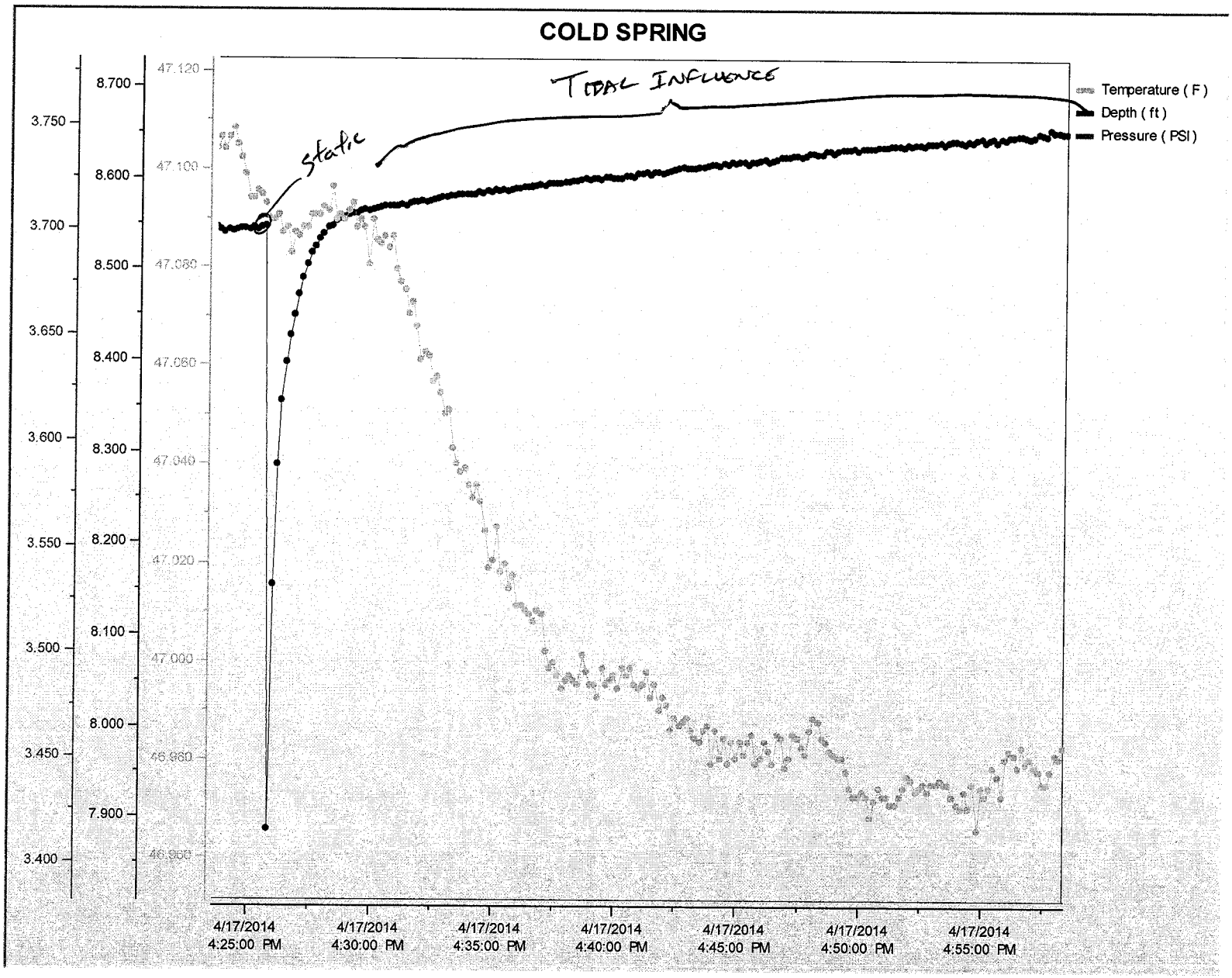
WELL DATA (GW-03)

Initial Displacement: 1. ft
Total Well Penetration Depth: 9.96 ft
Casing Radius: 0.083 ft
Static Water Column Height: 9.96 ft
Screen Length: 10. ft
Wellbore Radius: 0.117 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.0009966 cm/sec
y0 = 0.7911 ft

GW-03-RH


COLD SPRING
TIDAL INFLUENCE
static
Temperature (F)
Depth (ft)
Pressure (PSI)
3.750
3.700
3.650
3.600
3.550
3.500
3.450
3.400
8.700
8.600
8.500
8.400
8.300
8.200
8.100
8.000
7.900
47.120
47.100
47.080
47.060
47.040
47.020
47.000
46.980
46.960
4/17/2014 4:25:00 PM
4/17/2014 4:30:00 PM
4/17/2014 4:35:00 PM
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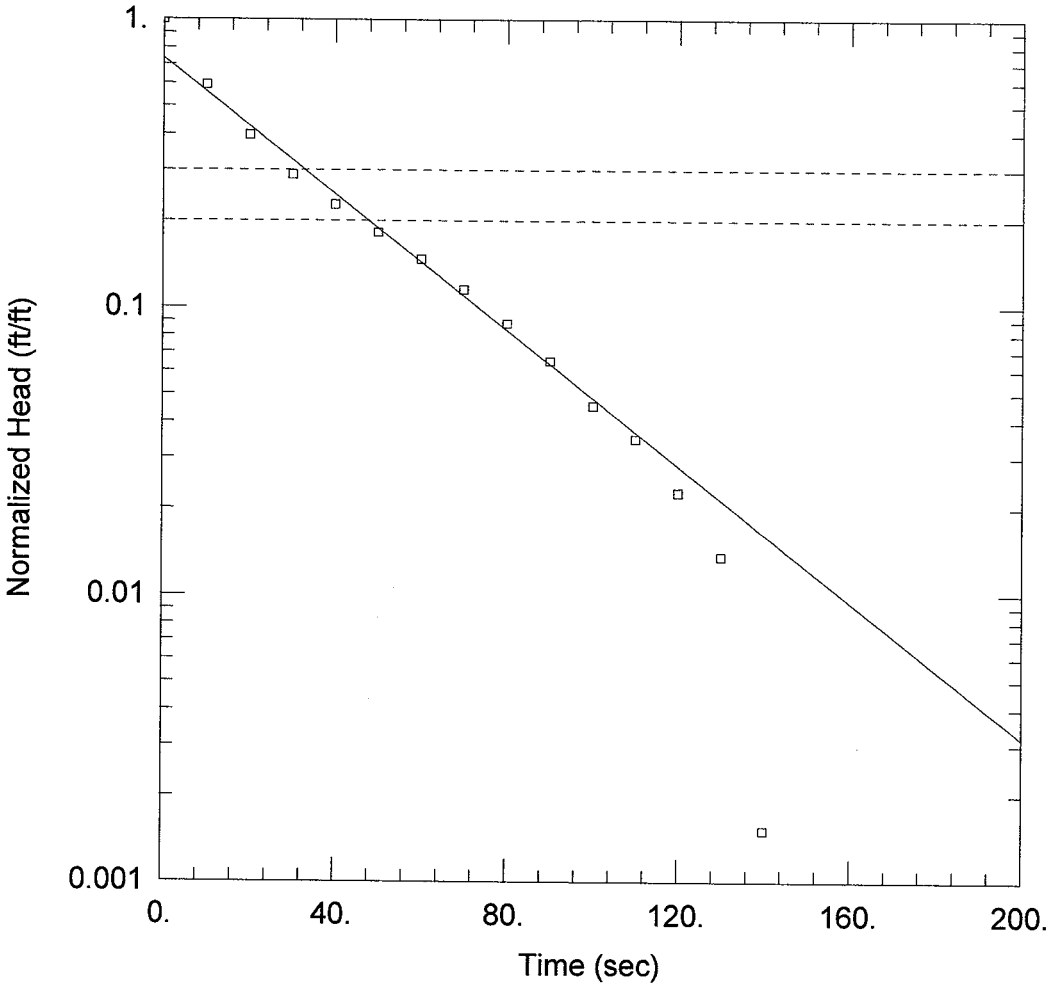
4/17/2014 4:45:00 PM
4/17/2014 4:50:00 PM
4/17/2014 4:55:00 PM



WELL TEST ANALYSIS

Data Set: J:\Projects\11176853\Deliverables\Slug Tests\CSV Files\GW-03-RH.aqt
Date: 07/02/14 Time: 17:21:08

PROJECT INFORMATION

Company: URS
Client: NYSDEC
Location: Cold Spring
Test Well: GW-03

AQUIFER DATA

Saturated Thickness: 9.96 ft
Anisotropy Ratio (Kz/Kr): 1.

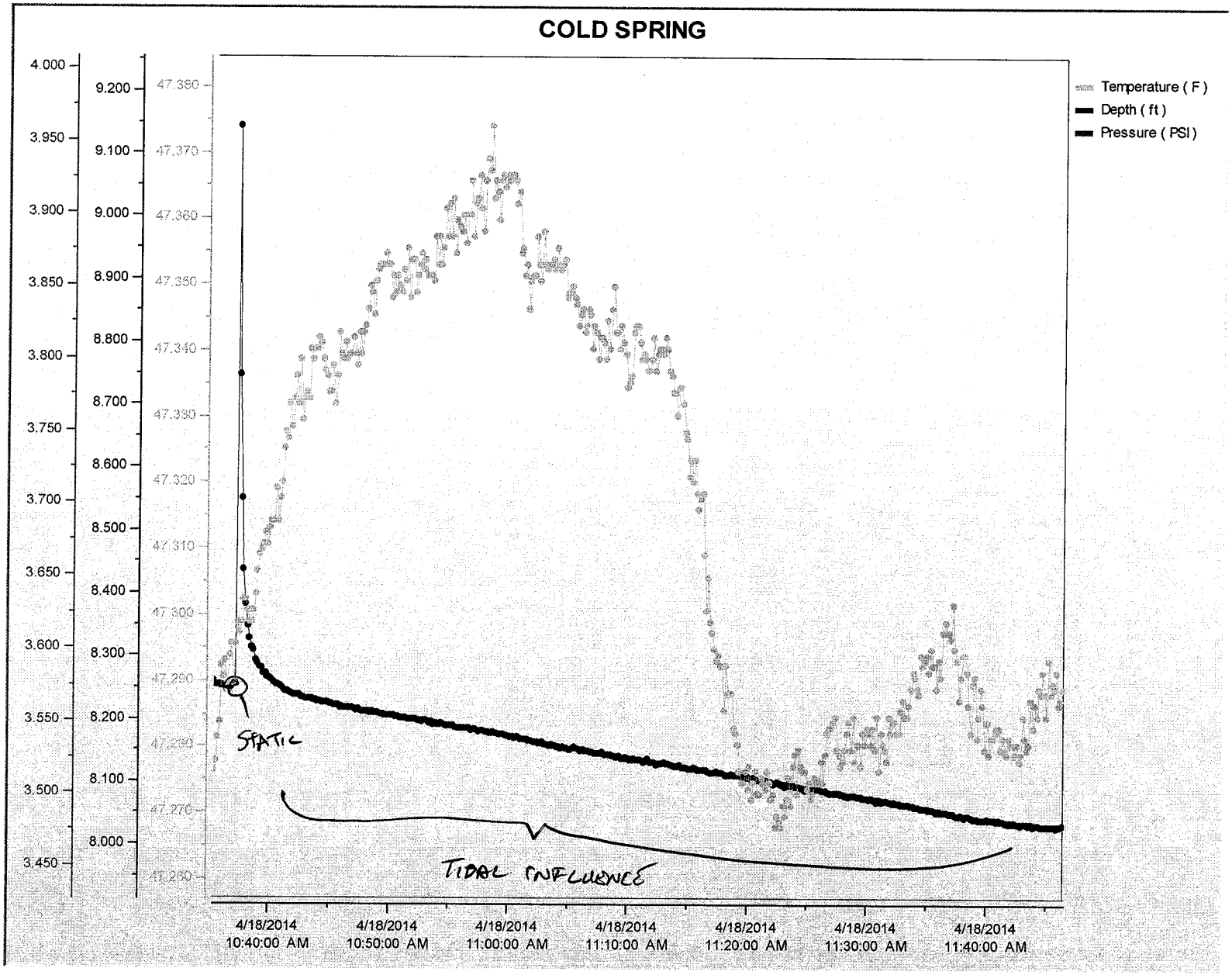
WELL DATA (GW-03)

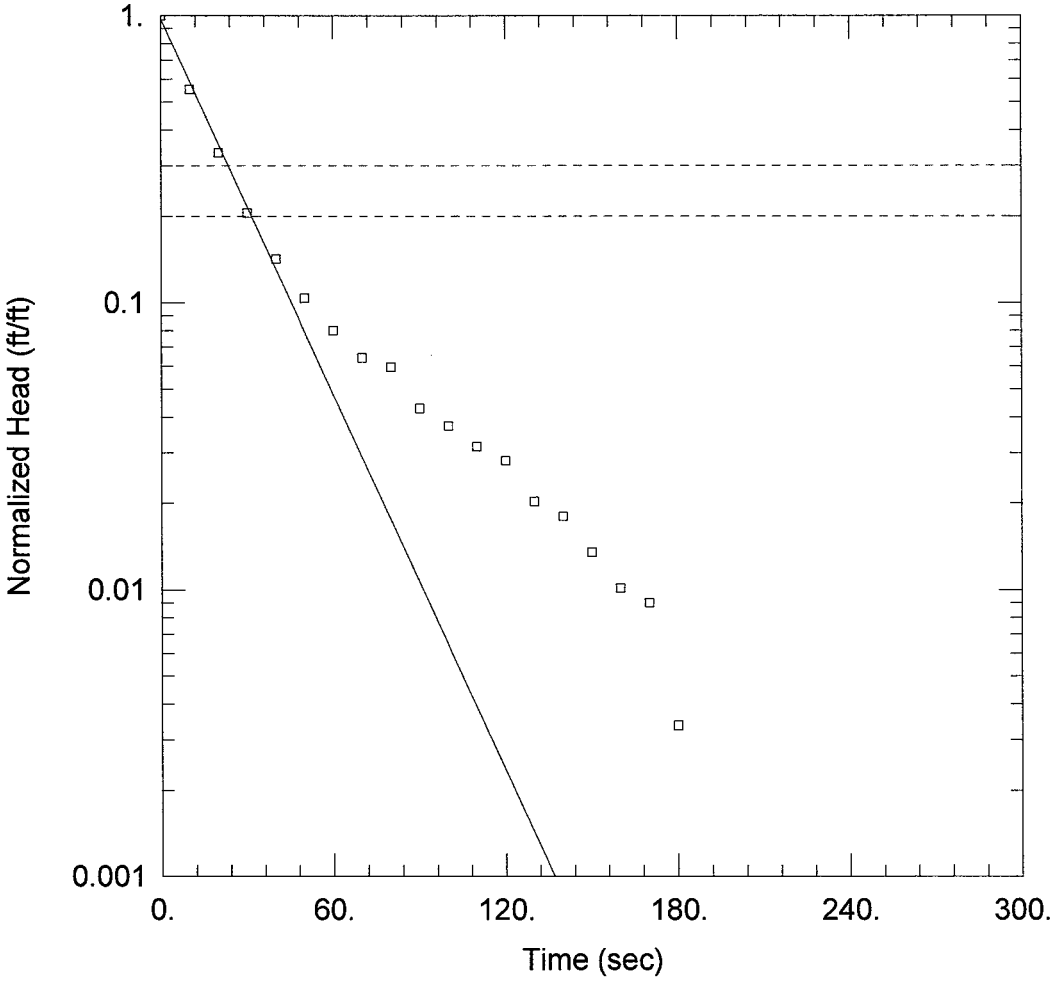
Initial Displacement: 1. ft
Total Well Penetration Depth: 9.96 ft
Casing Radius: 0.083 ft
Static Water Column Height: 9.96 ft
Screen Length: 10. ft
Wellbore Radius: 0.117 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.001266 cm/sec
y0 = 0.7343 ft

GW-03-FH2


COLD SPRING
Temperature (F)
Depth (ft)
Pressure (PSI)
4.000
3.950
3.900
3.850
3.800
3.750
3.700
3.650
3.600
3.550
3.500
3.450
9.200
9.100
9.000
8.900
8.800
8.700
8.600
8.500
8.400
8.300
8.200
8.100
8.000
47.380
47.370
47.360
47.350
47.340
47.330
47.320
47.310
47.300
47.290
47.280
47.270
47.260
STATIC
TIDAL INFLUENCE
4/18/2014 10:40:00 AM
4/18/2014 10:50:00 AM
4/18/2014 11:00:00 AM
4/18/2014 11:10:00 AM
4/18/2014 11:20:00 AM
4/18/2014 11:30:00 AM
4/18/2014 11:40:00 AM



WELL TEST ANALYSIS

Data Set: J:\Projects\11176853\Deliverables\Slug Tests\CSV Files\GW-03-FH2.aqt
Date: 07/02/14 Time: 17:20:12

PROJECT INFORMATION

Company: URS
Client: NYSDEC
Location: Cold Spring
Test Well: GW-03

AQUIFER DATA

Saturated Thickness: 9.96 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (GW-03)

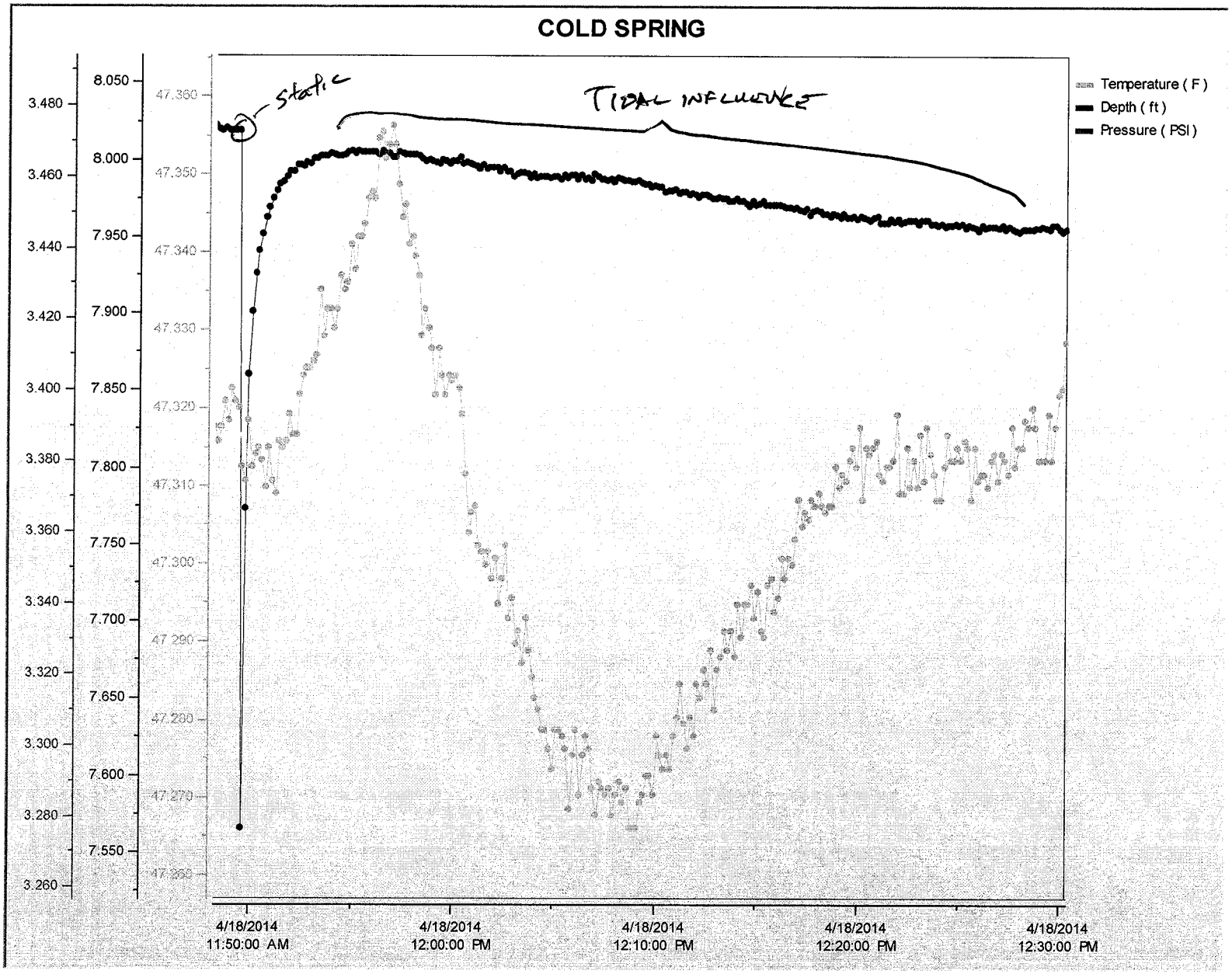
Initial Displacement: 1. ft
Total Well Penetration Depth: 9.96 ft
Casing Radius: 0.083 ft
Static Water Column Height: 9.96 ft
Screen Length: 10. ft
Wellbore Radius: 0.117 ft
Gravel Pack Porosity: 0.3

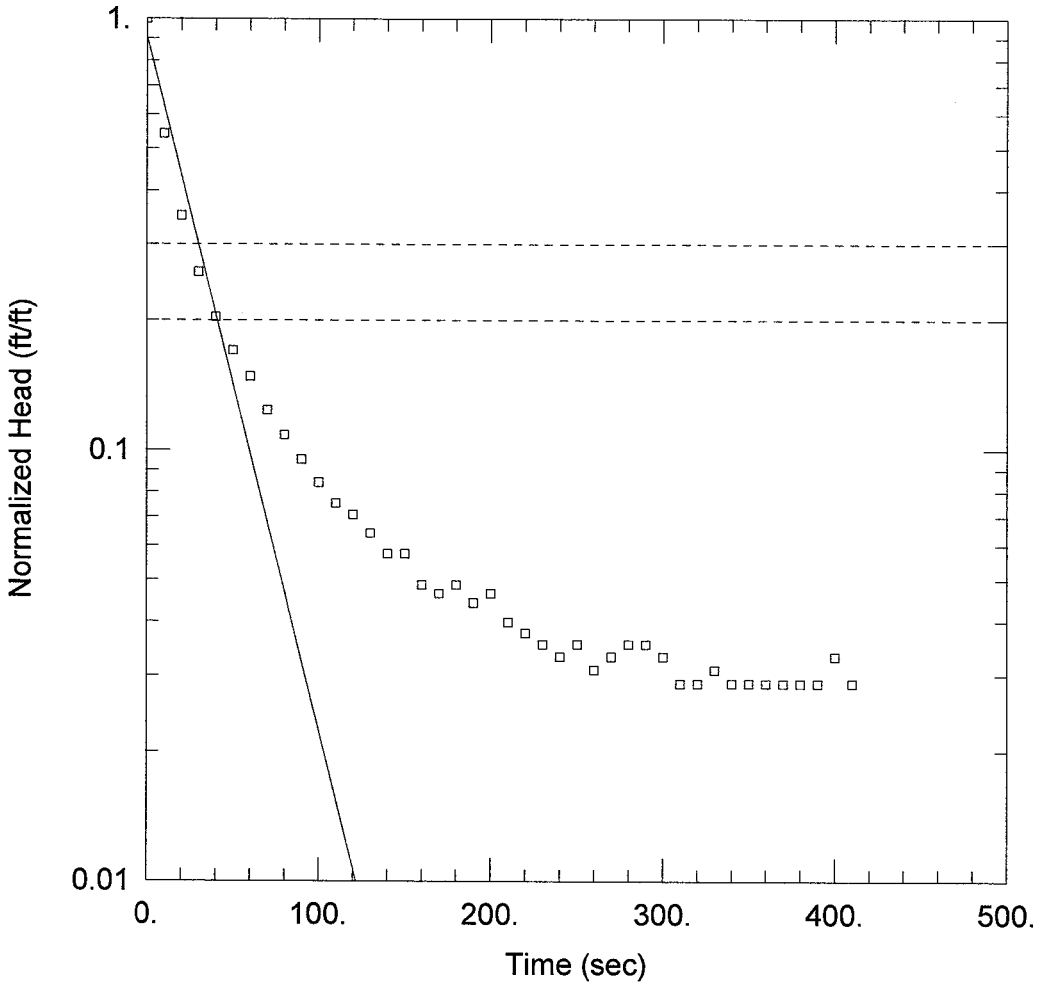
SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.002336 cm/sec y0 = 0.9745 ft

GW-03-RH2


COLD SPRING
Static
TIDAL INFLUENCE
Temperature (F)
Depth (ft)
Pressure (PSI)
3.480
3.460
3.440
3.420
3.400
3.380
3.360
3.340
3.320
3.300
3.280
3.260
8.050
8.000
7.950
7.900
7.850
7.800
7.750
7.700
7.650
7.600
7.550
47.360
47.350
47.340
47.330
47.320
47.310
47.300
47.290
47.280
47.270
4/18/2014 11:50:00 AM
4/18/2014 12:00:00 PM
4/18/2014 12:10:00 PM
4/18/2014 12:20:00 PM
4/18/2014 12:30:00 PM



WELL TEST ANALYSIS

Data Set: J:\Projects\11176853\Deliverables\Slug Tests\CSV Files\GW-03-RH2.aqt
Date: 07/02/14 Time: 17:21:41

PROJECT INFORMATION

Company: URS
Client: NYSDEC
Location: Cold Spring
Test Well: GW-03

AQUIFER DATA

Saturated Thickness: 9.96 ft
Anisotropy Ratio (Kz/Kr): 1.

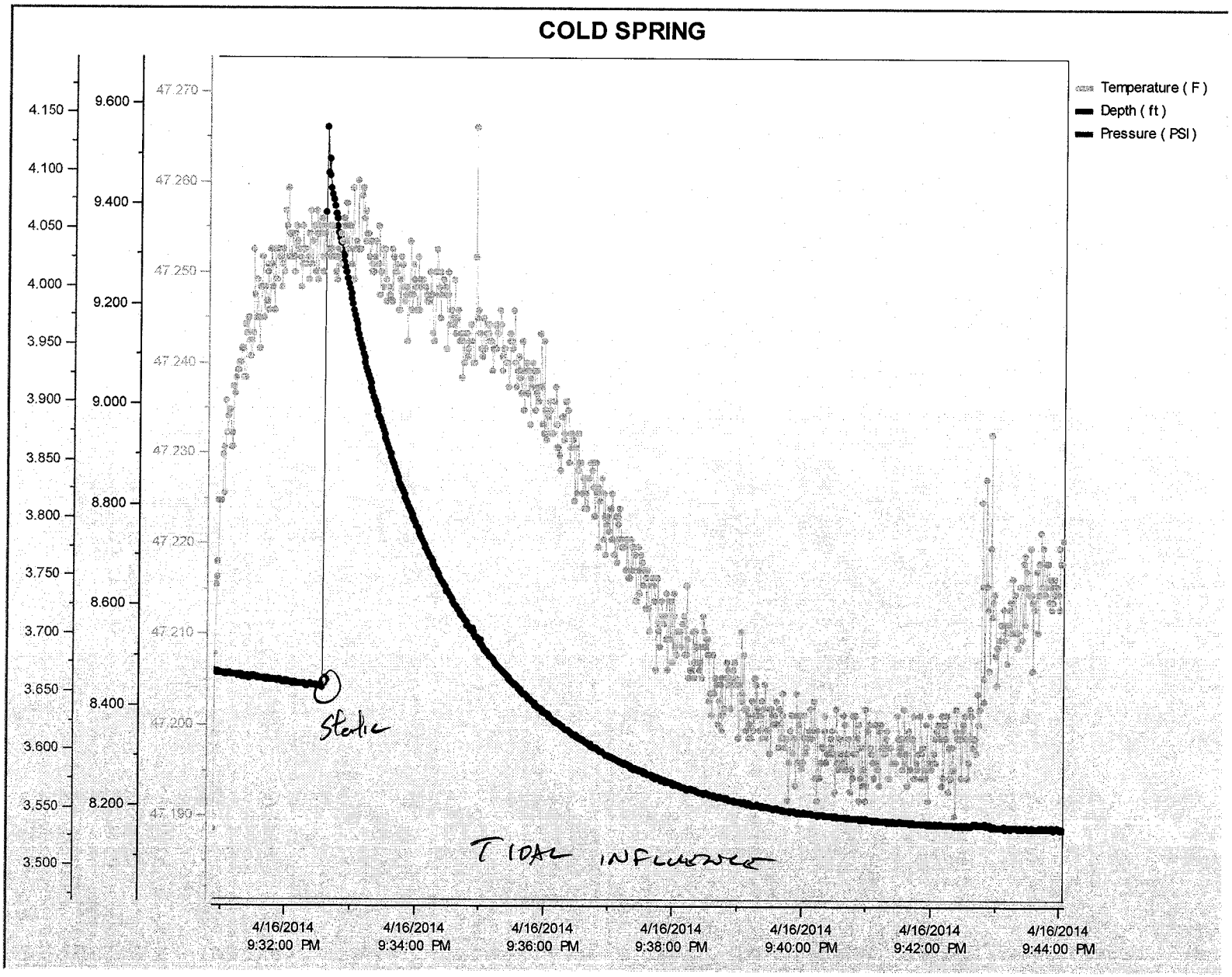
WELL DATA (GW-03)

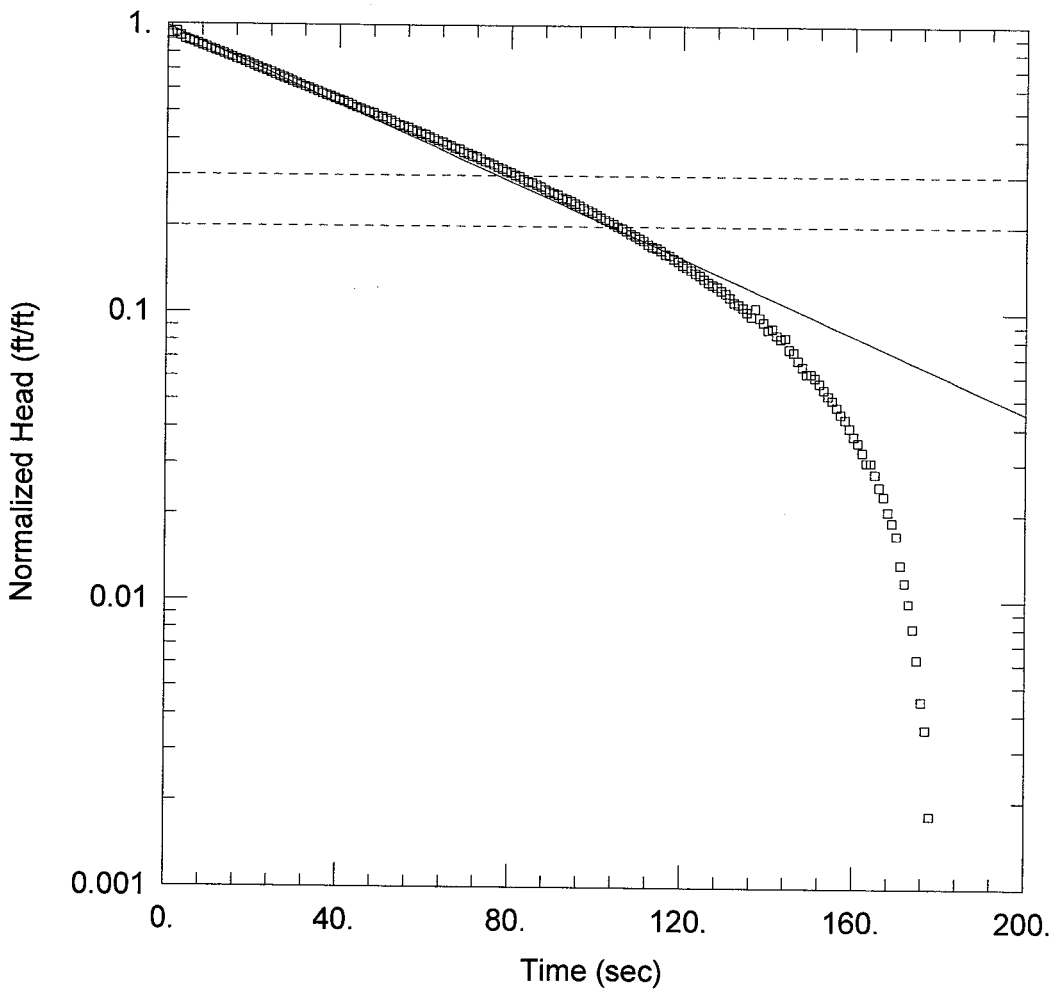
Initial Displacement: 1. ft
Total Well Penetration Depth: 9.96 ft
Casing Radius: 0.083 ft
Static Water Column Height: 9.96 ft
Screen Length: 10. ft
Wellbore Radius: 0.117 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.001723 cm/sec
y0 = 0.9101 ft

GW - 04 - FH


COLD SPRING
Temperature (F)
Depth (ft)
Pressure (PSI)
4.150
4.100
4.050
4.000
3.950
3.900
3.850
3.800
3.750
3.700
3.650
3.600
3.550
3.500
9.600
9.400
9.200
9.000
8.800
8.600
8.400
8.200
47.270
47.260
47.250
47.240
47.230
47.220
47.210
47.200
47.190
Static
TIDAL INFLUENCE
4/16/2014 9:32:00 PM
4/16/2014 9:34:00 PM
4/16/2014 9:36:00 PM
4/16/2014 9:38:00 PM
4/16/2014 9:40:00 PM
4/16/2014 9:42:00 PM
4/16/2014 9:44:00 PM



WELL TEST ANALYSIS

Data Set: J:\Projects\11176853\Deliverables\Slug Tests\CSV Files\GW-04-FH.aqt
Date: 07/02/14 Time: 17:22:44

PROJECT INFORMATION

Company: URS
Client: NYSDEC
Location: Cold Spring
Test Well: GW-03

AQUIFER DATA

Saturated Thickness: 10.44 ft
Anisotropy Ratio (Kz/Kr): 1.

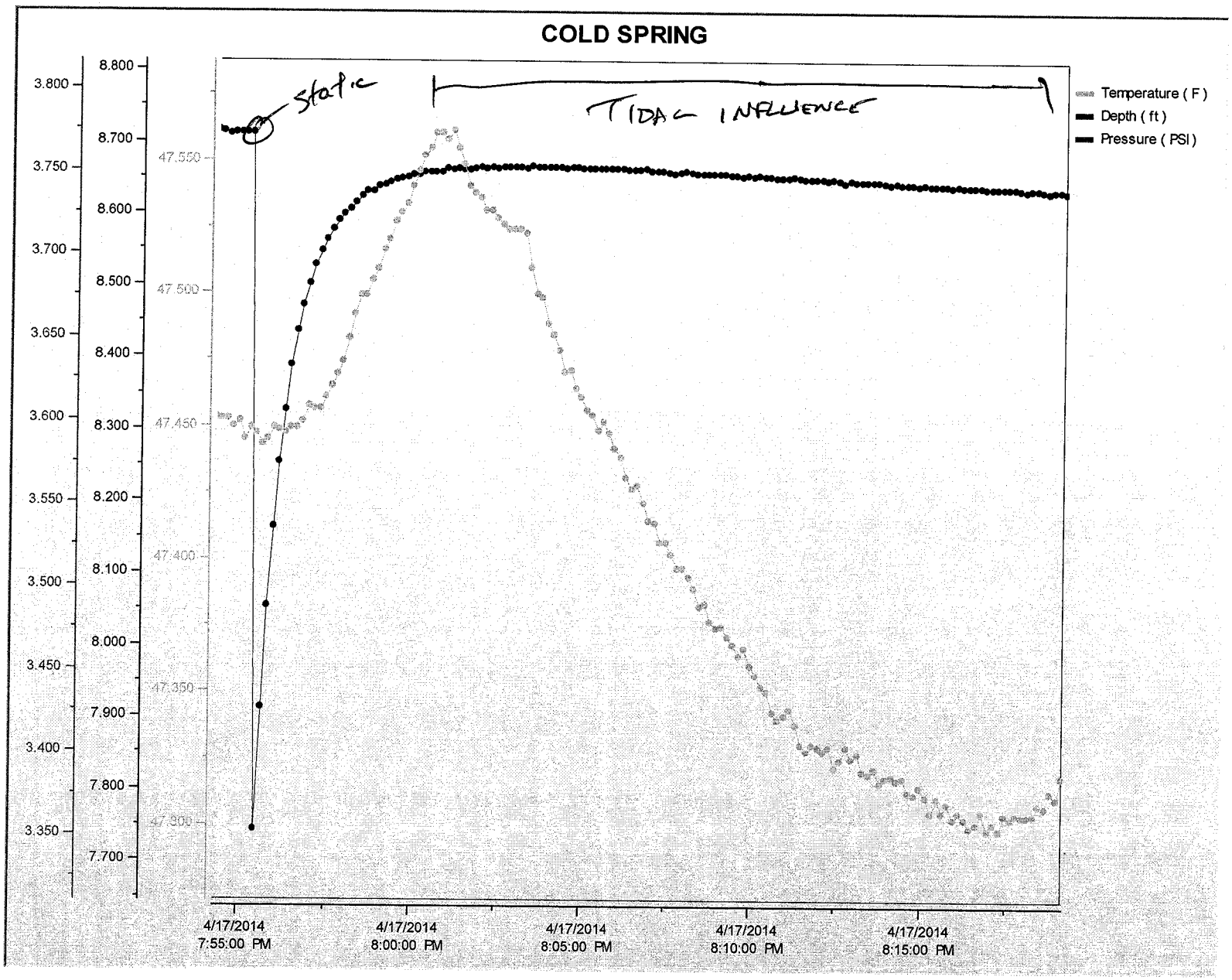
WELL DATA (GW-04)

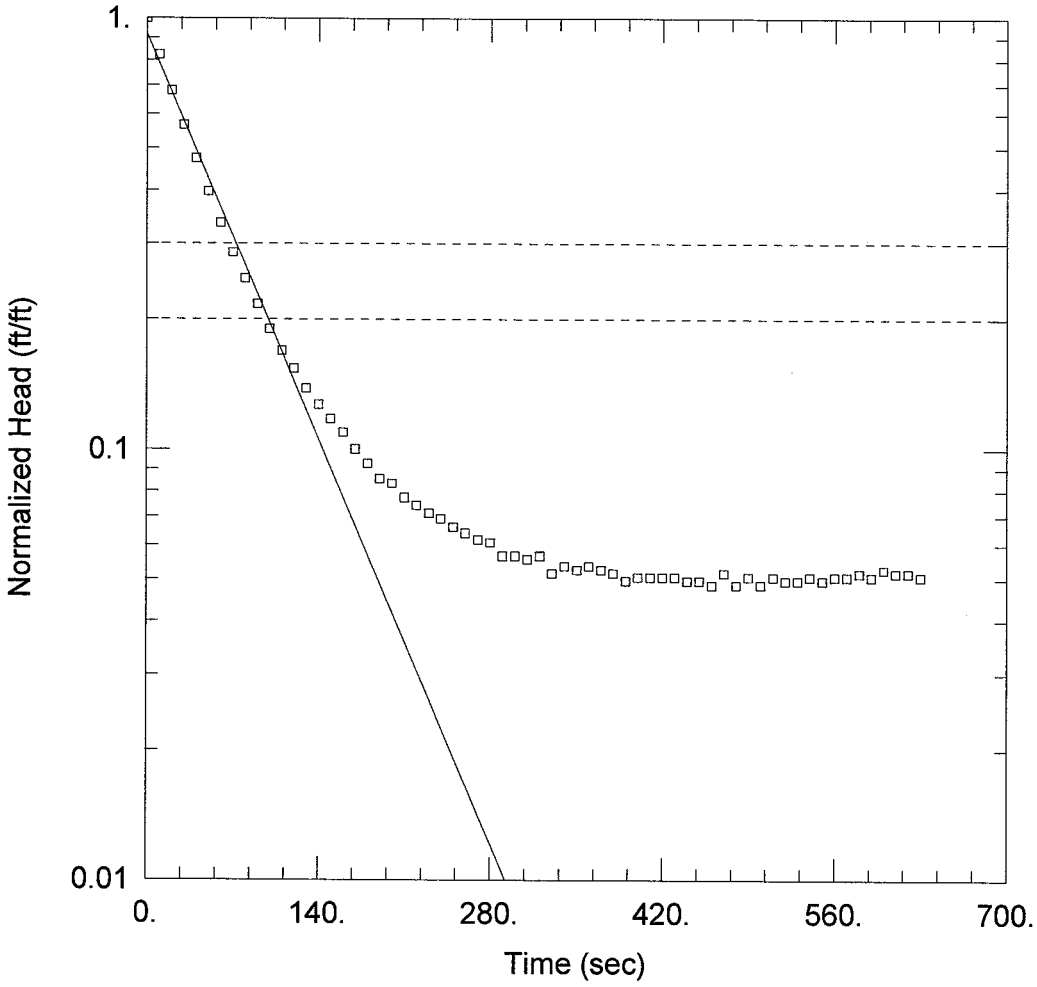
Initial Displacement: 1. ft
Total Well Penetration Depth: 10.44 ft
Casing Radius: 0.083 ft
Static Water Column Height: 10.44 ft
Screen Length: 10. ft
Wellbore Radius: 0.117 ft

SOLUTION

Aquifer Model: Unconfined
K = 0.0005587 cm/sec
Solution Method: Bouwer-Rice
y0 = 0.9849 ft

GW-04-RH


COLD SPRING
static
TIDAL INFLUENCE
Temperature (F)
Depth (ft)
Pressure (PSI)
3.800
3.750
3.700
3.650
3.600
3.550
3.500
3.450
3.400
3.350
8.800
8.700
8.600
8.500
8.400
8.300
8.200
8.100
8.000
7.900
7.800
7.700
47.550
47.500
47.450
47.400
47.350
47.300
4/17/2014 7:55:00 PM
4/17/2014 8:00:00 PM
4/17/2014 8:05:00 PM
4/17/2014 8:10:00 PM
4/17/2014 8:15:00 PM



WELL TEST ANALYSIS

Data Set: J:\Projects\11176853\Deliverables\Slug Tests\CSV Files\GW-04-RH.aqt
Date: 07/02/14 Time: 17:24:39

PROJECT INFORMATION

Company: URS
Client: NYSDEC
Location: Cold Spring
Test Well: GW-03

AQUIFER DATA

Saturated Thickness: 10.44 ft
Anisotropy Ratio (Kz/Kr): 1.

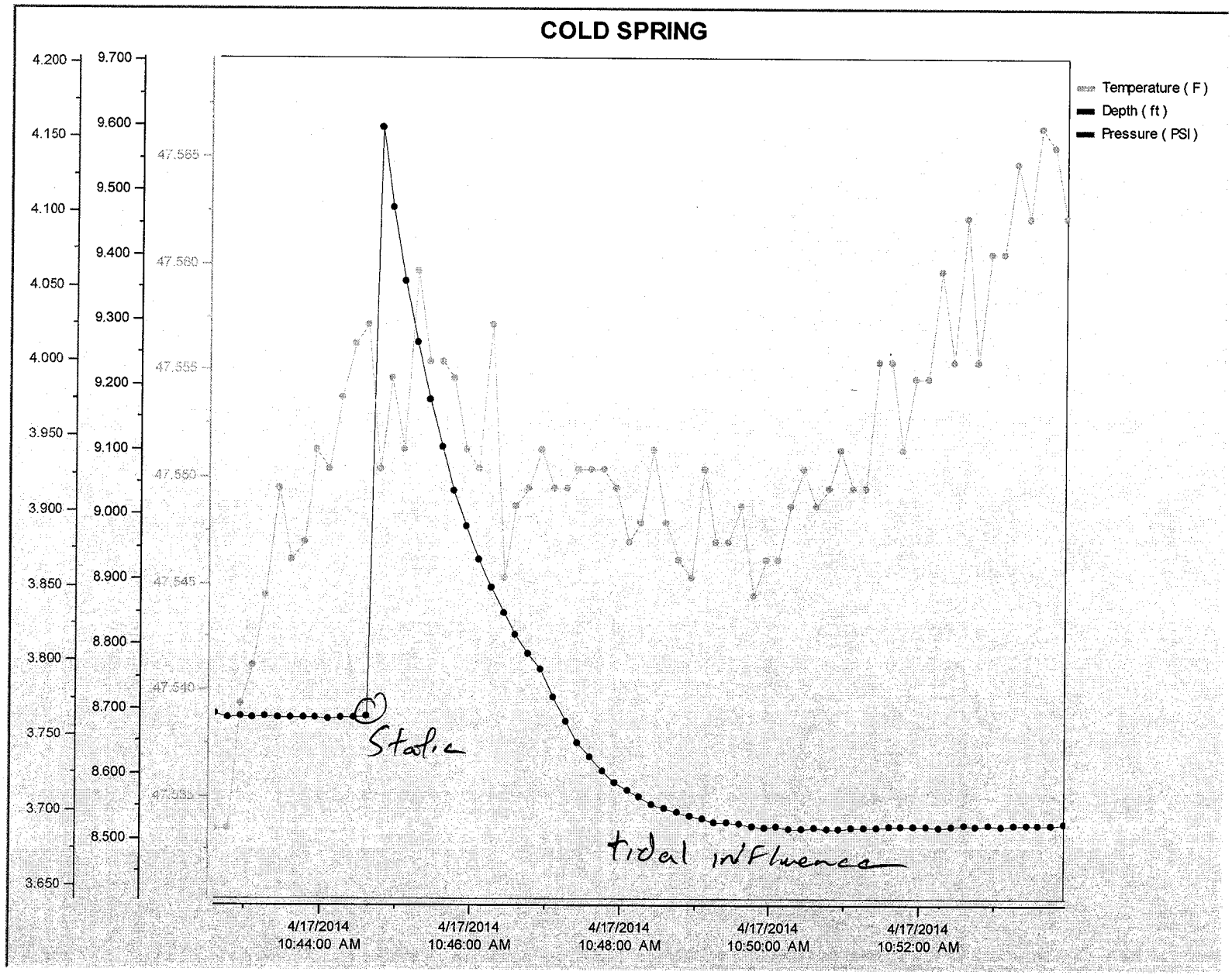
WELL DATA (GW-04)

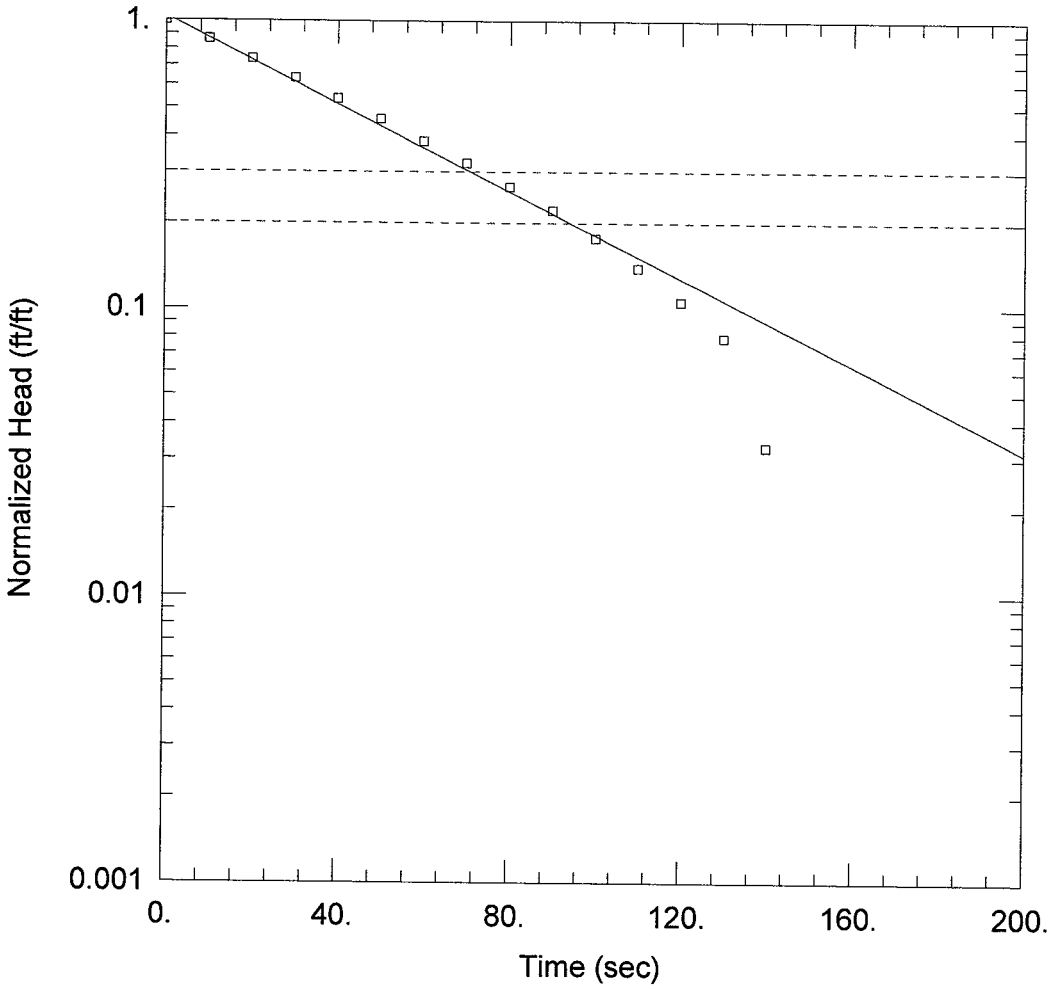
Initial Displacement: 1. ft
Total Well Penetration Depth: 10.44 ft
Casing Radius: 0.083 ft
Static Water Column Height: 10.44 ft
Screen Length: 10. ft
Wellbore Radius: 0.117 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.000559 cm/sec
y0 = 0.9177 ft

GW-04-FH2


COLD SPRING
Temperature (F)
Depth (ft)
Pressure (PSI)
4.200
4.150
4.100
4.050
4.000
3.950
3.900
3.850
3.800
3.750
3.700
3.650
9.700
9.600
9.500
9.400
9.300
9.200
9.100
9.000
8.900
8.800
8.700
8.600
8.500
47.565
47.560
47.555
47.550
47.545
47.540
47.535
Static
tidal influence
4/17/2014 10:44:00 AM
4/17/2014 10:46:00 AM
4/17/2014 10:48:00 AM
4/17/2014 10:50:00 AM
4/17/2014 10:52:00 AM



WELL TEST ANALYSIS

Data Set: J:\Projects\11176853\Deliverables\Slug Tests\CSV Files\GW-04-FH2.aqt
Date: 07/02/14 Time: 17:23:25

PROJECT INFORMATION

Company: URS
Client: NYSDEC
Location: Cold Spring
Test Well: GW-03

AQUIFER DATA

Saturated Thickness: 10.44 ft
Anisotropy Ratio (Kz/Kr): 1.

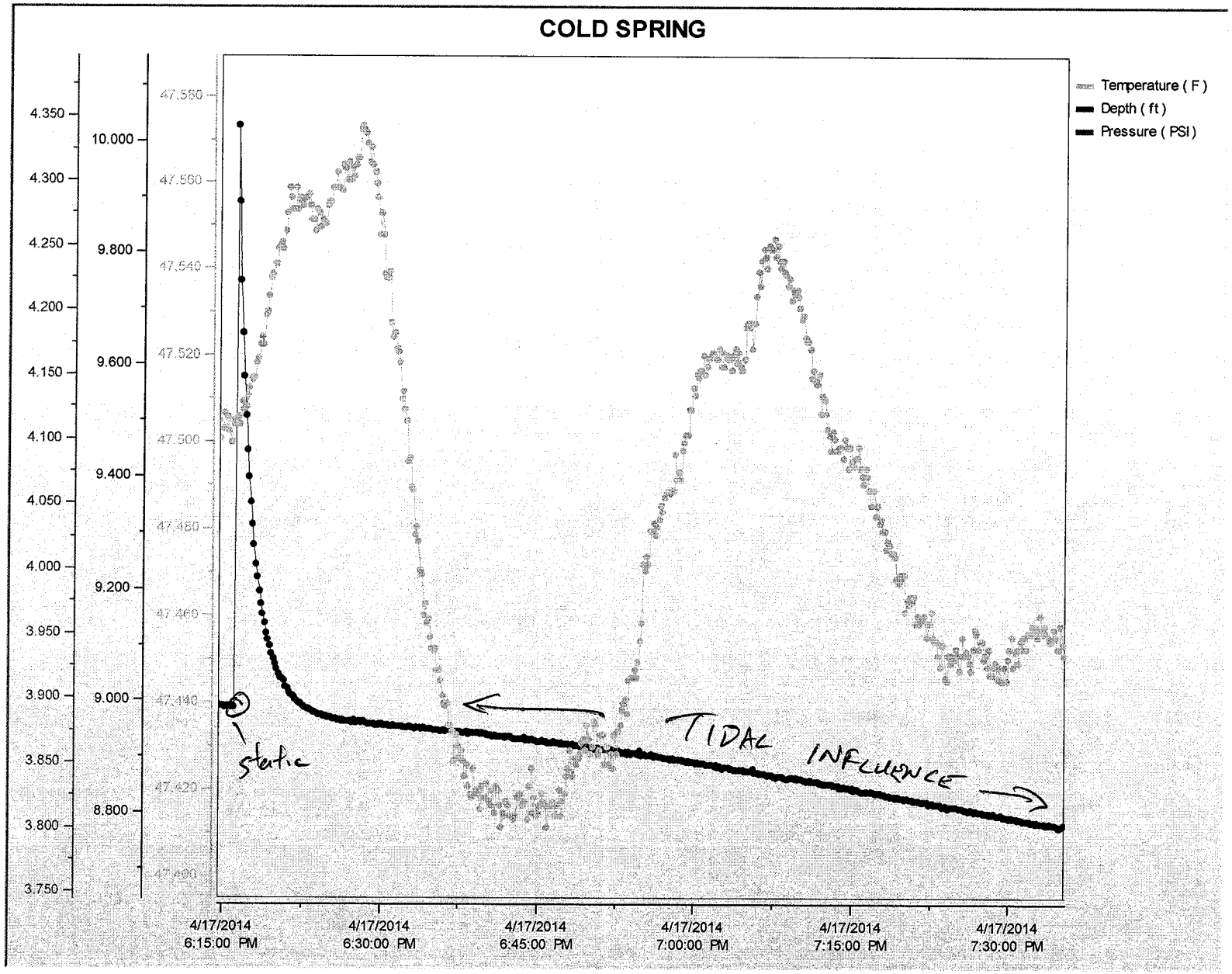
WELL DATA (GW-04)

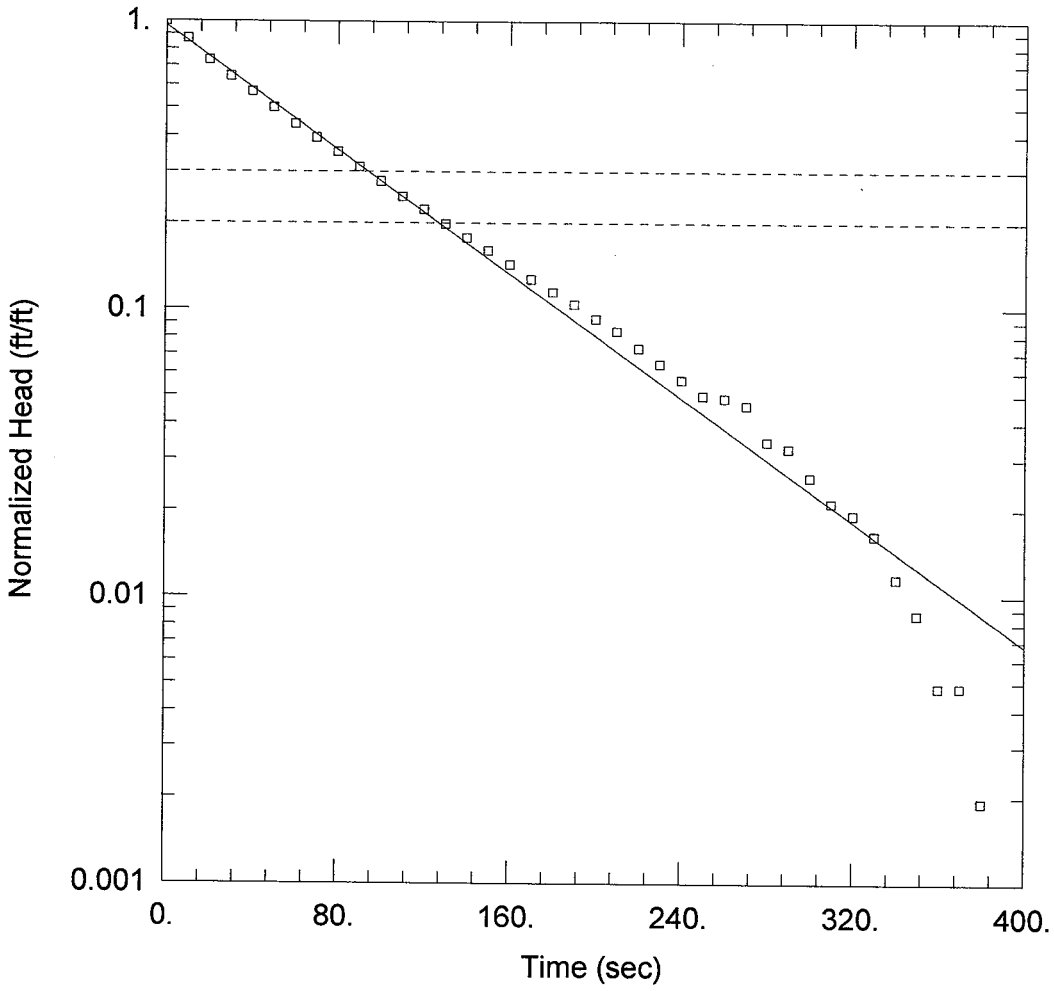
Initial Displacement: 1. ft
Total Well Penetration Depth: 10.44 ft
Casing Radius: 0.083 ft
Static Water Column Height: 10.44 ft
Screen Length: 10. ft
Wellbore Radius: 0.117 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.0006323 cm/sec
y0 = 1.034 ft

GW-04-FH3


COLD SPRING
Temperature (F)
Depth (ft)
Pressure (PSI)
4.350
4.300
4.250
4.200
4.150
4.100
4.050
4.000
3.950
3.900
3.850
3.800
3.750
10.000
9.800
9.600
9.400
9.200
9.000
8.800
47.580
47.560
47.540
47.520
47.500
47.480
47.460
47.440
47.420
47.400
static
TIDAL INFLUENCE
4/17/2014 6:15:00 PM
4/17/2014 6:30:00 PM
4/17/2014 6:45:00 PM
4/17/2014 7:00:00 PM
4/17/2014 7:15:00 PM
4/17/2014 7:30:00 PM



WELL TEST ANALYSIS

Data Set: J:\Projects\11176853\Deliverables\Slug Tests\CSV Files\GW-04-FH3.aqt
Date: 07/02/14 Time: 17:23:57

PROJECT INFORMATION

Company: URS
Client: NYSDEC
Location: Cold Spring
Test Well: GW-03

AQUIFER DATA

Saturated Thickness: 10.44 ft
Anisotropy Ratio (Kz/Kr): 1.

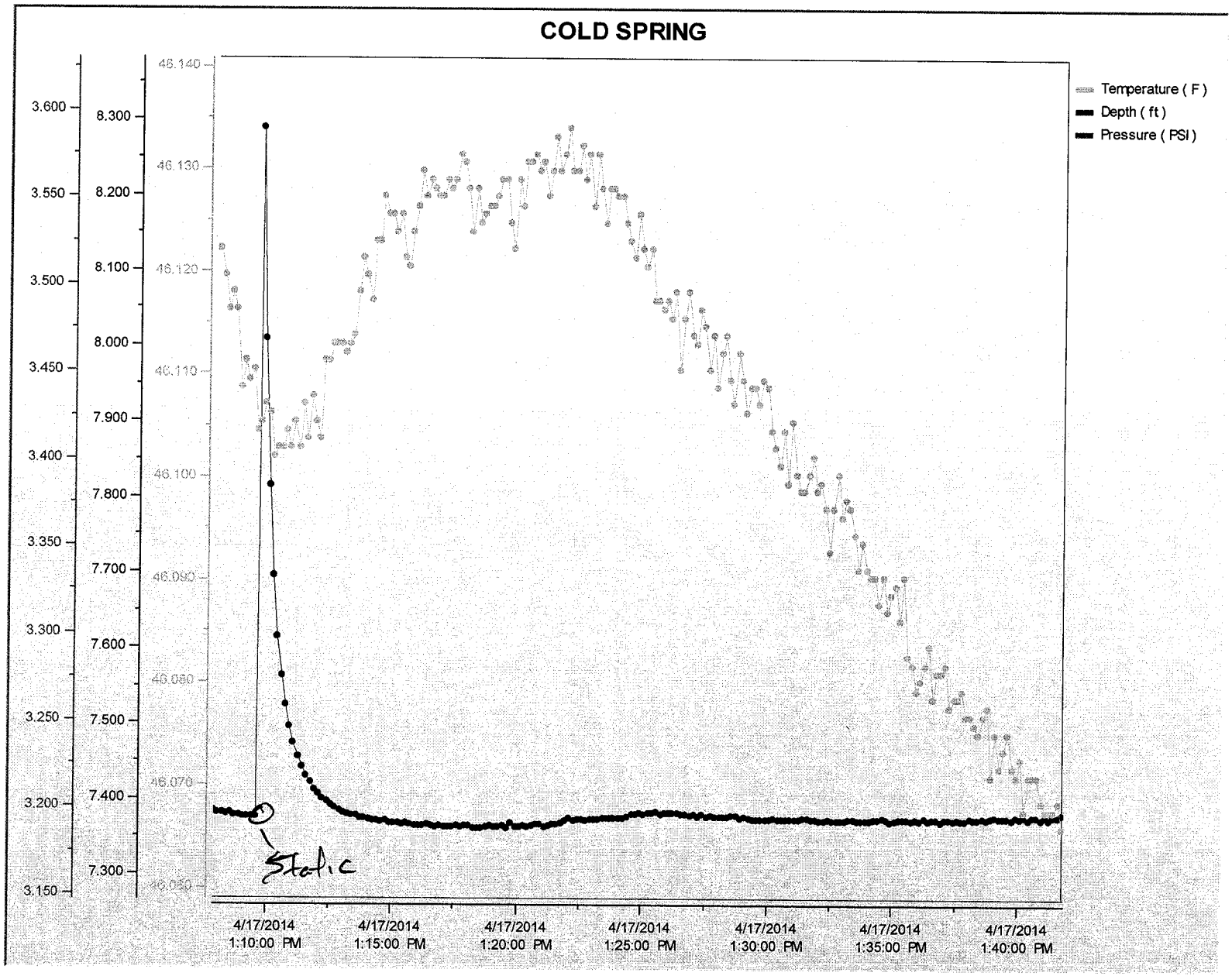
WELL DATA (GW-04)

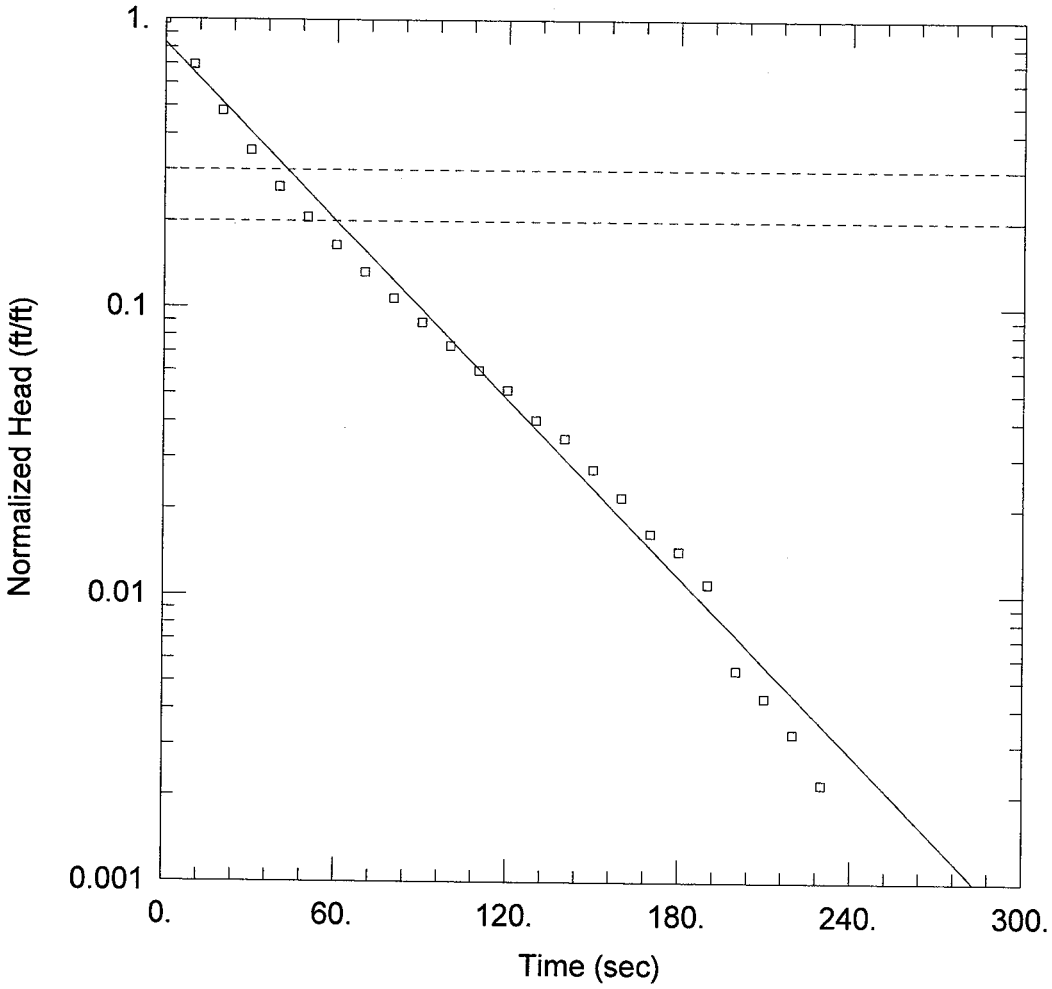
Initial Displacement: 1. ft
Total Well Penetration Depth: 10.44 ft
Casing Radius: 0.083 ft
Static Water Column Height: 10.44 ft
Screen Length: 10. ft
Wellbore Radius: 0.117 ft

SOLUTION

Aquifer Model: Unconfined
K = 0.0004488 cm/sec
Solution Method: Bouwer-Rice
y0 = 0.9632 ft

GW-05-FH


COLD SPRING
Temperature (F)
Depth (ft)
Pressure (PSI)
3.600
3.550
3.500
3.450
3.400
3.350
3.300
3.250
3.200
3.150
8.300
8.200
8.100
8.000
7.900
7.800
7.700
7.600
7.500
7.400
7.300
46.140
46.130
46.120
46.110
46.100
46.090
46.080
46.070
46.060
Static
4/17/2014 1:10:00 PM
4/17/2014 1:15:00 PM
4/17/2014 1:20:00 PM
4/17/2014 1:25:00 PM
4/17/2014 1:30:00 PM
4/17/2014 1:35:00 PM
4/17/2014 1:40:00 PM



WELL TEST ANALYSIS

Data Set: J:\Projects\11176853\Deliverables\Slug Tests\CSV Files\GW-05-FH.aqt
Date: 07/02/14 Time: 17:25:44

PROJECT INFORMATION

Company: URS
Client: NYSDEC
Location: Cold Spring
Test Well: GW-03

AQUIFER DATA

Saturated Thickness: 10.13 ft
Anisotropy Ratio (Kz/Kr): 1.

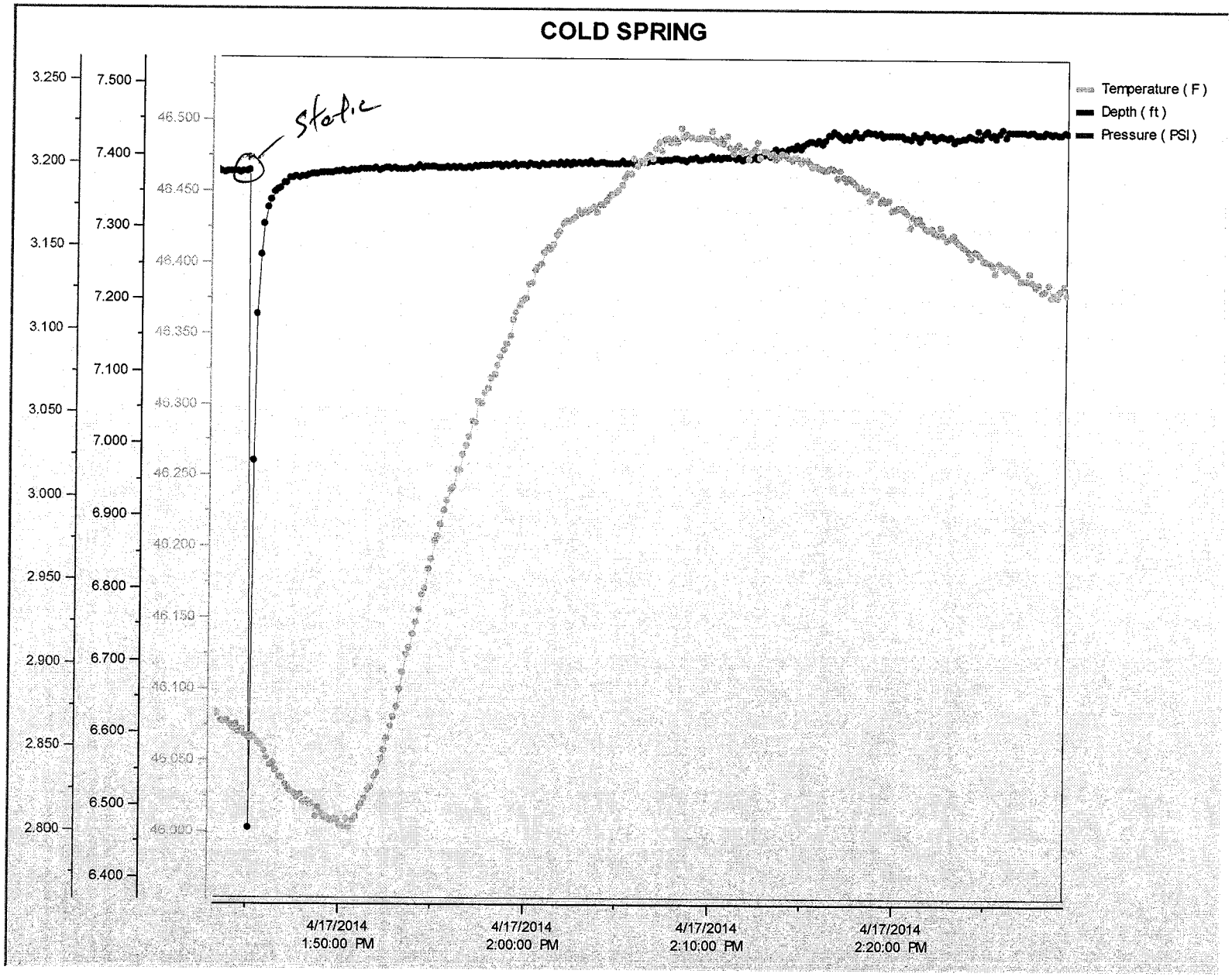
WELL DATA (GW-05)

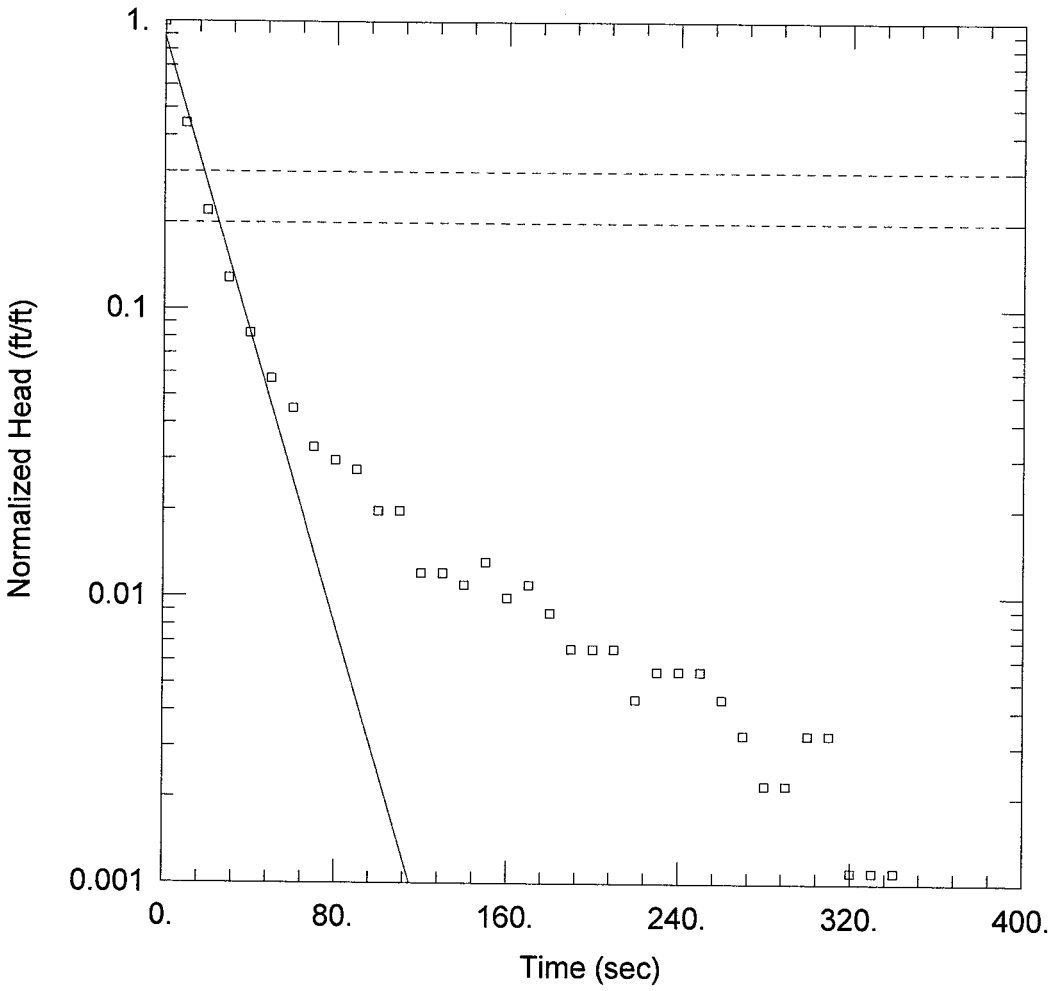
Initial Displacement: 1. ft
Total Well Penetration Depth: 10.13 ft
Casing Radius: 0.083 ft
Static Water Column Height: 10.13 ft
Screen Length: 10. ft
Wellbore Radius: 0.117 ft

SOLUTION

Aquifer Model: Unconfined
K = 0.0008543 cm/sec
Solution Method: Bouwer-Rice
y0 = 0.8282 ft

GW-05-RH


COLD SPRING
Static
Temperature (F)
Depth (ft)
Pressure (PSI)
3.250
3.200
3.150
3.100
3.050
3.000
2.950
2.900
2.850
2.800
7.500
7.400
7.300
7.200
7.100
7.000
6.900
6.800
6.700
6.600
6.500
6.400
46.500
46.450
46.400
46.350
46.300
46.250
46.200
46.150
46.100
46.050
46.000
4/17/2014
1:50:00 PM
4/17/2014
2:00:00 PM
4/17/2014
2:10:00 PM
4/17/2014
2:20:00 PM



WELL TEST ANALYSIS

Data Set: J:\Projects\11176853\Deliverables\Slug Tests\CSV Files\GW-05-RH.aqt
Date: 07/02/14 Time: 17:27:25

PROJECT INFORMATION

Company: URS
Client: NYSDEC
Location: Cold Spring
Test Well: GW-03

AQUIFER DATA

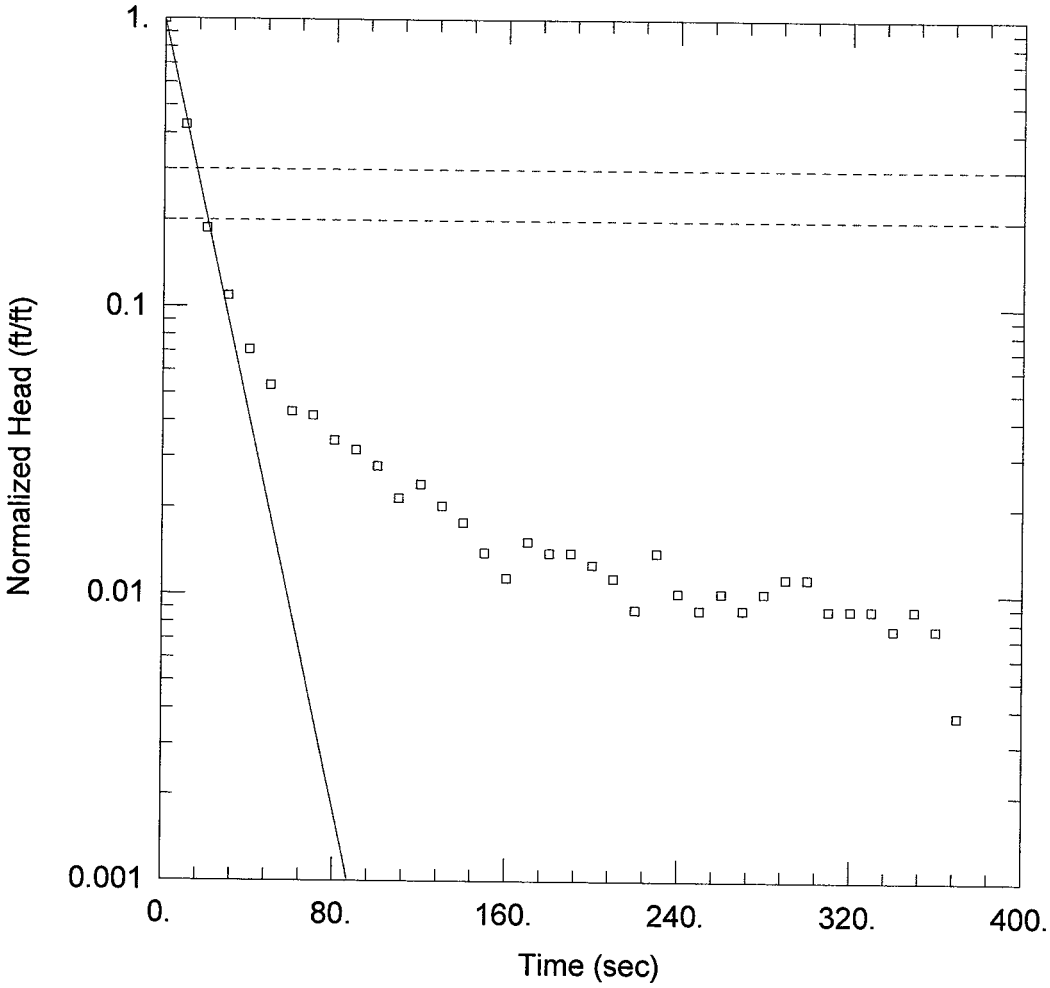
Saturated Thickness: 10.13 ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (GW-05)

Initial Displacement: 1. ft
Total Well Penetration Depth: 10.13 ft
Casing Radius: 0.083 ft
Static Water Column Height: 10.13 ft
Screen Length: 10. ft
Wellbore Radius: 0.117 ft

SOLUTION

Aquifer Model: Unconfined
K = 0.002119 cm/sec
Solution Method: Bouwer-Rice
y0 = 0.8777 ft



WELL TEST ANALYSIS

Data Set: J:\Projects\11176853\Deliverables\Slug Tests\CSV Files\GW-05-FH2.aqt
Date: 07/02/14 Time: 17:26:38

PROJECT INFORMATION

Company: URS
Client: NYSDEC
Location: Cold Spring
Test Well: GW-03

AQUIFER DATA

Saturated Thickness: 10.13 ft
Anisotropy Ratio (Kz/Kr): 1.

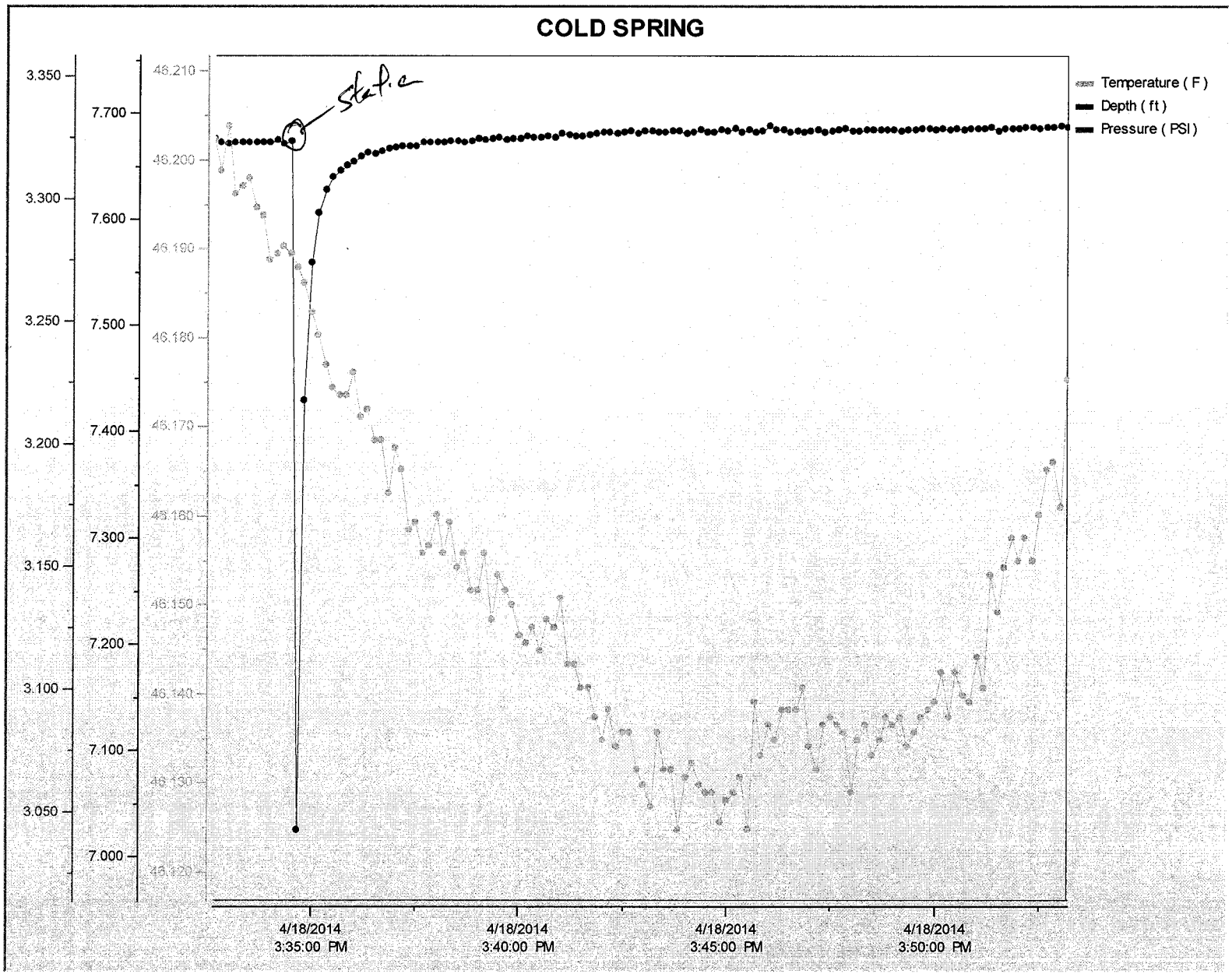
WELL DATA (GW-05)

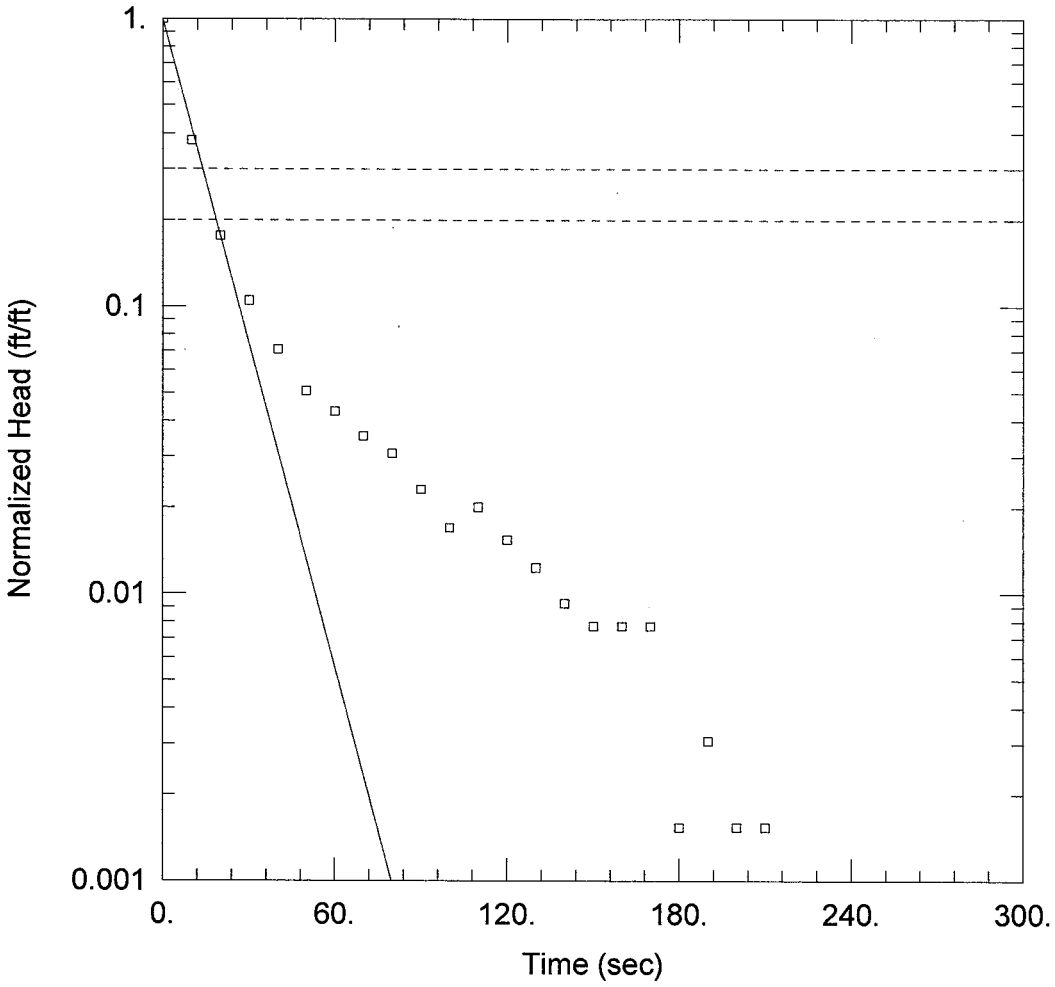
Initial Displacement: 1. ft
Total Well Penetration Depth: 10.13 ft
Casing Radius: 0.083 ft
Static Water Column Height: 10.13 ft
Screen Length: 10. ft
Wellbore Radius: 0.117 ft

SOLUTION

Aquifer Model: Unconfined
K = 0.002846 cm/sec
Solution Method: Bouwer-Rice
y0 = 0.9909 ft

GW-05-RH2


COLD SPRING
Static
Temperature (F)
Depth (ft)
Pressure (PSI)
3.350
3.300
3.250
3.200
3.150
3.100
3.050
7.700
7.600
7.500
7.400
7.300
7.200
7.100
7.000
46.210
46.200
46.190
46.180
46.170
46.160
46.150
46.140
46.130
46.120
4/18/2014
3:35:00 PM
4/18/2014
3:40:00 PM
4/18/2014
3:45:00 PM
4/18/2014
3:50:00 PM



WELL TEST ANALYSIS

Data Set: J:\Projects\11176853\Deliverables\Slug Tests\CSV Files\GW-05-RH2.aqt
Date: 07/02/14 Time: 17:28:43

PROJECT INFORMATION

Company: URS
Client: NYSDEC
Location: Cold Spring
Test Well: GW-03

AQUIFER DATA

Saturated Thickness: 10.13 ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (GW-05)

Initial Displacement: 1. ft
Total Well Penetration Depth: 10.13 ft
Casing Radius: 0.083 ft
Static Water Column Height: 10.13 ft
Screen Length: 10. ft
Wellbore Radius: 0.117 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.003107 cm/sec
y0 = 0.9879 ft

Soil Boring/Monitoring Well Completion Log

Groundwater & Environmental Services, Inc.

ID NO. **SB-A/MW-A**

Project: **Cold Spring Boat House**	Client: **NYSDEC**	Regulatory Case #: **340026**
Address: **5 New St., Cold Spring, NY**	GES Job #: **1102342**	Regulatory Case Mgr: **David Chiusano**
County: **Putnam**	GES Project Mgr: **Paul Lindell**	Permit #: **NA**
Logged By: **Christina Anello**	Date Drilled: **10/4/12**	Split Spoon/Acetate Sleeve Diameter: **2 in.**
Drilling Company: **ADT**	Completion Date: **10/4/12**	Split Spoon/Acetate Sleeve Length: **5 ft.**
Drill Operator: **Marty**	Drilling Method: **Direct Push**	Soil Classification System: **USCS/Burmister**
Drill Rig Type: **6620 DT - Geoprobe**	Sampling Method: **Macro Core**	Field Screening: **PID 10.9 eV Lamp (ppm)**
Lattitude: **NA**	Longitude: **NA**	Top of Bentonite Seal: **0.5 fbg**
Surface Elevation: ~~6.53~~ **ft.**	Borehole Diameter: **3 in.**	Type of Seal: **Bentonite Chips**
Total Depth: **12 fbg**	Well Diameter: **2 in.**	Top of Sand: **2 fbg**
Refusal Depth: **12 fbg**	Riser Length: **3 ft.**	Sand Type: **#1 Sand**
Initial Depth to Water: **~5 fbg**	Screen Slot Size: **0.01 in.** 9.5 ?	Well Material Type: **Schedule 40 PVC**
Static Depth to Water: **3.20 fbg**	Screen Length: **5 ft.**	Top of Grout: **NA**

Depth (feet)	Sample Interval (feet)	Recovery (inches)	Field Screen (ppm) 1 6000	Blow Counts 1 50	Geologic Description	Comments	Well Completion Detail
0	0-0.5'				ASPHALT: Building floor.		Manway
	0.5'-2'		0.0		SW: Medium to coarse sand and gravel, red-brown, and dry.		Well Pad, Well Cap, Concrete Cap, Bentonite Seal, PVC Riser
	2'-3'		0.0		SW: Medium to coarse sand and gravel, red-brown, and dry.		
	3'-5'		0.0		SW: Medium to coarse sand and gravel, red-brown, and dry.		
5	5'-10'	13 in.	8.4	No Blow Counts Recorded	SW: Coarse sand with weathered rock, brown, and wet.		
10	10'-12'	24 in.	10.2		SW: Medium to coarse sand and gravel, dark brown, and wet.	Laboratory Sample SB-A (10-12 fbg)	Sandpack, 10 slot screen
					REFUSAL		

Proportions Used:	Notes:	Blow Count Pentration Resistance:		Symbols:
Trace = <5%	NA = not available; fbg. = feet below grade	Consistency (M&C)	Density (G&S)	Apparent Water Level
Few = 5-10%	in. = inches; ft.= feet; ppm.= parts per million	<2 = Very Soft	0-4 = Very Loose	Lab Sample Location
Little = 10-20%	Soil Lithologies based on field observations only.	2-4 = Soft	4-10 = Loose	
Some = 20-30%	General Text here, site specific	4-8 = Medium	10-30 = Medium	
Adjective = 30-40%	General Text II, details	8-15 = Stiff	30-50 = Dense	
And = >40%		15-30 = Very Stiff	>50 = Very Dense	
		>30 = Hard		

Soil Boring/Monitoring Well Completion Log

Groundwater & Environmental Services, Inc.

ID NO. SB-B2/MW-B

Project: **Cold Spring Boat House**	Client: **NYSDEC**	Regulatory Case #: **340026**
Address: **5 New St., Cold Spring, NY**	GES Job #: **1102342**	Regulatory Case Mgr: **David Chiusano**
County: **Putnam**	GES Project Mgr: **Paul Lindell**	Permit #: **NA**
Logged By: **Christina Anello**	Date Drilled: **10/4/12**	Split Spoon/Acetate Sleeve Diameter: **2 in.**
Drilling Company: **ADT**	Completion Date: **10/4/12**	Split Spoon/Acetate Sleeve Length: **5 ft.**
Drill Operator: **Marty**	Drilling Method: **Direct Push**	Soil Classification System: **USCS/Burmister**
Drill Rig Type: **6620 DT - Geoprobe**	Sampling Method: **Macro Core**	Field Screening: **PID 10.9 eV Lamp (ppm)**
Lattitude: **NA**	Longitude: **NA**	Top of Bentonite Seal: **0.5 fbg**
Surface Elevation: **6.29 ft.**	Borehole Diameter: **3 in.**	Type of Seal: **Bentonite Chips**
Total Depth: **7.5 fbg**	Well Diameter: **2 in.**	Top of Sand: **2 fbg**
Refusal Depth: **7.5 fbg**	Riser Length: **3 ft.**	Sand Type: **#1 Sand**
Initial Depth to Water: **~5 fbg**	Screen Slot Size: **0.01 in.**	Well Material Type: **Schedule 40 PVC**
Static Depth to Water: **3.89 fbg**	Screen Length: **4 ft.**	Top of Grout: **NA**

Depth (feet)	Sample Interval (feet)	Recovery (inches)	Field Screen (ppm) 1 500	Blow Counts 1 50	Geologic Description	Comments	Well Completion Detail
0	0-0.5'				ASPHALT: Building floor.		Manway, Well Pad, Well Cap, Concrete Cap, Bentonite Seal, PVC Riser
	0.5'-2'		0.0		SM: Fine sand and silt with gravel, brown, and dry.		
	2'-3'		0.0		SM: Fine sand and silt with gravel, brown, and dry.		
	3'-5'		0.0		SM: Fine sand and silt with gravel, dark brown, and moist.		
5	5'-7.5'	12 in.	151	No Blow Counts Recorded	SW: Coarse sand and gravel, wet, and black with noted sheen. REFUSAL	Laboratory Sample SB-B2 (5-7.5 fbg)	Sandpack, 10 slot screen

Proportions Used:	Notes:	Blow Count Pentration Resistance:		Symbols:
Trace = <5%	NA = not available; fbg. = feet below grade	Consistency (M&C)	Density (G&S)	Apparent Water Level
Few = 5-10%	in. = inches; ft.= feet; ppm.= parts per million	<2 = Very Soft	0-4 = Very Loose	Lab Sample Location
Little = 10-20%	Soil Lithologies based on field observations only.	2-4 = Soft	4-10 = Loose	
Some = 20-30%	General Text here, site specific	4-8 = Medium	10-30 = Medium	
Adjective = 30-40%	General Text II, details	8-15 = Stiff	30-50 = Dense	
And = >40%		15-30 = Very Stiff	>50 = Very Dense	
		>30 = Hard		

SLUG TEST FIELD FORM

URS CORPORATION

Geologist: T. Ifkovic

Project Name: Cold Spring

Project #: 11176853

Location: Cold Spring, NY

Date & Time: 4/15/14 1540

Well ID: MW-A

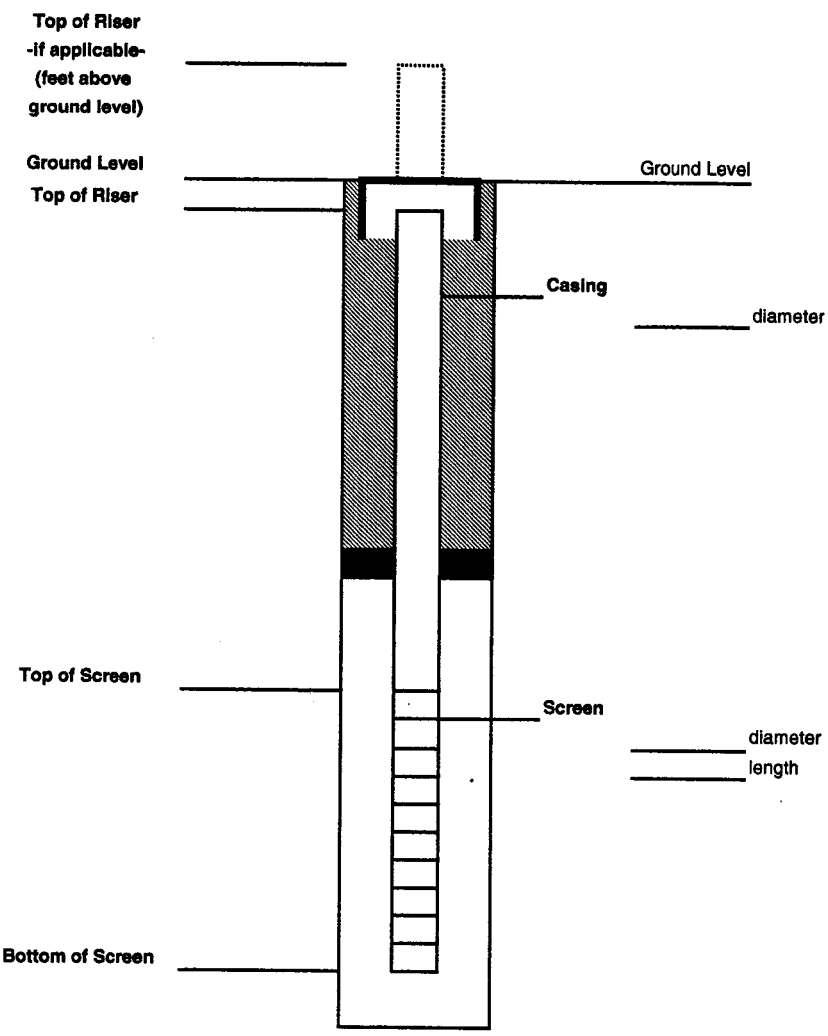
Depth to Water: 3.31

Depth to Bottom: 9.59

Length of Slug: 2'

Diameter of Slug: 1.5"

Volume of Slug:



SLUG IN (FALLING HEAD TEST)

Test Name: MW-A-FH

Length of test:

Depth to static water level:

Initial Displacement:

SLUG OUT (RISING HEAD TEST)

Test Name: MW-A-RH

Length of test:

Depth to static water level:

Initial Displacement:

Comments:

Results:

SLUG TEST FIELD FORM

URS CORPORATION

Geologist: J. Ifkovich

Project Name: Cold Spring

Project #: 11176853

Location: Cold Spring, NY

Date & Time: 4/15/14 1600

Well ID: MW-B

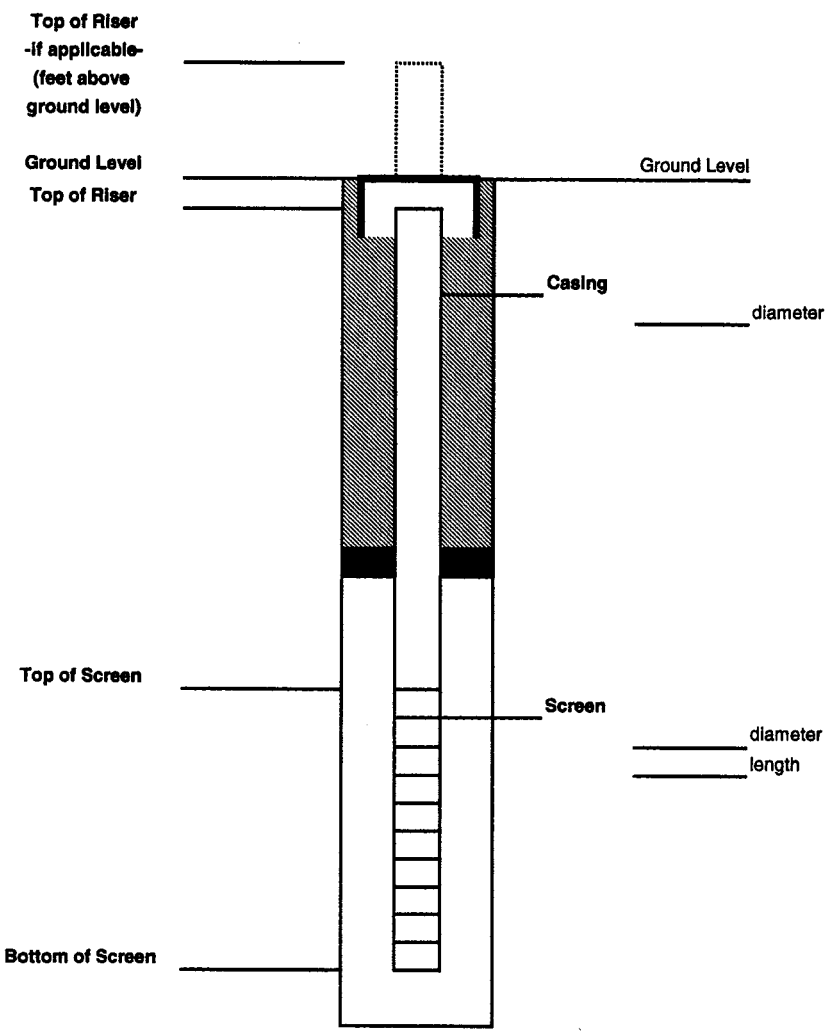
Depth to Water: 4.94

Depth to Bottom: 6.89

Length of Slug: 2'

Diameter of Slug: 1.5"

Volume of Slug:



SLUG IN (FALLING HEAD TEST)

Test Name: MW-B-FH

Length of test:

Depth to static water level:

Initial Displacement:

SLUG OUT (RISING HEAD TEST)

Test Name: MW-B-RH

Length of test:

Depth to static water level:

Initial Displacement:

Comments: Insufficient Head

Results:

DONE

SLUG TEST FIELD FORM

URS CORPORATION

Geologist: T. Ifkovich

Project Name: Cold Spring

Project #: 11176853

Location: Cold Spring, NY

Date & Time: 4/16/14 1620

Well ID: GW-04

Depth to Water: 1.38 / 1.31 after transducer (level stopped dropping)

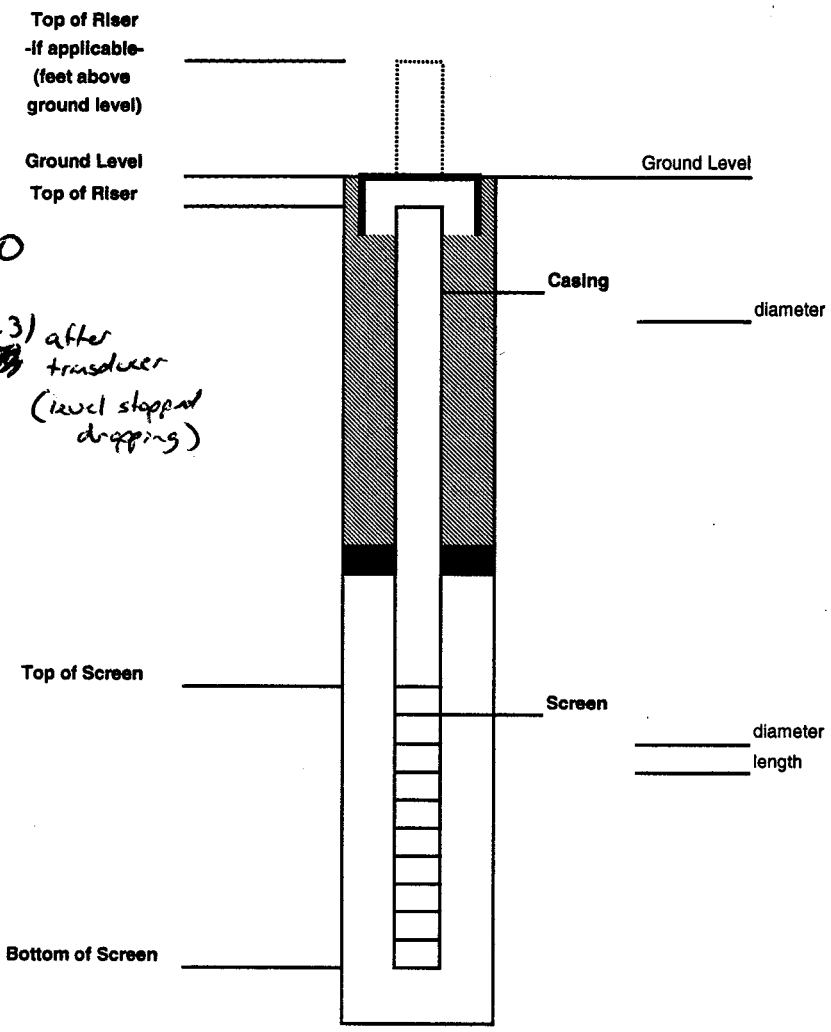
Depth to Bottom: 12.33

Length of Slug: 2'

Diameter of Slug: 1.5"

Volume of Slug:

This is GW-01



SLUG IN (FALLING HEAD TEST)

Test Name: GW-04-FH

Length of test:

Depth to static water level:

Initial Displacement:

SLUG OUT (RISING HEAD TEST)

Test Name: GW-04-RH

Length of test:

Depth to static water level:

Initial Displacement:

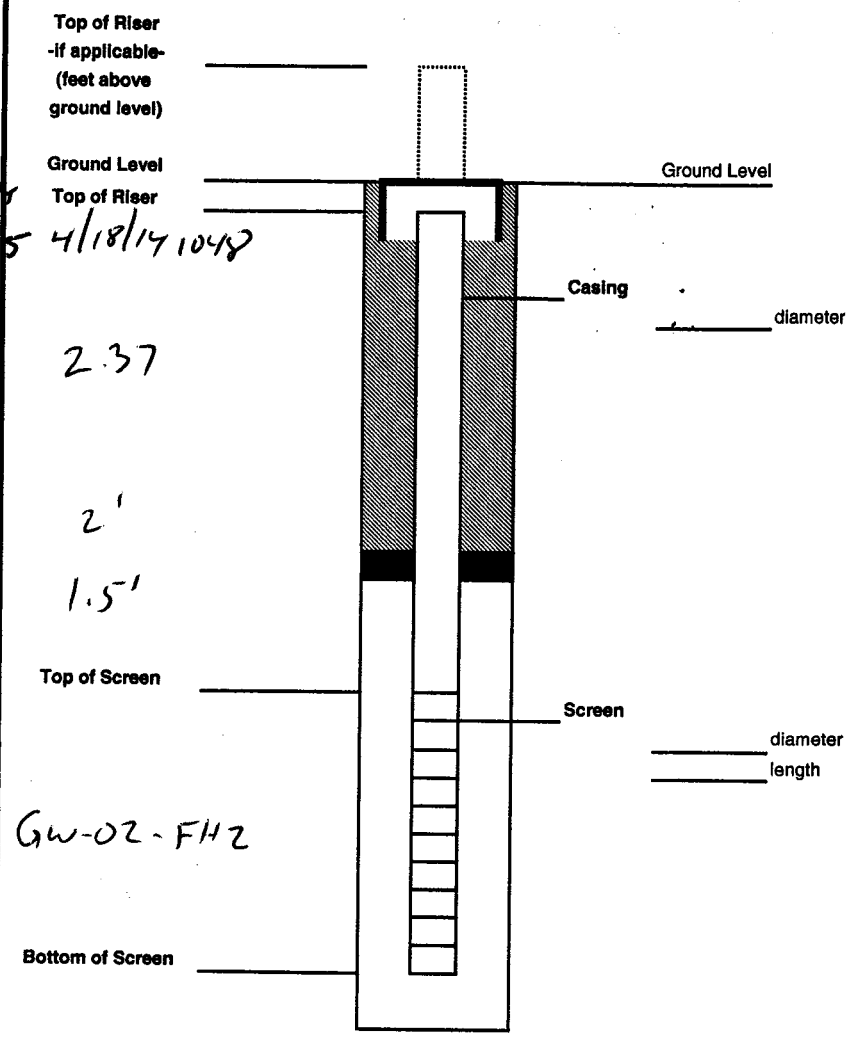
Comments:

Results:

SLUG TEST FIELD FORM

URS CORPORATION

Geologist:	T. Ifkovic	
Project Name:	Cold Spring	
Project #:	11176853	
Location:	Cold Spring, NV	
Date & Time:	4/17/14 0825	4/18/14 1048
Well ID:	GW-02	
Depth to Water:	2.32	2.37
Depth to Bottom:	12.10	
Length of Slug:	2'	2'
Diameter of Slug:	1.5"	1.5"
Volume of Slug:		



SLUG IN (FALLING HEAD TEST)

Test Name:	GW-02-FH	GW-02-FH2
Length of test:		
Depth to static water level:		
Initial Displacement:		

SLUG OUT (RISING HEAD TEST)

Test Name:	GW-02-RH	GW-02-RH2
Length of test:		
Depth to static water level:		
Initial Displacement:		

Comments: GW-02-RH2

Results:

SLUG TEST FIELD FORM

URS CORPORATION

Geologist: T. Ifkovics

Project Name: Cold Spring

Project #: 11126853

Location: Cold Spring, NY

Date & Time: 4/17/14

Well ID: GW-03

Depth to Water: 2.04

Depth to Bottom: 12.21

Length of Slug: 2'

Diameter of Slug: 1.5"

Volume of Slug:

SLUG IN (FALLING HEAD TEST)

Test Name: GW-03-FH

Length of test:

Depth to static water level:

Initial Displacement:

SLUG OUT (RISING HEAD TEST)

Test Name: GW-03-RH

Length of test:

Depth to static water level:

Initial Displacement:

Top of Riser -if applicable- (feet above ground level)

Ground Level

Top of Riser

4/17/14 1724

GW-03 (Tidal)

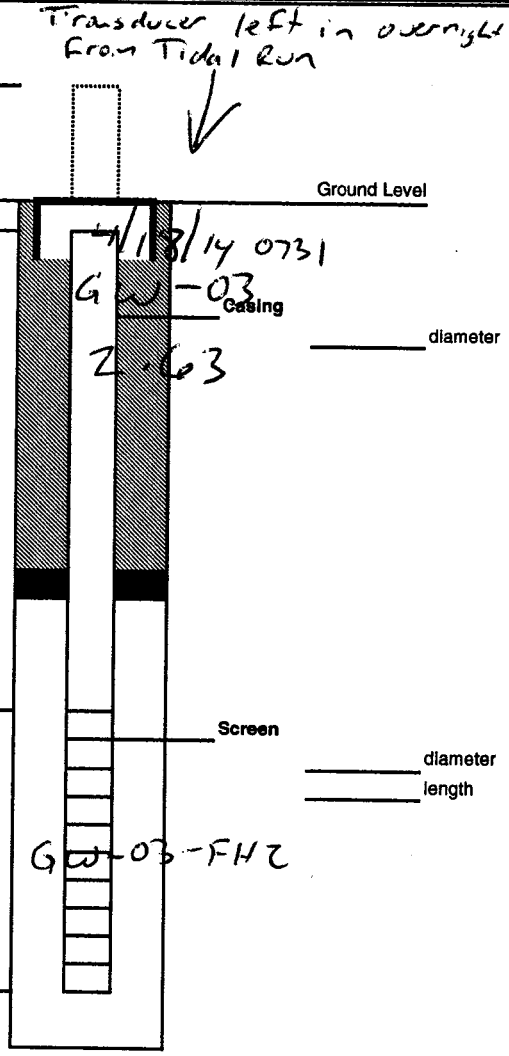
2.53

Top of Screen

GW-03-TIDAL

Bottom of Screen

Bulk Lead DTW	Time
4.05	1735 (4/17/14)
4.37	0722 (4/18/14)



Comments:

GW-03-RH2

Results:

SLUG TEST FIELD FORM

URS CORPORATION

Geologist:	T. Ifkovich		
Project Name:	Cold Spring		
Project #:	11176853		
Location:	Cold Spring, NY		
Date & Time:	4/16/14 1820	4/17/14 0715	4/17/14 ~~1445~~ 1511
Well ID:	GW-4	GW-4	GW-4
Depth to Water:	1.56	1.78	1.21
Depth to Bottom:	11.91	11.91	11.91
Length of Slug:	2'	2'	2'
Diameter of Slug:	1.5"	1.5"	1.5"
Volume of Slug:			

This log is GW-04

see difference in depth

Transducer sat in well for 1hr before start

Top of Riser -if applicable- (feet above ground level)

Ground Level

Top of Riser

Casing

diameter

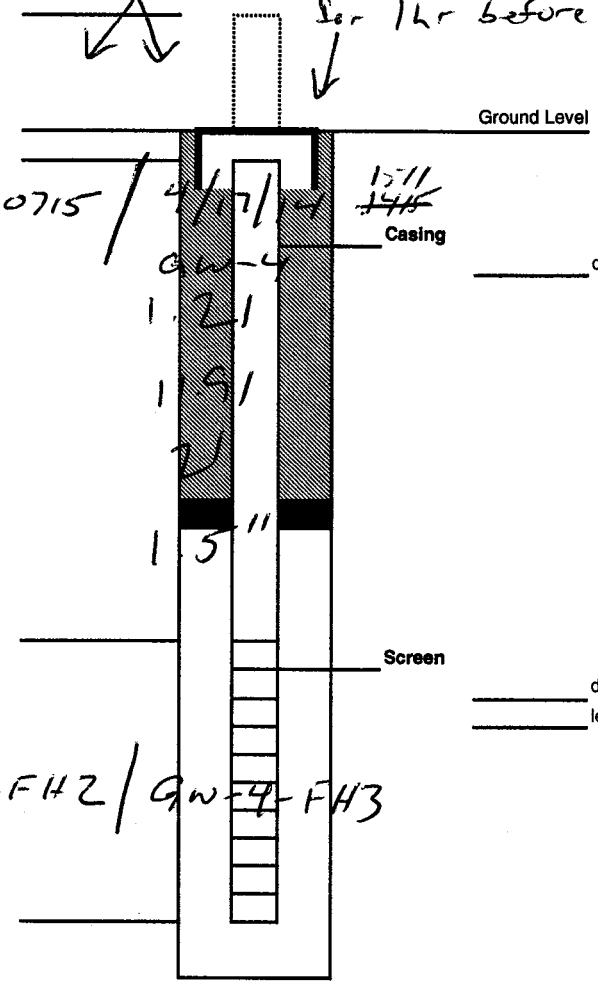
Top of Screen

Screen

diameter

length

Bottom of Screen



SLUG IN (FALLING HEAD TEST)

Test Name:	GW-4-FH	GW-4-FH2	GW-4-FH3
Length of test:			
Depth to static water level:			
Initial Displacement:			

SLUG OUT (RISING HEAD TEST)

Test Name:	GW-4-RH	GW-4-RH2	GW-4-RH3
Length of test:			
Depth to static water level:			
Initial Displacement:			

Comments:

Results:

SLUG TEST FIELD FORM

URS CORPORATION

Geologist: T. Ifkovic

Project Name: Cold Spring

Project #: 11176853

Location: Cold Spring, NV

Date & Time: 4/17/14 0945 — 4/18/14 1202

Well ID: GW-05 — GW-05

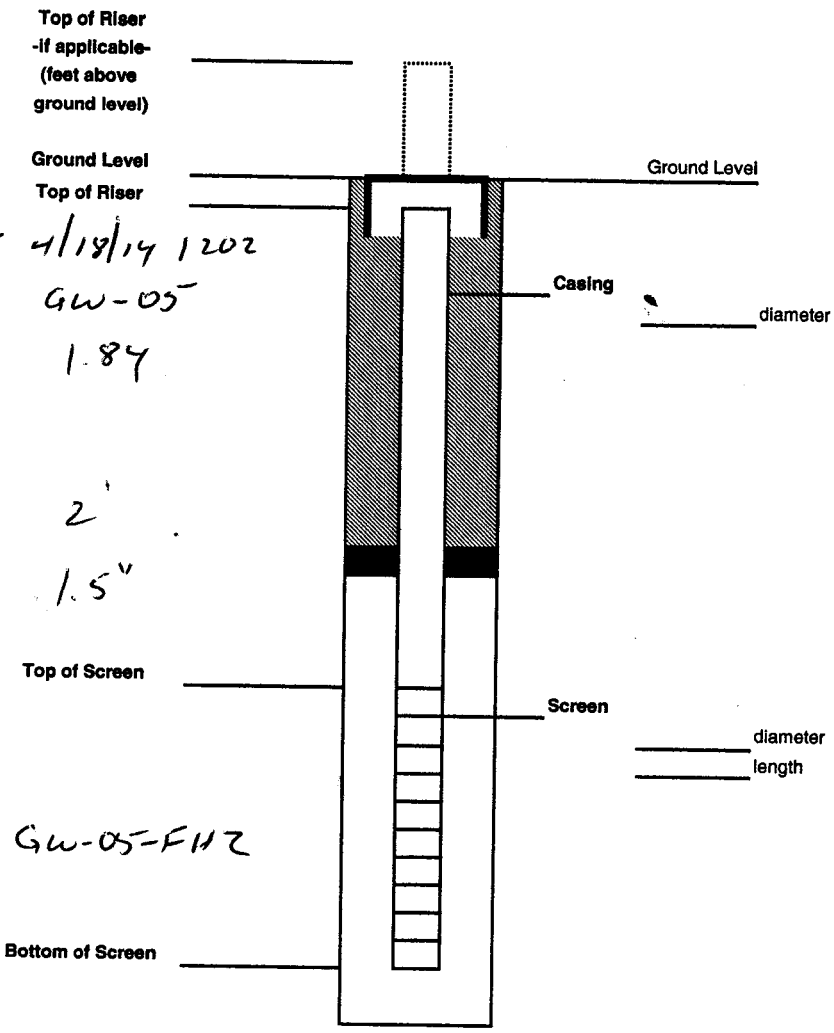
Depth to Water: 1.87 — 1.84

Depth to Bottom: 10.51

Length of Slug: 2' — 2'

Diameter of Slug: 1.5" — 1.5"

Volume of Slug:



SLUG IN (FALLING HEAD TEST)

Test Name: GW-05-FH — GW-05-FH2

Length of test:

Depth to static water level:

Initial Displacement:

SLUG OUT (RISING HEAD TEST)

Test Name: GW-05-RH — GW-05-RH2

Length of test:

Depth to static water level:

Initial Displacement:

Comments: GW-05-RH2

Results:

sampling equipment was decontaminated between sampling locations in accordance with the work plan. Soil probe locations were staked/marked and surveyed, as detailed in Section 2.9.

2.4 Monitoring Well Installation and Development

Following the soil sampling program, five shallow permanent groundwater monitoring wells (GW-01 through GW-05) were installed to characterize potential groundwater impacts. The well locations are depicted on Drawing 1.

The wells were installed in unconsolidated sediment using a Geoprobe track-mounted all-terrain vehicle (ATV) Model 6610 DT. Given the depth to groundwater is approximately 2 to 4 feet within the study area, all monitoring wells were installed to a depth of approximately 12 feet. Each well was completed with a 10 foot length of 2-inch PVC pre-packed well screen and a locking flush-mount manhole cover.

Each well was installed by advancing 3.5-inch outer diameter probe rods to the desired depth with a disposable drive point. After reaching the desired depth, the pre-assembled well screen and PVC riser pipe were installed inside the probe rods. After setting the well, the probe rods were retracted from the ground and a 1 to 2-foot layer of fine sand was placed above the pre-packed well screen prior to installing a 2-foot bentonite seal. A locking flush-mounted well cover was grouted in place to complete the well.

All installed monitoring wells were developed by pumping for 2 hours, or until the turbidity of the groundwater achieved a reading of 50 NTUs (nephelometric turbidity units) or less. Well development was supplemented by measurements of field parameters, including temperature, pH and specific conductance. Development continued until the field parameters stabilized for a minimum of three consecutive readings of 10 percent variability or less.

Drill cuttings were not generated with the use of the direct push well installation technique. Purge water generated during well development was placed in 55-gallon drums for characterization and proper off-site disposal, as discussed in Section 2.8. All non-dedicated

TABLE 3-1

Village of Cold Spring
Cold Spring Former Manufactured Gas Plant Site
Site Investigation

WATER LEVEL MEASUREMENTS AND GROUNDWATER ELEVATIONS

	September 22, 2008				October 2, 2008				October 20, 2008				November 19, 2008			
Well #	TOC Elevation (ft msl)	Depth to Bottom (ft)	Depth to Water (ft)	Water Elevation (ft msl)	TOC Elevation (ft msl)	Depth to Bottom (ft)	Depth to Water (ft)	Water Elevation (ft msl)	TOC Elevation (ft msl)	Depth to Bottom (ft)	Depth to Water (ft)	Water Elevation (ft msl)	TOC Elevation (ft msl)	Depth to Bottom (ft)	Depth to Water (ft)	Water Elevation (ft msl)
GW-01	6.82	12.12	2.58	4.24	6.82	12.13	2.64	4.18	6.82	12.13	2.61	4.21	6.82	12.13	2.27	4.55
GW-02	6.04	11.85	3.54	2.50	6.04	11.84	3.13	2.91	6.04	11.84	3.16	2.88	6.04	11.84	3.36	2.68
GW-03	5.04	12	3.51	1.53	5.04	12.02	3.01	2.03	5.04	12.02	1.75	3.29	5.04	12.02	3.48	1.56
GW-04	4.31	11.88	2.77	1.54	4.31	12	2.25	2.06	4.31	12	1.12	3.19	4.31	12	2.7	1.61
GW-05	5.26	11.89	2.92	2.34	5.26	11.7	2.48	2.78	5.26	11.7	2.36	2.90	5.26	11.7	2.76	2.50
MW-01	6.37	5.5	N/A	N/A	6.37	5.46	2.7	3.67	6.37	5.46	2.81	3.56	6.37	5.46	2.69	3.68
PIER BENCHMARK	5.54	N/A	5.65	-0.11	5.54	N/A	5.23	0.31	5.54	N/A	1.20	4.34	5.54	N/A	5.8	-0.26

NOTES:
Measurements collected in feet below top of casing
MSL: Mean Sea Level
TOC: Top of Well Casing
N/A: Not Measured

The Bouwer and Rice Slug Test — An Update[a]

by Herman Bouwer[b]

ABSTRACT

The Bouwer and Rice slug test was developed to measure aquifer hydraulic conductivity around boreholes (production, monitoring, or test wells). The wells can be partially penetrating and partially screened, perforated, or otherwise open. The slug test can be based on quickly withdrawing a volume of water from the well and measuring the subsequent rate of rise of the water level in the well, or by adding a slug of water and measuring the subsequent rate of fall of the water level in the well. While originally developed for unconfined aquifers, the method can also be used for confined or stratified aquifers if the top of the screen or perforated section is some distance below the upper confining layer. Anomalies ("double straight line effect") sometimes observed in the measured rate of rise of the water level in the well are attributed to drainage of a gravel pack or developed zone around the well following lowering of the water level. The effect of this drainage can be eliminated by ignoring the early data points and using the second straight line portion in the data plot for calculation of hydraulic conductivity. The method is applicable to any diameter and depth of the borehole, provided that the dimensions of the system are covered by the ranges for which the geometry factor R_e has been worked out. The smaller the diameter of the hole, however, the more vulnerable the results will be to aquifer heterogeneities and to inaccuracies in estimating effective well diameters. Computer programs for rapid processing of the field data have been developed.

INTRODUCTION

The slug test developed by Bouwer and Rice (1976) permits the measurement of saturated hydraulic conductivity (K) of aquifer materials with a single well. The method consists of quickly lowering or raising the water level in a well or borehole from equilibrium and measuring its subsequent rate of rise or fall, respectively. The method was designed to measure K of the aquifer around the screen or otherwise open portion of the well for fully or partially penetrating wells in unconfined aquifers. Because of its simplicity, the Bouwer and Rice slug test has become a frequently used tool in ground-water investigations. This paper addresses some of the experiences obtained with the method, including the validity of falling level tests, use of the method in confined aquifers, effect of draining gravel packs on the rise of the water level, effect of hole diameter, and computer processing of field data.

METHODOLOGY

Geometry and symbols of a slug-tested well are shown in Figure 1. The rate of flow of ground water into the well when the water level in the well is a distance y lower than the static ground-water table around the well is calculated with the Thiem equation as

$$Q = 2\pi K L_e \frac{y}{\ln(R_e/r_w)} \qquad (1)$$

where Q = volume rate of flow into well; K = hydraulic conductivity of aquifer around well; L_e = length of screened, perforated, or otherwise open section of well; y = vertical difference between water level inside well and static water table outside

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[a]Contribution of the U.S. Department of Agriculture, Agricultural Research Service.

[b]Laboratory Director, U.S. Water Conservation Laboratory, Phoenix, Arizona 85040.

Received December 1986, revised August 1988, accepted September 1988.

Discussion open until November 1, 1989.

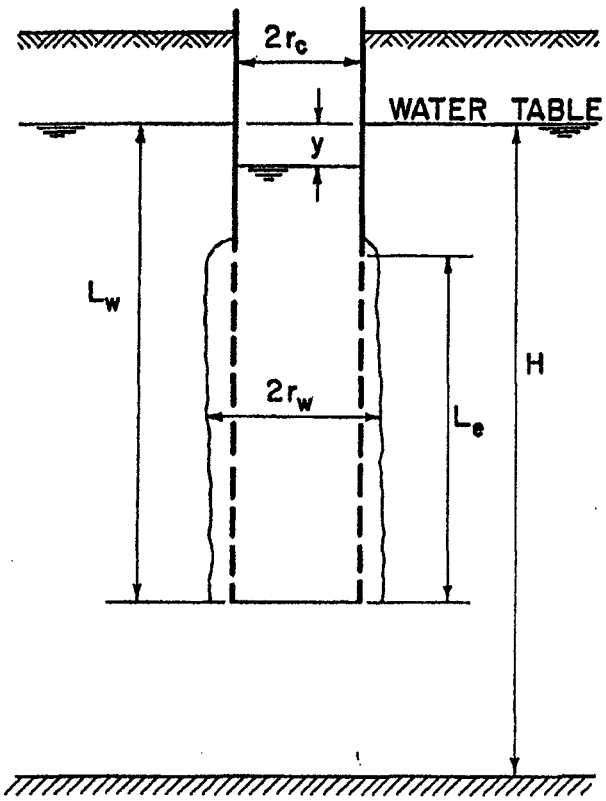


Fig. 1. Geometry and symbols for slug test on partially penetrating, partially screened well in unconfined aquifer with gravel pack and/or developed zone around screen.

well; R_e = effective radial distance over which y is dissipated; and r_w = radial distance of undisturbed portion of aquifer from centerline.

Values of R_e were determined with an electrical resistance network analog for different values of r_w, L_e, L_w, and H (see Figure 1 for meaning of geometry symbols). The value of r_w is the radius of the screened or open section of the well plus the thickness of a sand or gravel pack and/or of the developed zone around the well. Thus, r_w is the radial distance from the center of the well to normal K of the aquifer. Because the thickness of the developed zone is almost never known, the tendency is to ignore it and take only gravel or sand packs into account.

The rate of rise dy/dt of the water level in the well after the water level has been quickly lowered some distance is

$$\frac{dy}{dt} = -\frac{Q}{\pi r_c^2} \qquad (2)$$

where r_c is the radius of the casing or other section of the well where the rise of the water level is measured. If the water level rises in the screened or open section of the well with a gravel pack around it, the thickness and porosity of the gravel envelope should be taken into account when calculating the equivalent value of r_c for the rising water level. This calculation is based on the total free-water surface area in the well and sand or gravel pack, calculated as $\pi r_c^2 + \pi(r_w^2 - r_c^2)n$, where n is the porosity, and $r_w - r_c$ is the thickness of the envelope. The equivalent radius of a circle giving this total area is then calculated as $[(1 - n)r_c^2 + nr_w^2]^{1/2}$. For example, if the radius of the screen or perforated casing is 20 cm and there is 8 cm gravel pack with a porosity of 30 percent, r_c should be taken as 25.9 cm, while r_w is 28 cm.

Solving equation (2) for Q, equating the resulting expression to equation (1), integrating, and solving for K yields

$$K = \frac{r_c^2 \ln(R_e/r_w)}{2L_e} \frac{1}{t} \ln \frac{y_0}{y_t} \qquad (3)$$

where y_0 = y at time zero; and y_t = y at time t.

The results of the analog analyses to evaluate R_e for various system geometries were expressed in terms of the dimensionless ratio $\ln(R_e/r_w)$. The data could be fitted into two equations, one for the case where $L_w < H$, and one where $L_w = H$. The resulting equations were, respectively,

$$\ln \frac{R_e}{r_w} = \left[\frac{1.1}{\ln(L_w/r_w)} + \frac{A + B\ln[(H - L_w)/r_w]}{L_e/r_w} \right]^{-1} \qquad (4)$$

and

$$\ln \frac{R_e}{r_w} = \left[\frac{1.1}{\ln(L_w/r_w)} + \frac{C}{L_e/r_w} \right]^{-1} \qquad (5)$$

where A, B, and C are dimensionless numbers plotted in Figure 2 as a function of L_e/r_w.

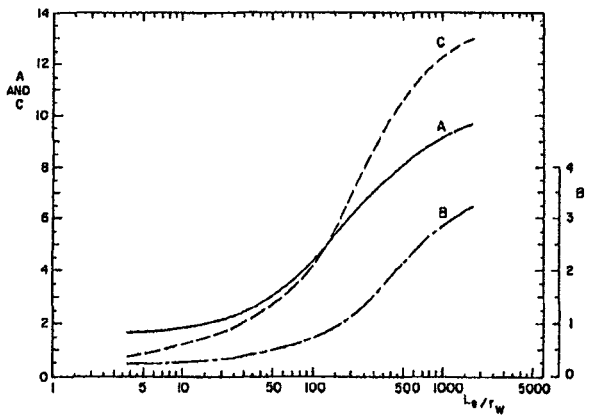


Fig. 2. Dimensionless parameters A, B, and C as a function of L_e/r_w for calculation of $\ln(R_e/r_w)$.

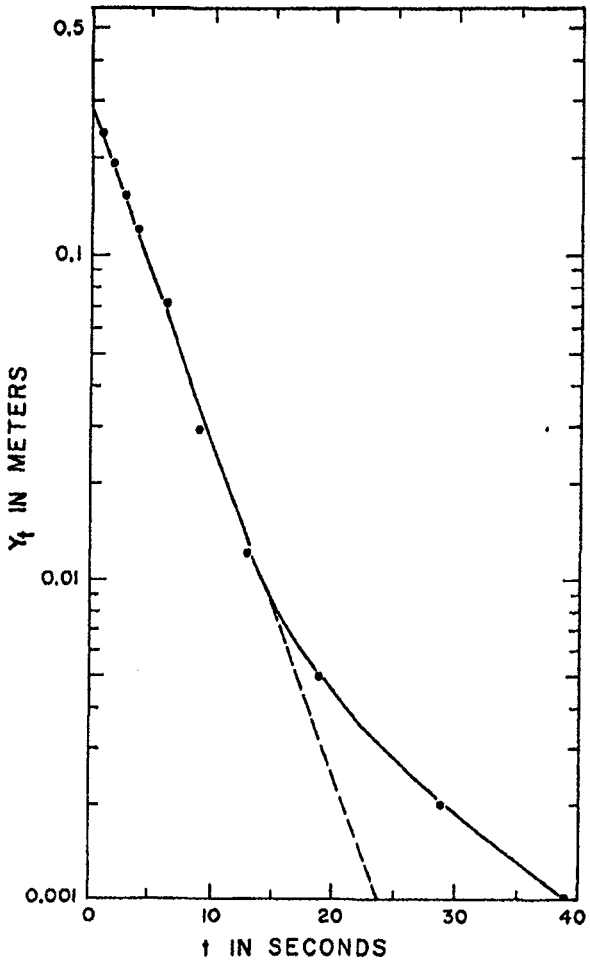


Fig. 3. Graph of log y_t versus t for slug test on well in Salt River Bed, 27th Avenue, Phoenix, Arizona.

Because y and t are the only variables in equation (3), a plot of ln y_t versus t must show a straight line. Thus, instead of calculating K on the basis of two measurements of y and t (y_0 at t = 0 and y_t at t), a number of y and t measurements can be taken and $[\ln(y_0/y_t)]/t$ determined as the slope of the best-fitting line through the y versus t points on semilogarithmic paper (Figure 3). The straight line through the data points can also be used to select two values of y, namely, y_0 and y_t, along with the time interval t between them for substitution into equation (3). Because drawdown of the ground-water table around the well becomes increasingly significant as the test progresses, the points as in Figure 3 begin to deviate from the straight line for large t and small y. Thus, only the straight line portion of the data points should be used to evaluate $[\ln(y_0/y_t)]/t$ for calculation of K with equation (3).

The slug test can be used on production wells, test wells, observation wells, and monitoring wells. Objectives for the measurements include characterization of aquifer hydraulic conductivity for modeling, ground-water recharge studies, and ground-water pollution studies. The method is particularly useful in ground-water contamination studies because the slug test can be carried out on the same wells used for ground-water quality monitoring. Also, combining the resulting values of hydraulic conductivity with the porosity of the aquifer and slopes of the ground-water table or piezometric surface permits the prediction of pore-water velocities and, hence, the rate of movement of pollution plumes and transport of contaminants. The slug test can also be useful in determining vertical distribution of hydraulic conductivities in an aquifer system and other spatial variability of hydraulic conductivity in studies of macrodispersion and movement of contaminants.

Over the years, a number of questions and comments about the slug test have been received. These questions and comments are addressed in the following sections.

DOUBLE STRAIGHT LINE EFFECT

Users of the slug test have observed that when plotting log y_t versus t as in Figure 3, they sometimes get a double straight line as shown schematically in Figure 4. The first part (AB) is straight and steep, whereas the next part (BC) is straight and less steep. Then, at point C, the points begin their expected deviation from the straight line as

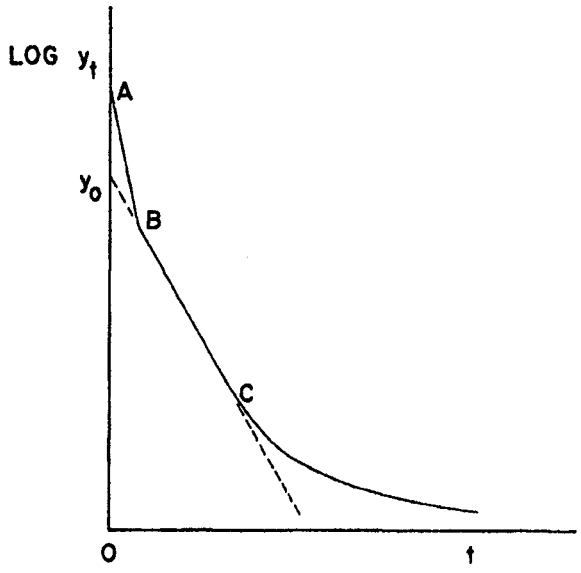


Fig. 4. Schematic of double straight line effect.

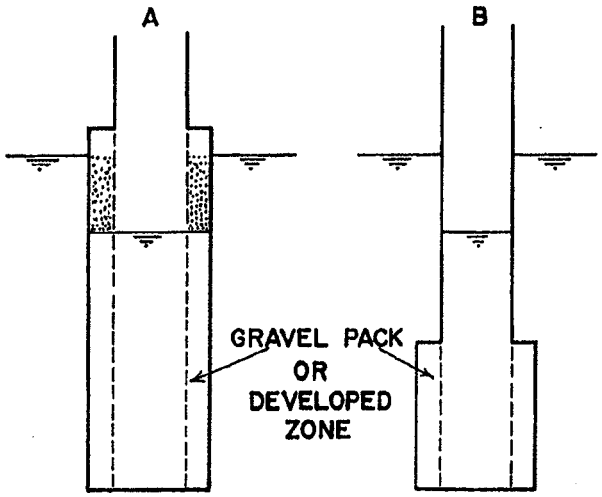


Fig. 5. Slug test for borehole with ground-water level below (A), and above (B) top of screen or perforated section.

the drawdown around the hole becomes significant relative to y_t. The first straight line portion in Figure 4 is probably due to a highly permeable zone around the well (gravel pack or developed zone), which quickly sends water into the well immediately after the water level in the well has been lowered (Figure 5A). Then, when the water level in the permeable zone around the well has drained to the water level in the well itself, the flow into the well slows down and the points begin to form a second, less steep, straight line (BC in Figure 4). This second straight line is more indicative of the flow from the undisturbed aquifer into the well. Hence, segment BC should be used in calculating K of the aquifer with equation (3). In the original 1976 article, gravel envelopes or developed zones were assumed to drain at the same rate as the water level in the borehole when it is lowered for the slug test, i.e., essentially instantaneously. However, some gravel packs or developed zones apparently are not permeable enough to give such instantaneous drainage.

If the ground-water table is above the screened or open section of the borehole, and the water level in the hole is not lowered so far that it drops below the top of the open section (Figure 5B), the gravel envelope or developed zone around the open section cannot drain. The inflow into the hole then is immediately controlled by the aquifer, and the double straight line effect should not occur. If it still occurs, it could indicate leakage around the casing or grouting above the gravel pack.

Where the double straight line is due to a gravel pack around the well, the effective well radius r_w should be taken as the radial distance from the center of the well to the outer surface of the gravel pack. Where the double straight line is due to a naturally developed zone around the well, r_w is harder to evaluate and an "intelligent" estimate must be made. It may also be possible to estimate r_w from the value of y at point B in Figure 4. Considering the volume of water in the well between y_A and y_B in Figure 4 to be due to the drainage of the gravel pack or developed zone, and knowing or estimating the drainable porosity of the gravel pack or developed zone, the radial extent of this zone can be calculated for evaluation of r_w. Capillary fringe effects do not have to be considered, since the capillary fringe was also present in the pack or in the developed zone before the water level was lowered. Because the rising water level in the hole during the slug test will also fill up the drained pore space of the gravel pack or developed zone, the value of r_c in the equation for calculation of K should be adjusted to take this effect into account, as discussed earlier in this article.

Conceivably, a well could have a gravel pack surrounded by a less permeable developed zone before the original aquifer material is reached. This could lead to a triple straight line effect, with an intermediate straight line portion at point B, or a curved transition zone at B if the hydraulic conductivity of the developed zone gradually decreases until K of the original aquifer material is reached. By the same token, portion AB in Figure 4 could also be curved if the hydraulic conductivity of the gravel pack or developed zone immediately around the well decreases with radial distance from the well.

FALLING WATER LEVEL TEST

The slug test was developed for a rising water level in the borehole, as obtained by quick removal of a certain volume or slug of water. This can be achieved by bailing, (quick) pumping, or by immersing a section of pipe filled with sand or other ballast and closed with caps on both ends, or other submersible object, in the borehole, letting the water level in the borehole return to equilibrium, and quickly removing the submerged object. The question is often raised: can the method also be used when a volume of water is quickly added to the hole and the subsequent rate of fall of the water level in the hole is measured for calculation of K? The answer is yes, provided that the equilibrium water level is above the screened or open section of the borehole (Figures 1 and 5B). In this

corresponding values of t are read from the graph. The natural logarithm of the ratio y_0/y_t is then taken and divided by the difference between the two values of t. For example, Figure 3 shows that at y is 0.28 m and 0.001 m, t is 0 and 24 seconds, respectively. This yields
$1/t \ln(y_0/y_t) = 1/24 \ln(0.28/0.001) = 0.23$ m/sec.
If $1/t \ln(y_0/y_t)$ is calculated from the slope of the curve, the number of log cycles on the vertical scale between the two points is divided by the time increment and multiplied by 2.3 to convert to natural logarithm. For example, Figure 3 shows that the straight line from $y_0 = 0.28$ m to $y_t = 0.001$ m covers 2.4 log cycles. The time increment between the two points is again 24 seconds, yielding $1/t \ln(y_0/y_t) = 2.3 \times 2.4/24 = 0.23$ m/sec, which is the same as calculated earlier. Because of different coordinate scales in plots of log y versus t, the value of $1/t \ln(y_0/y_t)$ cannot be taken as the actual slope of the straight line portion!

ESTIMATING RATE OF RISE OR FALL OF WATER LEVEL IN WELL

If the water level in a slug-tested well rises or falls at a relatively slow rate, simple water-level measuring devices and a stop watch may be all that is needed to do the test. Fast-moving water levels, however, require the use of a pressure transducer and a fast-acting x-y plotter. To get some idea about the rate of water-level movement that can be expected in a slug-tested well and what equipment to use, equation (3) can be solved for t and $\ln(y_0/y_t)$ can be taken as ln 10 to calculate the time $t_{90\%}$ required for the water level in the well to rise or fall 90% of the initial lowering or raising, respectively, of the water level in the well. This yields the equation

$$t_{90\%} = 1.15 \frac{r_c^2}{KL_e} \ln \frac{R_e}{r_w} \qquad (6)$$

where K must be taken as the estimated or expected value of K of the aquifer. Equation (6) yields values of t that are 22 times greater than the t values calculated by the $t_{90\%}$ equation in the original article (Bouwer and Rice, 1976), where $\ln(y_0/y_t)$ was erroneously taken as ln 0.9, thus yielding the time required for only 10% of the water-level rise or fall to occur.

COMPUTER PROGRAMS

Where the Bouwer and Rice slug test is routinely used, time for calculating K with equation (3) is saved by developing a computer program in which values of L_e/r_w are stored for direct calculation of $\ln(R_e/r_w)$ and K from the field data. Such programs have been developed by several users (see, for example, Pandit and Miner, 1986; and Kemblowski and Klein, 1988). Also, a number of users have designed forms for easy and systematic recording of field data.

REFERENCES

Bouwer, H. and R. C. Rice. 1976. A slug test for determining hydraulic conductivity of unconfined aquifers with completely or partially penetrating wells. Water Resources Research. v. 12, pp. 423-428.

Kemblowski, M. W. and C. L. Klein. 1988. An automated numerical evaluation of slug test data. Ground Water. v. 26, pp. 435-438.

Pandit, N. S. and R. F. Miner. 1986. Interpretation of slug test data. Ground Water. v. 24, pp. 743-749.

* * * * *

Herman Bouwer received B.S. and M.S. degrees in 1949 and 1952 in Drainage, Reclamation, and Irrigation from the National Agricultural University at Wageningen, The Netherlands, and a Ph.D. degree in 1955 in Soil and Water Management from Cornell University, New York. He was associated with the Agricultural Engineering Department of Auburn University, Alabama, from 1955 to 1959, before joining the U.S. Water Conservation Laboratory in Phoenix, Arizona, where he became Director in 1972. In 1970, he also was appointed Adjunct Professor at Arizona State University in Tempe where he taught Ground-Water Hydrology in the Geology and Civil Engineering Departments. He is also an Adjunct Professor at the University of Arizona in Tucson.

APPENDIX H

ANALYTICAL RESULTS AND MANIFESTS FOR DISPOSAL OF IDW

1824581 2P DL

NON-HAZARDOUS WASTE MANIFEST

Please print or type (Form designed for use on elite (12 pitch) typewriter)

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.: C E S Q G

Manifest Document No.: 2 8 0 3 5

2. Page 1 of 1

3. Generator's Name and Mailing Address
NYSDEC-DER
625 Broadway, 12th Floor
Albany, NY 12233
4. Generator's Phone (518) 402-9814

Cold Spring MPG-5 New Street
Cold Spring, NY 10516

5. Transporter 1 Company Name: Metro Environmental Contracting
6. US EPA ID Number: N Y R 0 0 0 1 3 4 9 5 7
A. State Transporter's ID:
B. Transporter 1 Phone: (631) 884-1880

7. Transporter 2 Company Name: Republic Env Sys (Transfer) LLC
8. US EPA ID Number: PA D982646381
C. State Transporter's ID:
D. Transporter 2 Phone:

9. Designated Facility Name and Site Address
Republic Environmental Systems
2869 Sandstone Drive
Hatfield, PA 19440
10. US EPA ID Number: P A D 0 8 5 6 9 0 5 9 2
E. State Facility's ID:
F. Facility's Phone: (215) 822-8995

11. WASTE DESCRIPTION	12. Containers No.	12. Containers Type	13. Total Quantity	14. Unit Wt./Vol.
a. Non Hazardous Non-DOT Regulated Material (Decon Water)	2	DM	110	G
b. Non Hazardous Non-DOT Regulated Material (Drill Cuttings)	11	DM	4325	P
c.				
d.				

G. Additional Descriptions for Materials Listed Above

H. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information
11a) 640569
11b) 639834
Doc# 171323-14

16. GENERATOR'S CERTIFICATION: I hereby certify that the contents of this shipment are fully and accurately described and are in all respects in proper condition for transport. The materials described on this manifest are not subject to federal hazardous waste regulations.

Printed/Typed Name	Signature	Date (Month Day Year)
James Urch As Agent of NYSDEC		5 19 14

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date (Month Day Year)
James Urch		5 A 14

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date (Month Day Year)
Melissa B Pickard		05 21 14

19. Discrepancy Indication Space

20. Facility Owner or Operator; Certification of receipt of the waste materials covered by this manifest, except as noted in item 19.

Printed/Typed Name	Signature	Date (Month Day Year)
MALCOLM PIRNIE		05 22 14

GENERATOR
TRANSPORTER
FACILITY
NON-HAZARDOUS WASTE

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Tel: (716)691-2600

TestAmerica Job ID: 480-58374-1
Client Project/Site: Cold Spring MGP #340026

For:
New York State D.E.C.
625 Broadway
11th Floor
Albany, New York 12233-3256

Attn: Mr. Dave Chiusano

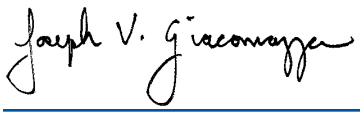
Joseph V. Giacomazza

Authorized for release by:
4/30/2014 2:39:54 PM
Joe Giacomazza, Project Management Assistant II
joe.giacomazza@testamericainc.com

Designee for

Judy Stone, Senior Project Manager
(484)685-0868
judy.stone@testamericainc.com

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed within the body of this report. Release of the data contained in this sample data package and in the electronic data deliverable has been authorized by the Laboratory Manager or his/her designee, as verified by the following signature.



Joe Giacomazza
Project Management Assistant II
4/30/2014 2:39:54 PM

Table of Contents

Qualifiers

Metals

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
B	Compound was found in the blank and sample.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 480-58374-1

Laboratory: TestAmerica Buffalo

Narrative

Job Narrative
480-58374-1

Receipt
The samples were received on 4/19/2014 9:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.9º C.

GC/MS VOA
Method(s) 8260C: The following samples were diluted due to the nature of the TCLP sample matrix: (LB 480-177492/1-A), IDW1 (480-58374-1). Elevated reporting limits (RLs) are provided.

No other analytical or quality issues were noted.

GC/MS Semi VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC Semi VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Metals
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

General Chemistry
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep
Method(s) 3510C: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP) associated with batch 177934.

Method(s) 3550C: The following sample: IDW1 (480-58374-1) were decanted prior to preparation.

No other analytical or quality issues were noted.

Detection Summary

Client: New York State D.E.C.
Project/Site: Cold Spring MGP #340026

TestAmerica Job ID: 480-58374-1

Client Sample ID: IDW1

Lab Sample ID: 480-58374-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.0085	J	0.50	0.0032	mg/L	1		6010C	TCLP
Barium	0.46	J B	10.0	0.00067	mg/L	1		6010C	TCLP
Cadmium	0.0040	J	0.10	0.00066	mg/L	1		6010C	TCLP
Chromium	0.0033	J	0.50	0.0022	mg/L	1		6010C	TCLP
Lead	0.17	J	0.50	0.0019	mg/L	1		6010C	TCLP
Sulfide, Reactive	120		10.0	0.57	mg/Kg	1		9034	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Flashpoint	>176.0		50.0	50.0	Degrees F	1		1010A	Total/NA
pH	6.90		0.100	0.100	SU	1		9045D	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: IDW1
Date Collected: 04/18/14 10:00
Date Received: 04/19/14 09:00

Lab Sample ID: 480-58374-1
Matrix: Solid

Method: 8260C - Volatile Organic Compounds by GC/MS - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane	ND		0.010	0.0021	mg/L			04/23/14 21:57	10
2-Butanone (MEK)	ND		0.050	0.013	mg/L			04/23/14 21:57	10
Benzene	ND		0.010	0.0041	mg/L			04/23/14 21:57	10
Carbon tetrachloride	ND		0.010	0.0027	mg/L			04/23/14 21:57	10
Chlorobenzene	ND		0.010	0.0075	mg/L			04/23/14 21:57	10
Chloroform	ND		0.010	0.0034	mg/L			04/23/14 21:57	10
Tetrachloroethene	ND		0.010	0.0036	mg/L			04/23/14 21:57	10
Trichloroethene	ND		0.010	0.0046	mg/L			04/23/14 21:57	10
Vinyl chloride	ND		0.010	0.0090	mg/L			04/23/14 21:57	10
1,1-Dichloroethene	ND		0.010	0.0029	mg/L			04/23/14 21:57	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*103*		*66 - 137*		*04/23/14 21:57*	*10*
4-Bromofluorobenzene (Surr)	*102*		*73 - 120*		*04/23/14 21:57*	*10*
Toluene-d8 (Surr)	*102*		*71 - 126*		*04/23/14 21:57*	*10*
Dibromofluoromethane (Surr)	*102*		*60 - 140*		*04/23/14 21:57*	*10*

Method: 8270D - Semivolatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	ND		0.010	0.00046	mg/L		04/24/14 08:18	04/25/14 13:48	1
2,4-Dinitrotoluene	ND		0.0050	0.00045	mg/L		04/24/14 08:18	04/25/14 13:48	1
2,4,5-Trichlorophenol	ND		0.0050	0.00048	mg/L		04/24/14 08:18	04/25/14 13:48	1
2,4,6-Trichlorophenol	ND		0.0050	0.00061	mg/L		04/24/14 08:18	04/25/14 13:48	1
2-Methylphenol	ND		0.0050	0.00040	mg/L		04/24/14 08:18	04/25/14 13:48	1
3-Methylphenol	ND		0.010	0.00040	mg/L		04/24/14 08:18	04/25/14 13:48	1
4-Methylphenol	ND		0.010	0.00036	mg/L		04/24/14 08:18	04/25/14 13:48	1
Hexachlorobenzene	ND		0.0050	0.00051	mg/L		04/24/14 08:18	04/25/14 13:48	1
Hexachlorobutadiene	ND		0.0050	0.00068	mg/L		04/24/14 08:18	04/25/14 13:48	1
Hexachloroethane	ND		0.0050	0.00059	mg/L		04/24/14 08:18	04/25/14 13:48	1
Nitrobenzene	ND		0.0050	0.00029	mg/L		04/24/14 08:18	04/25/14 13:48	1
Pentachlorophenol	ND		0.010	0.0022	mg/L		04/24/14 08:18	04/25/14 13:48	1
Pyridine	ND		0.025	0.00041	mg/L		04/24/14 08:18	04/25/14 13:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*105*		*52 - 132*	*04/24/14 08:18*	*04/25/14 13:48*	*1*
2-Fluorobiphenyl	*91*		*48 - 120*	*04/24/14 08:18*	*04/25/14 13:48*	*1*
2-Fluorophenol (Surr)	*50*		*20 - 120*	*04/24/14 08:18*	*04/25/14 13:48*	*1*
Nitrobenzene-d5 (Surr)	*85*		*46 - 120*	*04/24/14 08:18*	*04/25/14 13:48*	*1*
p-Terphenyl-d14 (Surr)	*114*		*67 - 150*	*04/24/14 08:18*	*04/25/14 13:48*	*1*
Phenol-d5 (Surr)	*32*		*16 - 120*	*04/24/14 08:18*	*04/25/14 13:48*	*1*

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.34	0.066	mg/Kg	☼	04/21/14 11:26	04/22/14 18:55	1
PCB-1221	ND		0.34	0.066	mg/Kg	☼	04/21/14 11:26	04/22/14 18:55	1
PCB-1232	ND		0.34	0.066	mg/Kg	☼	04/21/14 11:26	04/22/14 18:55	1
PCB-1242	ND		0.34	0.066	mg/Kg	☼	04/21/14 11:26	04/22/14 18:55	1
PCB-1248	ND		0.34	0.066	mg/Kg	☼	04/21/14 11:26	04/22/14 18:55	1
PCB-1254	ND		0.34	0.16	mg/Kg	☼	04/21/14 11:26	04/22/14 18:55	1
PCB-1260	ND		0.34	0.16	mg/Kg	☼	04/21/14 11:26	04/22/14 18:55	1

Client: New York State D.E.C.
Project/Site: Cold Spring MGP #340026

TestAmerica Job ID: 480-58374-1

Client Sample ID: IDW1
Date Collected: 04/18/14 10:00
Date Received: 04/19/14 09:00

Lab Sample ID: 480-58374-1
Matrix: Solid
Percent Solids: 64.5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*103*		*46 - 175*	*04/21/14 11:26*	*04/22/14 18:55*	*1*
DCB Decachlorobiphenyl	*141*		*47 - 176*	*04/21/14 11:26*	*04/22/14 18:55*	*1*

Method: 6010C - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.0085**	**J**	0.50	0.0032	mg/L		04/25/14 10:31	04/28/14 10:21	1
Barium	**0.46**	**J B**	10.0	0.00067	mg/L		04/25/14 10:31	04/28/14 10:21	1
Cadmium	**0.0040**	**J**	0.10	0.00066	mg/L		04/25/14 10:31	04/28/14 10:21	1
Chromium	**0.0033**	**J**	0.50	0.0022	mg/L		04/25/14 10:31	04/28/14 10:21	1
Lead	**0.17**	**J**	0.50	0.0019	mg/L		04/25/14 10:31	04/28/14 10:21	1
Selenium	ND		0.25	0.0041	mg/L		04/25/14 10:31	04/28/14 10:21	1
Silver	ND		0.50	0.0022	mg/L		04/25/14 10:31	04/28/14 10:21	1

Method: 7470A - TCLP Mercury - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		04/23/14 12:15	04/23/14 15:09	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Reactive	ND		10.0	0.0030	mg/Kg		04/28/14 05:30	04/30/14 00:12	1
Sulfide, Reactive	**120**		10.0	0.57	mg/Kg		04/24/14 08:27	04/24/14 13:00	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Flashpoint	**>176.0**		50.0	50.0	Degrees F			04/22/14 09:20	1
pH	**6.90**		0.100	0.100	SU			04/21/14 22:09	1

Surrogate Summary

Client: New York State D.E.C.
Project/Site: Cold Spring MGP #340026

TestAmerica Job ID: 480-58374-1

Method: 8260C - Volatile Organic Compounds by GC/MS

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		12DCE	BFB	TOL	DBFM
Lab Sample ID	Client Sample ID	(66-137)	(73-120)	(71-126)	(60-140)
LCS 480-177836/6	Lab Control Sample	100	100	102	105
MB 480-177836/7	Method Blank	103	103	104	105

Surrogate Legend

12DCE = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
TOL = Toluene-d8 (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8260C - Volatile Organic Compounds by GC/MS

Matrix: Solid — **Prep Type: TCLP**

		Percent Surrogate Recovery (Acceptance Limits)			
		12DCE	BFB	TOL	DBFM
Lab Sample ID	Client Sample ID	(66-137)	(73-120)	(71-126)	(60-140)
480-58374-1	IDW1	103	102	102	102
LB 480-177492/1-A	Method Blank	103	100	101	102

Surrogate Legend

12DCE = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
TOL = Toluene-d8 (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)					
		TBP	FBP	2FP	NBZ	TPH	PHL
Lab Sample ID	Client Sample ID	(52-132)	(48-120)	(20-120)	(46-120)	(67-150)	(16-120)
LCS 480-177934/2-A	Lab Control Sample	90	84	46	73	92	31
LCSD 480-177934/3-A	Lab Control Sample Dup	97	90	48	77	96	32
MB 480-177934/1-A	Method Blank	76	75	43	69	91	29

Surrogate Legend

TBP = 2,4,6-Tribromophenol (Surr)
FBP = 2-Fluorobiphenyl
2FP = 2-Fluorophenol (Surr)
NBZ = Nitrobenzene-d5 (Surr)
TPH = p-Terphenyl-d14 (Surr)
PHL = Phenol-d5 (Surr)

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Matrix: Solid — **Prep Type: TCLP**

		Percent Surrogate Recovery (Acceptance Limits)					
		TBP	FBP	2FP	NBZ	TPH	PHL
Lab Sample ID	Client Sample ID	(52-132)	(48-120)	(20-120)	(46-120)	(67-150)	(16-120)
480-58374-1	IDW1	105	91	50	85	114	32
LB 480-177430/1-D	Method Blank	92	84	46	73	106	32

Surrogate Summary

Client: New York State D.E.C.
Project/Site: Cold Spring MGP #340026

TestAmerica Job ID: 480-58374-1

Surrogate Legend

TBP = 2,4,6-Tribromophenol (Surr)
FBP = 2-Fluorobiphenyl
2FP = 2-Fluorophenol (Surr)
NBZ = Nitrobenzene-d5 (Surr)
TPH = p-Terphenyl-d14 (Surr)
PHL = Phenol-d5 (Surr)

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)									
		TCX2	DCB2								
Lab Sample ID	Client Sample ID	(46-175)	(47-176)								
480-58374-1	IDW1	103	141								
LCS 480-177189/2-A	Lab Control Sample	120	132								
MB 480-177189/1-A	Method Blank	108	117								

Surrogate Legend

TCX = Tetrachloro-m-xylene
DCB = DCB Decachlorobiphenyl

Method: 8260C - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 480-177836/7
Matrix: Solid
Analysis Batch: 177836

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane	ND		0.0010	0.00021	mg/L			04/23/14 19:34	1
2-Butanone (MEK)	ND		0.0050	0.0013	mg/L			04/23/14 19:34	1
Benzene	ND		0.0010	0.00041	mg/L			04/23/14 19:34	1
Carbon tetrachloride	ND		0.0010	0.00027	mg/L			04/23/14 19:34	1
Chlorobenzene	ND		0.0010	0.00075	mg/L			04/23/14 19:34	1
Chloroform	ND		0.0010	0.00034	mg/L			04/23/14 19:34	1
Tetrachloroethene	ND		0.0010	0.00036	mg/L			04/23/14 19:34	1
Trichloroethene	ND		0.0010	0.00046	mg/L			04/23/14 19:34	1
Vinyl chloride	ND		0.0010	0.00090	mg/L			04/23/14 19:34	1
1,1-Dichloroethene	ND		0.0010	0.00029	mg/L			04/23/14 19:34	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*103*		*66 - 137*		*04/23/14 19:34*	*1*
4-Bromofluorobenzene (Surr)	*103*		*73 - 120*		*04/23/14 19:34*	*1*
Toluene-d8 (Surr)	*104*		*71 - 126*		*04/23/14 19:34*	*1*
Dibromofluoromethane (Surr)	*105*		*60 - 140*		*04/23/14 19:34*	*1*

Lab Sample ID: LCS 480-177836/6
Matrix: Solid
Analysis Batch: 177836

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dichloroethane	0.0250	0.0230		mg/L		92	75 - 127
Benzene	0.0250	0.0237		mg/L		95	71 - 124
Chlorobenzene	0.0250	0.0233		mg/L		93	72 - 120
Tetrachloroethene	0.0250	0.0224		mg/L		90	74 - 122
Trichloroethene	0.0250	0.0235		mg/L		94	74 - 123
1,1-Dichloroethene	0.0250	0.0222		mg/L		89	58 - 121

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*100*		*66 - 137*
4-Bromofluorobenzene (Surr)	*100*		*73 - 120*
Toluene-d8 (Surr)	*102*		*71 - 126*
Dibromofluoromethane (Surr)	*105*		*60 - 140*

Lab Sample ID: LB 480-177492/1-A
Matrix: Solid
Analysis Batch: 177836

Client Sample ID: Method Blank
Prep Type: TCLP

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane	ND		0.010	0.0021	mg/L			04/23/14 21:15	10
2-Butanone (MEK)	ND		0.050	0.013	mg/L			04/23/14 21:15	10
Benzene	ND		0.010	0.0041	mg/L			04/23/14 21:15	10
Carbon tetrachloride	ND		0.010	0.0027	mg/L			04/23/14 21:15	10
Chlorobenzene	ND		0.010	0.0075	mg/L			04/23/14 21:15	10
Chloroform	ND		0.010	0.0034	mg/L			04/23/14 21:15	10
Tetrachloroethene	ND		0.010	0.0036	mg/L			04/23/14 21:15	10

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LB 480-177492/1-A
Matrix: Solid
Analysis Batch: 177836

Client Sample ID: Method Blank
Prep Type: TCLP

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichloroethene	ND		0.010	0.0046	mg/L			04/23/14 21:15	10
Vinyl chloride	ND		0.010	0.0090	mg/L			04/23/14 21:15	10
1,1-Dichloroethene	ND		0.010	0.0029	mg/L			04/23/14 21:15	10

Surrogate	*LB %Recovery*	*LB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*103*		*66 - 137*		*04/23/14 21:15*	*10*
4-Bromofluorobenzene (Surr)	*100*		*73 - 120*		*04/23/14 21:15*	*10*
Toluene-d8 (Surr)	*101*		*71 - 126*		*04/23/14 21:15*	*10*
Dibromofluoromethane (Surr)	*102*		*60 - 140*		*04/23/14 21:15*	*10*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 480-177934/1-A
Matrix: Solid
Analysis Batch: 178188

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 177934

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	ND		0.0025	0.00012	mg/L		04/24/14 08:18	04/25/14 11:03	1
2,4-Dinitrotoluene	ND		0.0013	0.00011	mg/L		04/24/14 08:18	04/25/14 11:03	1
2,4,5-Trichlorophenol	ND		0.0013	0.00012	mg/L		04/24/14 08:18	04/25/14 11:03	1
2,4,6-Trichlorophenol	ND		0.0013	0.00015	mg/L		04/24/14 08:18	04/25/14 11:03	1
2-Methylphenol	ND		0.0013	0.00010	mg/L		04/24/14 08:18	04/25/14 11:03	1
3-Methylphenol	ND		0.0025	0.00010	mg/L		04/24/14 08:18	04/25/14 11:03	1
4-Methylphenol	ND		0.0025	0.000090	mg/L		04/24/14 08:18	04/25/14 11:03	1
Hexachlorobenzene	ND		0.0013	0.00013	mg/L		04/24/14 08:18	04/25/14 11:03	1
Hexachlorobutadiene	ND		0.0013	0.00017	mg/L		04/24/14 08:18	04/25/14 11:03	1
Hexachloroethane	ND		0.0013	0.00015	mg/L		04/24/14 08:18	04/25/14 11:03	1
Nitrobenzene	ND		0.0013	0.000073	mg/L		04/24/14 08:18	04/25/14 11:03	1
Pentachlorophenol	ND		0.0025	0.00055	mg/L		04/24/14 08:18	04/25/14 11:03	1
Pyridine	ND		0.0063	0.00010	mg/L		04/24/14 08:18	04/25/14 11:03	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*76*		*52 - 132*	*04/24/14 08:18*	*04/25/14 11:03*	*1*
2-Fluorobiphenyl	*75*		*48 - 120*	*04/24/14 08:18*	*04/25/14 11:03*	*1*
2-Fluorophenol (Surr)	*43*		*20 - 120*	*04/24/14 08:18*	*04/25/14 11:03*	*1*
Nitrobenzene-d5 (Surr)	*69*		*46 - 120*	*04/24/14 08:18*	*04/25/14 11:03*	*1*
p-Terphenyl-d14 (Surr)	*91*		*67 - 150*	*04/24/14 08:18*	*04/25/14 11:03*	*1*
Phenol-d5 (Surr)	*29*		*16 - 120*	*04/24/14 08:18*	*04/25/14 11:03*	*1*

Lab Sample ID: LCS 480-177934/2-A
Matrix: Solid
Analysis Batch: 178188

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 177934

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dichlorobenzene	0.0500	0.0278		mg/L		56	32 - 120
2,4-Dinitrotoluene	0.0500	0.0461		mg/L		92	65 - 154
Hexachloroethane	0.0500	0.0247		mg/L		49	14 - 101

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 480-177934/2-A
Matrix: Solid
Analysis Batch: 178188

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 177934

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Pentachlorophenol	0.100	0.0884		mg/L		88	39 - 136

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2,4,6-Tribromophenol (Surr)	*90*		*52 - 132*
2-Fluorobiphenyl	*84*		*48 - 120*
2-Fluorophenol (Surr)	*46*		*20 - 120*
Nitrobenzene-d5 (Surr)	*73*		*46 - 120*
p-Terphenyl-d14 (Surr)	*92*		*67 - 150*
Phenol-d5 (Surr)	*31*		*16 - 120*

Lab Sample ID: LCSD 480-177934/3-A
Matrix: Solid
Analysis Batch: 178188

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 177934

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,4-Dichlorobenzene	0.0500	0.0280		mg/L		56	32 - 120	1	36
2,4-Dinitrotoluene	0.0500	0.0486		mg/L		97	65 - 154	5	20
Hexachloroethane	0.0500	0.0243		mg/L		49	14 - 101	1	46
Pentachlorophenol	0.100	0.0907		mg/L		91	39 - 136	3	37

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2,4,6-Tribromophenol (Surr)	*97*		*52 - 132*
2-Fluorobiphenyl	*90*		*48 - 120*
2-Fluorophenol (Surr)	*48*		*20 - 120*
Nitrobenzene-d5 (Surr)	*77*		*46 - 120*
p-Terphenyl-d14 (Surr)	*96*		*67 - 150*
Phenol-d5 (Surr)	*32*		*16 - 120*

Lab Sample ID: LB 480-177430/1-D
Matrix: Solid
Analysis Batch: 178188

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 177934

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	ND		0.010	0.00046	mg/L		04/24/14 08:18	04/25/14 12:14	1
2,4-Dinitrotoluene	ND		0.0050	0.00045	mg/L		04/24/14 08:18	04/25/14 12:14	1
2,4,5-Trichlorophenol	ND		0.0050	0.00048	mg/L		04/24/14 08:18	04/25/14 12:14	1
2,4,6-Trichlorophenol	ND		0.0050	0.00061	mg/L		04/24/14 08:18	04/25/14 12:14	1
2-Methylphenol	ND		0.0050	0.00040	mg/L		04/24/14 08:18	04/25/14 12:14	1
3-Methylphenol	ND		0.010	0.00040	mg/L		04/24/14 08:18	04/25/14 12:14	1
4-Methylphenol	ND		0.010	0.00036	mg/L		04/24/14 08:18	04/25/14 12:14	1
Hexachlorobenzene	ND		0.0050	0.00051	mg/L		04/24/14 08:18	04/25/14 12:14	1
Hexachlorobutadiene	ND		0.0050	0.00068	mg/L		04/24/14 08:18	04/25/14 12:14	1
Hexachloroethane	ND		0.0050	0.00059	mg/L		04/24/14 08:18	04/25/14 12:14	1
Nitrobenzene	ND		0.0050	0.00029	mg/L		04/24/14 08:18	04/25/14 12:14	1
Pentachlorophenol	ND		0.010	0.0022	mg/L		04/24/14 08:18	04/25/14 12:14	1
Pyridine	ND		0.025	0.00041	mg/L		04/24/14 08:18	04/25/14 12:14	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LB 480-177430/1-D
Matrix: Solid
Analysis Batch: 178188

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 177934

Surrogate	LB %Recovery	LB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol (Surr)	92		52 - 132	04/24/14 08:18	04/25/14 12:14	1
2-Fluorobiphenyl	84		48 - 120	04/24/14 08:18	04/25/14 12:14	1
2-Fluorophenol (Surr)	46		20 - 120	04/24/14 08:18	04/25/14 12:14	1
Nitrobenzene-d5 (Surr)	73		46 - 120	04/24/14 08:18	04/25/14 12:14	1
p-Terphenyl-d14 (Surr)	106		67 - 150	04/24/14 08:18	04/25/14 12:14	1
Phenol-d5 (Surr)	32		16 - 120	04/24/14 08:18	04/25/14 12:14	1

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Lab Sample ID: MB 480-177189/1-A
Matrix: Solid
Analysis Batch: 177351

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 177189

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.18	0.036	mg/Kg		04/21/14 11:26	04/22/14 11:46	1
PCB-1221	ND		0.18	0.036	mg/Kg		04/21/14 11:26	04/22/14 11:46	1
PCB-1232	ND		0.18	0.036	mg/Kg		04/21/14 11:26	04/22/14 11:46	1
PCB-1242	ND		0.18	0.036	mg/Kg		04/21/14 11:26	04/22/14 11:46	1
PCB-1248	ND		0.18	0.036	mg/Kg		04/21/14 11:26	04/22/14 11:46	1
PCB-1254	ND		0.18	0.087	mg/Kg		04/21/14 11:26	04/22/14 11:46	1
PCB-1260	ND		0.18	0.087	mg/Kg		04/21/14 11:26	04/22/14 11:46	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	108		46 - 175	04/21/14 11:26	04/22/14 11:46	1
DCB Decachlorobiphenyl	117		47 - 176	04/21/14 11:26	04/22/14 11:46	1

Lab Sample ID: LCS 480-177189/2-A
Matrix: Solid
Analysis Batch: 177351

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 177189

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
PCB-1016	2.46	3.23		mg/Kg		131	51 - 185
PCB-1260	2.46	3.58		mg/Kg		145	61 - 184

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Tetrachloro-m-xylene	120		46 - 175
DCB Decachlorobiphenyl	132		47 - 176

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 240-127935/2-A
Matrix: Solid
Analysis Batch: 128208

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 127935

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.50	0.0032	mg/L		04/25/14 10:31	04/28/14 10:13	1
Barium	ND		10.0	0.00067	mg/L		04/25/14 10:31	04/28/14 10:13	1

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: MB 240-127935/2-A
Matrix: Solid
Analysis Batch: 128208

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 127935

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		0.10	0.00066	mg/L		04/25/14 10:31	04/28/14 10:13	1
Chromium	ND		0.50	0.0022	mg/L		04/25/14 10:31	04/28/14 10:13	1
Lead	ND		0.50	0.0019	mg/L		04/25/14 10:31	04/28/14 10:13	1
Selenium	ND		0.25	0.0041	mg/L		04/25/14 10:31	04/28/14 10:13	1
Silver	ND		0.50	0.0022	mg/L		04/25/14 10:31	04/28/14 10:13	1

Lab Sample ID: LCS 240-127935/3-A
Matrix: Solid
Analysis Batch: 128208

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 127935

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	2.00	2.06		mg/L		103	50 - 150
Barium	2.00	1.93	J	mg/L		97	50 - 150
Cadmium	0.0500	0.0499	J	mg/L		100	50 - 150
Chromium	0.200	0.194	J	mg/L		97	50 - 150
Lead	0.500	0.482	J	mg/L		96	50 - 150
Selenium	2.00	2.06		mg/L		103	50 - 150
Silver	0.0500	0.0544	J	mg/L		109	50 - 150

Lab Sample ID: LB 240-127885/1-B
Matrix: Solid
Analysis Batch: 128208

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 127935

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.50	0.0032	mg/L		04/25/14 10:31	04/28/14 10:08	1
Barium	0.00161	J	10.0	0.00067	mg/L		04/25/14 10:31	04/28/14 10:08	1
Cadmium	ND		0.10	0.00066	mg/L		04/25/14 10:31	04/28/14 10:08	1
Chromium	ND		0.50	0.0022	mg/L		04/25/14 10:31	04/28/14 10:08	1
Lead	ND		0.50	0.0019	mg/L		04/25/14 10:31	04/28/14 10:08	1
Selenium	ND		0.25	0.0041	mg/L		04/25/14 10:31	04/28/14 10:08	1
Silver	ND		0.50	0.0022	mg/L		04/25/14 10:31	04/28/14 10:08	1

Method: 7470A - TCLP Mercury

Lab Sample ID: MB 480-177739/2-A
Matrix: Solid
Analysis Batch: 177938

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 177739

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		04/23/14 12:15	04/23/14 15:02	1

Lab Sample ID: LCS 480-177739/3-A
Matrix: Solid
Analysis Batch: 177938

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 177739

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.00668	0.00703		mg/L		105	80 - 120

Method: 7470A - TCLP Mercury (Continued)

Lab Sample ID: LB 480-177430/1-C
Matrix: Solid
Analysis Batch: 177938

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 177739

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.000128	J	0.00020	0.00012	mg/L		04/23/14 12:15	04/23/14 15:00	1

Method: 1010A - Ignitability, Pensky-Martens Closed Cup Method

Lab Sample ID: LCS 480-177522/1
Matrix: Solid
Analysis Batch: 177522

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Flashpoint	81.0	80.00		Degrees F		99	97.5 - 102.5

Lab Sample ID: 480-58374-1 DU
Matrix: Solid
Analysis Batch: 177522

Client Sample ID: IDW1
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Flashpoint	>176.0		>176.0		Degrees F		NC	10

Method: 9012 - Cyanide, Reactive

Lab Sample ID: MB 480-178651/1-A
Matrix: Solid
Analysis Batch: 179218

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 178651

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Reactive	ND		10.0	0.0030	mg/Kg		04/28/14 05:30	04/30/14 00:12	1

Lab Sample ID: LCS 480-178651/2-A
Matrix: Solid
Analysis Batch: 179218

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 178651

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Reactive	1000	282.5		mg/Kg		28	10 - 100

Method: 9034 - Sulfide, Reactive

Lab Sample ID: MB 480-178001/1-A
Matrix: Solid
Analysis Batch: 178093

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 178001

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide, Reactive	ND		10.0	0.57	mg/Kg		04/24/14 08:27	04/24/14 13:00	1

Method: 9034 - Sulfide, Reactive (Continued)

Lab Sample ID: LCS 480-178001/2-A
Matrix: Solid
Analysis Batch: 178093

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 178001

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfide, Reactive	1000	701.3		mg/Kg		70	10 - 100

Lab Sample ID: 480-58374-1 DU
Matrix: Solid
Analysis Batch: 178093

Client Sample ID: IDW1
Prep Type: Total/NA
Prep Batch: 178001

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Sulfide, Reactive	120		120.3		mg/Kg		0.02	20

GC/MS VOA

Leach Batch: 177492

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-58374-1	IDW1	TCLP	Solid	1311	
LB 480-177492/1-A	Method Blank	TCLP	Solid	1311	

Analysis Batch: 177836

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-58374-1	IDW1	TCLP	Solid	8260C	177492
LB 480-177492/1-A	Method Blank	TCLP	Solid	8260C	177492
LCS 480-177836/6	Lab Control Sample	Total/NA	Solid	8260C	
MB 480-177836/7	Method Blank	Total/NA	Solid	8260C	

GC/MS Semi VOA

Leach Batch: 177430

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-58374-1	IDW1	TCLP	Solid	1311	
LB 480-177430/1-D	Method Blank	TCLP	Solid	1311	

Prep Batch: 177934

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-58374-1	IDW1	TCLP	Solid	3510C	177430
LB 480-177430/1-D	Method Blank	TCLP	Solid	3510C	177430
LCS 480-177934/2-A	Lab Control Sample	Total/NA	Solid	3510C	
LCSD 480-177934/3-A	Lab Control Sample Dup	Total/NA	Solid	3510C	
MB 480-177934/1-A	Method Blank	Total/NA	Solid	3510C	

Analysis Batch: 178188

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-58374-1	IDW1	TCLP	Solid	8270D	177934
LB 480-177430/1-D	Method Blank	TCLP	Solid	8270D	177934
LCS 480-177934/2-A	Lab Control Sample	Total/NA	Solid	8270D	177934
LCSD 480-177934/3-A	Lab Control Sample Dup	Total/NA	Solid	8270D	177934
MB 480-177934/1-A	Method Blank	Total/NA	Solid	8270D	177934

GC Semi VOA

Prep Batch: 177189

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-58374-1	IDW1	Total/NA	Solid	3550C	
LCS 480-177189/2-A	Lab Control Sample	Total/NA	Solid	3550C	
MB 480-177189/1-A	Method Blank	Total/NA	Solid	3550C	

Analysis Batch: 177351

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-58374-1	IDW1	Total/NA	Solid	8082A	177189
LCS 480-177189/2-A	Lab Control Sample	Total/NA	Solid	8082A	177189
MB 480-177189/1-A	Method Blank	Total/NA	Solid	8082A	177189

Metals

Leach Batch: 127885

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-58374-1	IDW1	TCLP	Solid	1311	
LB 240-127885/1-B	Method Blank	TCLP	Solid	1311	

Prep Batch: 127935

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-58374-1	IDW1	TCLP	Solid	3010A	127885
LB 240-127885/1-B	Method Blank	TCLP	Solid	3010A	127885
LCS 240-127935/3-A	Lab Control Sample	Total/NA	Solid	3010A	
MB 240-127935/2-A	Method Blank	Total/NA	Solid	3010A	

Analysis Batch: 128208

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-58374-1	IDW1	TCLP	Solid	6010C	127935
LB 240-127885/1-B	Method Blank	TCLP	Solid	6010C	127935
LCS 240-127935/3-A	Lab Control Sample	Total/NA	Solid	6010C	127935
MB 240-127935/2-A	Method Blank	Total/NA	Solid	6010C	127935

Leach Batch: 177430

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-58374-1	IDW1	TCLP	Solid	1311	
LB 480-177430/1-C	Method Blank	TCLP	Solid	1311	

Prep Batch: 177739

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-58374-1	IDW1	TCLP	Solid	7470A	177430
LB 480-177430/1-C	Method Blank	TCLP	Solid	7470A	177430
LCS 480-177739/3-A	Lab Control Sample	Total/NA	Solid	7470A	
MB 480-177739/2-A	Method Blank	Total/NA	Solid	7470A	

Analysis Batch: 177938

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-58374-1	IDW1	TCLP	Solid	7470A	177739
LB 480-177430/1-C	Method Blank	TCLP	Solid	7470A	177739
LCS 480-177739/3-A	Lab Control Sample	Total/NA	Solid	7470A	177739
MB 480-177739/2-A	Method Blank	Total/NA	Solid	7470A	177739

General Chemistry

Analysis Batch: 177330

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-58374-1	IDW1	Total/NA	Solid	9045D	
LCS 480-177330/1	Lab Control Sample	Total/NA	Solid	9045D	

Analysis Batch: 177522

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-58374-1	IDW1	Total/NA	Solid	1010A	
480-58374-1 DU	IDW1	Total/NA	Solid	1010A	
LCS 480-177522/1	Lab Control Sample	Total/NA	Solid	1010A	

General Chemistry (Continued)

Analysis Batch: 177651

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-58374-1	IDW1	Total/NA	Solid	Moisture	

Prep Batch: 178001

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-58374-1	IDW1	Total/NA	Solid	7.3.4	
480-58374-1 DU	IDW1	Total/NA	Solid	7.3.4	
LCS 480-178001/2-A	Lab Control Sample	Total/NA	Solid	7.3.4	
MB 480-178001/1-A	Method Blank	Total/NA	Solid	7.3.4	

Analysis Batch: 178093

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-58374-1	IDW1	Total/NA	Solid	9034	178001
480-58374-1 DU	IDW1	Total/NA	Solid	9034	178001
LCS 480-178001/2-A	Lab Control Sample	Total/NA	Solid	9034	178001
MB 480-178001/1-A	Method Blank	Total/NA	Solid	9034	178001

Prep Batch: 178651

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-58374-1	IDW1	Total/NA	Solid	7.3.3	
LCS 480-178651/2-A	Lab Control Sample	Total/NA	Solid	7.3.3	
MB 480-178651/1-A	Method Blank	Total/NA	Solid	7.3.3	

Analysis Batch: 179218

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-58374-1	IDW1	Total/NA	Solid	9012	178651
LCS 480-178651/2-A	Lab Control Sample	Total/NA	Solid	9012	178651
MB 480-178651/1-A	Method Blank	Total/NA	Solid	9012	178651

Lab Chronicle

Client: New York State D.E.C.
Project/Site: Cold Spring MGP #340026

TestAmerica Job ID: 480-58374-1

Client Sample ID: IDW1
Date Collected: 04/18/14 10:00
Date Received: 04/19/14 09:00

Lab Sample ID: 480-58374-1
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	1311			177492	04/22/14 13:11	MRB	TAL BUF
TCLP	Analysis	8260C		10	177836	04/23/14 21:57	NMD1	TAL BUF
TCLP	Leach	1311			177430	04/22/14 09:59	MRB	TAL BUF
TCLP	Prep	3510C			177934	04/24/14 08:18	MCZ	TAL BUF
TCLP	Analysis	8270D		1	178188	04/25/14 13:48	ANM	TAL BUF
Total/NA	Prep	3550C			177189	04/21/14 11:26	CAM	TAL BUF
Total/NA	Analysis	8082A		1	177351	04/22/14 18:55	JMM	TAL BUF
TCLP	Leach	1311			127885	04/24/14 16:50	DRJ	TAL CAN
TCLP	Prep	3010A			127935	04/25/14 10:31	DEE	TAL CAN
TCLP	Analysis	6010C		1	128208	04/28/14 10:21	KLC	TAL CAN
TCLP	Leach	1311			177430	04/22/14 09:59	MRB	TAL BUF
TCLP	Prep	7470A			177739	04/23/14 12:15	EHD	TAL BUF
TCLP	Analysis	7470A		1	177938	04/23/14 15:09	LRK	TAL BUF
Total/NA	Analysis	1010A		1	177522	04/22/14 09:20	RP	TAL BUF
Total/NA	Prep	7.3.3			178651	04/28/14 05:30	LAW	TAL BUF
Total/NA	Analysis	9012		1	179218	04/30/14 00:12	LAW	TAL BUF
Total/NA	Prep	7.3.4			178001	04/24/14 08:27	NCH	TAL BUF
Total/NA	Analysis	9034		1	178093	04/24/14 13:00	NCH	TAL BUF
Total/NA	Analysis	9045D		1	177330	04/21/14 22:09	KS	TAL BUF
Total/NA	Analysis	Moisture		1	177651	04/23/14 08:34	ZJR	TAL BUF

Laboratory References:

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Certification Summary

Client: New York State D.E.C.
Project/Site: Cold Spring MGP #340026

TestAmerica Job ID: 480-58374-1

Laboratory: TestAmerica Buffalo

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Arkansas DEQ	State Program	6	88-0686	07-06-14
California	State Program	9	1169CA	09-30-14
Connecticut	State Program	1	PH-0568	09-30-14
Florida	NELAP	4	E87672	06-30-14
Georgia	State Program	4	N/A	03-31-15
Illinois	NELAP	5	200003	09-30-14
Iowa	State Program	7	374	03-01-15
Kansas	NELAP	7	E-10187	01-31-15 *
Kentucky (DW)	State Program	4	90029	12-31-14
Kentucky (UST)	State Program	4	30	03-31-15
Louisiana	NELAP	6	02031	06-30-14
Maine	State Program	1	NY00044	12-04-14
Maryland	State Program	3	294	03-31-15
Massachusetts	State Program	1	M-NY044	06-30-14
Michigan	State Program	5	9937	03-31-15
Minnesota	NELAP	5	036-999-337	12-31-14
New Hampshire	NELAP	1	2337	11-17-14
New Jersey	NELAP	2	NY455	06-30-14
New York	NELAP	2	10026	03-31-15
North Dakota	State Program	8	R-176	03-31-14 *
Oklahoma	State Program	6	9421	08-31-14
Oregon	NELAP	10	NY200003	06-09-14
Pennsylvania	NELAP	3	68-00281	07-31-14
Rhode Island	State Program	1	LAO00328	12-30-14
Tennessee	State Program	4	TN02970	03-31-15
Texas	NELAP	6	T104704412-11-2	07-31-14
USDA	Federal		P330-11-00386	11-22-14
Virginia	NELAP	3	460185	09-14-14
Washington	State Program	10	C784	02-10-15
West Virginia DEP	State Program	3	252	05-31-14
Wisconsin	State Program	5	998310390	08-31-14

Laboratory: TestAmerica Canton

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
California	NELAP	9	01144CA	06-30-14 *
Connecticut	State Program	1	PH-0590	12-31-14
Florida	NELAP	4	E87225	06-30-14 *
Georgia	State Program	4	N/A	06-30-14 *
Illinois	NELAP	5	200004	07-31-14 *
Kansas	NELAP	7	E-10336	01-31-15
Kentucky (UST)	State Program	4	58	06-30-14 *
L-A-B	DoD ELAP		L2315	07-18-16
Minnesota	NELAP	5	039-999-348	12-31-14
Nevada	State Program	9	OH-000482008A	07-31-14 *
New Jersey	NELAP	2	OH001	06-30-14 *
New York	NELAP	2	10975	03-31-15
Ohio VAP	State Program	5	CL0024	10-31-15
Pennsylvania	NELAP	3	68-00340	08-31-14

* Expired certification is currently pending renewal and is considered valid.

Laboratory: TestAmerica Canton (Continued)

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Texas	NELAP	6		08-31-14
USDA	Federal		P330-13-00319	11-26-16
Virginia	NELAP	3	460175	09-14-14
Washington	State Program	10	C971	01-12-15
West Virginia DEP	State Program	3	210	12-31-14
Wisconsin	State Program	5	999518190	08-31-14

Method Summary

Client: New York State D.E.C.
Project/Site: Cold Spring MGP #340026

TestAmerica Job ID: 480-58374-1

Method	Method Description	Protocol	Laboratory
8260C	Volatile Organic Compounds by GC/MS	SW846	TAL BUF
8270D	Semivolatile Organic Compounds (GC/MS)	SW846	TAL BUF
8082A	Polychlorinated Biphenyls (PCBs) by Gas Chromatography	SW846	TAL BUF
6010C	Metals (ICP)	SW846	TAL CAN
7470A	TCLP Mercury	SW846	TAL BUF
1010A	Ignitability, Pensky-Martens Closed Cup Method	SW846	TAL BUF
9012	Cyanide, Reactive	SW846	TAL BUF
9034	Sulfide, Reactive	SW846	TAL BUF
9045D	pH	SW846	TAL BUF
Moisture	Percent Moisture	EPA	TAL BUF

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Sample Summary

Client: New York State D.E.C.
Project/Site: Cold Spring MGP #340026

TestAmerica Job ID: 480-58374-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
480-58374-1	IDW1	Solid	04/18/14 10:00	04/19/14 09:00

TestAmerica Connecticut
128 Long Hill Cross Road
Shelton, CT 06484
Phone (203) 929-8140 Fax (203) 929-8142

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Contact:	**Field Sampler:** Stephen Smith	**TAT Required (business days):**	**Lab PM/Contact:**	**COC Number:** 20876
Company: Enviroteac	**Mobile/Field Number:** (631) 210-4053		**Lab Job Number (Lab Use Only):**	**Page** ___ **of** ___
Address: 5 Old Dock Rd	**E-Mail:**	**Deliverable Type (Report/EDD):**	**Passed Rad Screen (Lab Use Only):** [ ] Yes [ ] No	**Carrier Tracking Notes:**
City, State, Zip: New York NY, 11980	**PO #:**	**Sample Disposal:** [ ] Return to Client [ ] Disposal by Lab [ ] Archive for __ Months (A fee may be assessed if samples are retained for longer than 1 month)	**Cooler Temperatures (Lab Use Only):**	
Phone:	**WO #:**			
Email:	**Project #:**	**State Regulatory QC Criteria Requirements:**	**Analysis (Attach list if more space is needed)**	
Project Name/Site Location (State): Cold Spring EMR map NY	**SSOW#:**			

Samples submitted for analysis will be subject to TestAmerica Terms and Conditions

TA #	Field Sample Identification (Containers for each sample may be combined on one line)	Collection Date	Collection Time (24-Hour Clock)	Matrix Aq=Aqueous, S=Solid, W=Waste/Oil, O=Other	MS/ MSD (Yes or No)	No. of Containers/Preservatives: Unpreserved	H2SO4	HNO3	HCL	NaOH	ZnAc/NaOH	Other	PCBs	RCRA Characteristics	TCLP Pest	TCLP Semi Metals	TCLP Semi VOCs	TCLP Semi VOCs	Comments
	TDW1																		
	3 vials	4/18/14	10:00AM						✓										
	3 amber Bottles	4/18/14	10:10AM			✓													

480-58374 Chain of Custody

Relinquished by: Stephen Smith	Date/Time: 4/18/14 14:15	Company	Received by: Albert Bramety	Date/Time: 4/18/14 1415	Company TAECT
Relinquished by: Albert Bramety	Date/Time: 4/18/14 1615	Company	Received by:	Date/Time: 4/19/14 0900	Company TA BUFF
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Comments: #3 29

DISTRIBUTION: WHITE - Stays with the Samples; CANARY - Returned to Client with Report; PINK - Field Copy

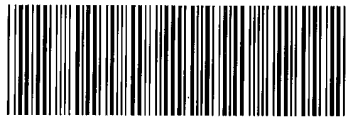
Field Sampling / Shipping Instructions and Laboratory Sample Receipt Policy included on Reverse Side of COC

TAL-0015 (0609)

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

CHAIN OF CUSTODY
AND
RECEIVING DOCUMENTS



480-58374 Chain of Custody

TestAmerica Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Phone (716) 691-2600 Fax (716) 691-7991

Chain of Custody Record 2.2.16

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Stone, Judy L	Carrier Tracking No(s):	COC No: 480-15926.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: judy.stone@testamericainc.com		Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.				Job #: 480-58374-1
Address: 4101 Shuffel Street NW,	Due Date Requested: 4/29/2014			
City: North Canton	TAT Requested (days):			
State, Zip: OH, 44720				
Phone: 330-497-9396(Tel) 330-497-0772(Fax)	PO #:			
Email:	WO #:			
Project Name: Cold Spring MGP #340026	Project #: 48006513			
Site:	SSOW#:			

Analysis Requested

C155
12

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2SO3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - ph 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6010C/1311T_M TCLP Metals	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
IDW1 (480-58374-1)	4/18/14	10:00 Eastern		Solid			X		

Possible Hazard Identification
Unconfirmed

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:				
Relinquished by: Cameron Wilder	Date/Time: 4-22-14 1700	Company TA Buff	Received by: Doug Burns	Date/Time: 4/23/14 0920	Company TA CAN
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks:

4/30/2014

TestAmerica Canton Sample Receipt Form/Narrative
Canton Facility

Login # : 480-58374

Client TA Buffalo Site Name

Cooler unpacked by: Denny Burns

Cooler Received on 4/23/14 Opened on 4/23/14

FedEx: 1st Grd (Exp) UPS FAS Stetson Client Drop Off TestAmerica Courier Other

TestAmerica Cooler # Foam Box Client Cooler Box Other Multiple

Packing material used: (Bubble Wrap) Foam Plastic Bag None Other

COOLANT: (Wet Ice) Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt

(IR GUN# A)	(CF +0 °C) Observed Cooler Temp. °C	Corrected Cooler Temp. °C	
IR GUN# 4	(CF -1 °C) Observed Cooler Temp. °C	Corrected Cooler Temp. °C	☑ See Multiple Cooler Form
IR GUN# 5	(CF +1 °C) Observed Cooler Temp. °C	Corrected Cooler Temp. °C	
IR GUN# 8	(CF +1 °C) Observed Cooler Temp. °C	Corrected Cooler Temp. °C	

2. Were custody seals on the outside of the cooler(s)? If Yes Quantity 1 each (Yes) No
   -Were custody seals on the outside of the cooler(s) signed & dated? (Yes) No NA
   -Were custody seals on the bottle(s)? Yes (No)
3. Shippers' packing slip attached to the cooler(s)? (Yes) No
4. Did custody papers accompany the sample(s)? (Yes) No
5. Were the custody papers relinquished & signed in the appropriate place? (Yes) No
6. Did all bottles arrive in good condition (Unbroken)? (Yes) No
7. Could all bottle labels be reconciled with the COC? (Yes) No
8. Were correct bottle(s) used for the test(s) indicated? (Yes) No
9. Sufficient quantity received to perform indicated analyses? (Yes) No
10. Were sample(s) at the correct pH upon receipt? Yes No (NA) pH Strip Lot# HC391902
11. Were VOAs on the COC? Yes (No)
12. Were air bubbles >6 mm in any VOA vials? Yes No (NA)
13. Was a trip blank present in the cooler(s)? Yes (No)

Contacted PM Date by via Verbal Voice Mail Other
Concerning

14. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES

Samples processed by: TB

15. SAMPLE CONDITION

Sample(s) were received after the recommended holding time had expired.
Sample(s) were received in a broken container.
Sample(s) were received with bubble >6 mm in diameter. (Notify PM)

16. SAMPLE PRESERVATION

Sample(s) were further preserved in the laboratory.
Time preserved: Preservative(s) added/Lot number(s):

TestAmerica Multiple Cooler Receipt Form/Narrative
Canton Facility

Login #: 480-58374

Cooler #	IR Gun #	Observed Temp °C	Corrected Temp °C	Coolant
Client	A	2.2	2.2	ICE
5800	1	1.6	1.6	1

ORIGIN ID:DKKA (716) 691-2600
KEN KINECKI
TESTAMERICA
10 HAZELWOOD DR

AMHERST, NY 14228
UNITED STATES US

SHIP DATE: 22APR14
ACTWGT: 40.0 LB MAN
CAD: 735603/CAFE2704

BILL RECIPIENT

TO SAMPLE CONTROL
TA NORTH CANTON
4101 SHUFFEL DRIVE NW

NORTH CANTON OH 44720
(330) 497-9396 REF: CANTON
DEPT: SAMPLE CONTROL

FedEx Express

2 of 2
MPS# 0263 4485 0269 7001
Mstr# 4485 0269 6998

WED - 23 APR 10:30A
PRIORITY OVERNIGHT

0201

XH PHDA

44720
OH-US CLE

Login Sample Receipt Checklist

Client: New York State D.E.C.

Job Number: 480-58374-1

Login Number: 58374

List Source: TestAmerica Buffalo

List Number: 1

Creator: Kolb, Chris M

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	False	No: Analyses are listed on COC; individual samples are not designated Spec Analy
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	False	no labels present on containers
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	envirotrac
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	True	
Chlorine Residual checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Tel: (716)691-2600

TestAmerica Job ID: 480-58999-1
Client Project/Site: Cold Spring MGP #340026

For:
New York State D.E.C.
625 Broadway
11th Floor
Albany, New York 12233-3256

Attn: Mr. Dave Chiusano

Joseph V. Giacomazza

Authorized for release by:
5/8/2014 12:01:55 PM
Joe Giacomazza, Project Management Assistant II
joe.giacomazza@testamericainc.com

Designee for

Judy Stone, Senior Project Manager
(484)685-0868
judy.stone@testamericainc.com

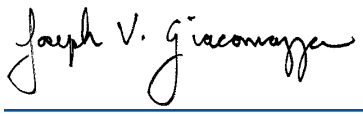
LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed within the body of this report. Release of the data contained in this sample data package and in the electronic data deliverable has been authorized by the Laboratory Manager or his/her designee, as verified by the following signature.



Joe Giacomazza
Project Management Assistant II
5/8/2014 12:01:55 PM

Table of Contents

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
*	LCS or LCSD exceeds the control limits

GC Semi VOA

Qualifier	Qualifier Description
X	Surrogate is outside control limits

Metals

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

General Chemistry

Qualifier	Qualifier Description
H	Sample was prepped or analyzed beyond the specified holding time

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 480-58999-1

Laboratory: TestAmerica Buffalo

Narrative

Job Narrative
480-58999-1

Receipt
The samples were received on 5/1/2014 9:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.9º C.

Except:

The Trip blank was cancelled by the client on 5/1/14.

Total mercury was cancelled as directed by the client on 5/1/14; only TCLP mercury is needed.

GC/MS VOA
Method(s) 8260C: The following volatiles sample(s) was diluted due to foaming at the time of purging during the original sample analysis: IDW Water (480-58999-1). Elevated reporting limits (RLs) are provided.

No other analytical or quality issues were noted.

GC/MS Semi VOA
Method(s) 8270D: The laboratory control sample (LCS) and / or laboratory control sample duplicate (LCSD) for preparation batch 480-180246 recovered outside control limits for several analytes. These analytes were biased high in the LCS/LCSD and were not detected in the associated samples; therefore, the data have been reported.

No other analytical or quality issues were noted.

GC Semi VOA
Method(s) 8082A: Surrogate recovery for the following samples was outside control limits: IDW Water (480-58999-1). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Method(s) 8082A: All primary data is reported from the ZB-5 column.

No other analytical or quality issues were noted.

Metals
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

General Chemistry
Method(s) 9040C, SM 4500 H+ B: The following sample(s) was received outside of holding time: IDW Water (480-58999-1).

No other analytical or quality issues were noted.

Organic Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Detection Summary

Client: New York State D.E.C.
Project/Site: Cold Spring MGP #340026

TestAmerica Job ID: 480-58999-1

Client Sample ID: IDW Water

Lab Sample ID: 480-58999-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.0068	J	0.015	0.0056	mg/L	1		6010C	TCLP
Barium	0.053		0.0020	0.00070	mg/L	1		6010C	TCLP
Chromium	0.012		0.0040	0.0010	mg/L	1		6010C	TCLP
Lead	0.011		0.010	0.0030	mg/L	1		6010C	TCLP

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Flashpoint	>176.0		50.0	50.0	Degrees F	1		1010A	Total/NA
pH	8.07	H	0.100	0.100	SU	1		9040C	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: IDW Water
Date Collected: 04/29/14 10:30
Date Received: 05/01/14 09:00

Lab Sample ID: 480-58999-1
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane	ND		0.0040	0.00084	mg/L			05/02/14 16:12	4
2-Butanone (MEK)	ND		0.020	0.0053	mg/L			05/02/14 16:12	4
Benzene	ND		0.0040	0.0016	mg/L			05/02/14 16:12	4
Carbon tetrachloride	ND		0.0040	0.0011	mg/L			05/02/14 16:12	4
Chlorobenzene	ND		0.0040	0.0030	mg/L			05/02/14 16:12	4
Chloroform	ND		0.0040	0.0014	mg/L			05/02/14 16:12	4
Tetrachloroethene	ND		0.0040	0.0014	mg/L			05/02/14 16:12	4
Trichloroethene	ND		0.0040	0.0018	mg/L			05/02/14 16:12	4
Vinyl chloride	ND		0.0040	0.0036	mg/L			05/02/14 16:12	4
1,1-Dichloroethene	ND		0.0040	0.0012	mg/L			05/02/14 16:12	4

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*97*		*66 - 137*		*05/02/14 16:12*	*4*
4-Bromofluorobenzene (Surr)	*103*		*73 - 120*		*05/02/14 16:12*	*4*
Toluene-d8 (Surr)	*104*		*71 - 126*		*05/02/14 16:12*	*4*
Dibromofluoromethane (Surr)	*98*		*60 - 140*		*05/02/14 16:12*	*4*

Method: 8270D - Semivolatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	ND		0.010	0.00046	mg/L		05/06/14 06:13	05/07/14 11:05	1
2,4-Dinitrotoluene	ND		0.0050	0.00045	mg/L		05/06/14 06:13	05/07/14 11:05	1
2,4,5-Trichlorophenol	ND		0.0050	0.00048	mg/L		05/06/14 06:13	05/07/14 11:05	1
2,4,6-Trichlorophenol	ND		0.0050	0.00061	mg/L		05/06/14 06:13	05/07/14 11:05	1
2-Methylphenol	ND		0.0050	0.00040	mg/L		05/06/14 06:13	05/07/14 11:05	1
3-Methylphenol	ND	*	0.010	0.00040	mg/L		05/06/14 06:13	05/07/14 11:05	1
4-Methylphenol	ND	*	0.010	0.00036	mg/L		05/06/14 06:13	05/07/14 11:05	1
Hexachlorobenzene	ND		0.0050	0.00051	mg/L		05/06/14 06:13	05/07/14 11:05	1
Hexachlorobutadiene	ND		0.0050	0.00068	mg/L		05/06/14 06:13	05/07/14 11:05	1
Hexachloroethane	ND		0.0050	0.00059	mg/L		05/06/14 06:13	05/07/14 11:05	1
Nitrobenzene	ND		0.0050	0.00029	mg/L		05/06/14 06:13	05/07/14 11:05	1
Pentachlorophenol	ND		0.010	0.0022	mg/L		05/06/14 06:13	05/07/14 11:05	1
Pyridine	ND		0.025	0.00041	mg/L		05/06/14 06:13	05/07/14 11:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*99*		*52 - 132*	*05/06/14 06:13*	*05/07/14 11:05*	*1*
2-Fluorobiphenyl	*99*		*48 - 120*	*05/06/14 06:13*	*05/07/14 11:05*	*1*
2-Fluorophenol (Surr)	*50*		*20 - 120*	*05/06/14 06:13*	*05/07/14 11:05*	*1*
Nitrobenzene-d5 (Surr)	*91*		*46 - 120*	*05/06/14 06:13*	*05/07/14 11:05*	*1*
p-Terphenyl-d14 (Surr)	*93*		*67 - 150*	*05/06/14 06:13*	*05/07/14 11:05*	*1*
Phenol-d5 (Surr)	*35*		*16 - 120*	*05/06/14 06:13*	*05/07/14 11:05*	*1*

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.46	0.16	ug/L		05/02/14 06:36	05/03/14 21:35	1
PCB-1221	ND		0.46	0.16	ug/L		05/02/14 06:36	05/03/14 21:35	1
PCB-1232	ND		0.46	0.16	ug/L		05/02/14 06:36	05/03/14 21:35	1
PCB-1242	ND		0.46	0.16	ug/L		05/02/14 06:36	05/03/14 21:35	1
PCB-1248	ND		0.46	0.16	ug/L		05/02/14 06:36	05/03/14 21:35	1
PCB-1254	ND		0.46	0.23	ug/L		05/02/14 06:36	05/03/14 21:35	1
PCB-1260	ND		0.46	0.23	ug/L		05/02/14 06:36	05/03/14 21:35	1

Client: New York State D.E.C.
Project/Site: Cold Spring MGP #340026

TestAmerica Job ID: 480-58999-1

Client Sample ID: IDW Water
Date Collected: 04/29/14 10:30
Date Received: 05/01/14 09:00

Lab Sample ID: 480-58999-1
Matrix: Water

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*43*		*23 - 127*	*05/02/14 06:36*	*05/03/14 21:35*	*1*
Tetrachloro-m-xylene	*55*		*23 - 127*	*05/02/14 06:36*	*05/03/14 21:35*	*1*
DCB Decachlorobiphenyl	*10*	*X*	*19 - 126*	*05/02/14 06:36*	*05/03/14 21:35*	*1*
DCB Decachlorobiphenyl	*12*	*X*	*19 - 126*	*05/02/14 06:36*	*05/03/14 21:35*	*1*

Method: 6010C - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.0068**	**J**	0.015	0.0056	mg/L		05/02/14 10:25	05/03/14 11:51	1
Barium	**0.053**		0.0020	0.00070	mg/L		05/02/14 10:25	05/03/14 11:51	1
Cadmium	ND		0.0020	0.00050	mg/L		05/02/14 10:25	05/03/14 11:51	1
Chromium	**0.012**		0.0040	0.0010	mg/L		05/02/14 10:25	05/03/14 11:51	1
Lead	**0.011**		0.010	0.0030	mg/L		05/02/14 10:25	05/03/14 11:51	1
Selenium	ND		0.025	0.0087	mg/L		05/02/14 10:25	05/03/14 11:51	1
Silver	ND		0.0060	0.0017	mg/L		05/02/14 10:25	05/03/14 11:51	1

Method: 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		05/05/14 08:00	05/05/14 11:01	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Reactive	ND		10.0	0.0030	mg/L		05/02/14 00:50	05/05/14 06:25	1
Sulfide, Reactive	ND		10.0	0.57	mg/L		05/02/14 00:50	05/05/14 09:30	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Flashpoint	**>176.0**		50.0	50.0	Degrees F			05/02/14 09:29	1
pH	**8.07**	**H**	0.100	0.100	SU			05/05/14 10:49	1

Surrogate Summary

Client: New York State D.E.C.
Project/Site: Cold Spring MGP #340026

TestAmerica Job ID: 480-58999-1

Method: 8260C - Volatile Organic Compounds by GC/MS

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		12DCE	BFB	TOL	DBFM
Lab Sample ID	Client Sample ID	(66-137)	(73-120)	(71-126)	(60-140)
LCS 480-179640/5	Lab Control Sample	96	108	103	100
MB 480-179640/7	Method Blank	94	107	104	100

Surrogate Legend

12DCE = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
TOL = Toluene-d8 (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8260C - Volatile Organic Compounds by GC/MS

Matrix: Water — **Prep Type: TCLP**

		Percent Surrogate Recovery (Acceptance Limits)			
		12DCE	BFB	TOL	DBFM
Lab Sample ID	Client Sample ID	(66-137)	(73-120)	(71-126)	(60-140)
480-58999-1	IDW Water	97	103	104	98

Surrogate Legend

12DCE = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
TOL = Toluene-d8 (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)					
		TBP	FBP	2FP	NBZ	TPH	PHL
Lab Sample ID	Client Sample ID	(52-132)	(48-120)	(20-120)	(46-120)	(67-150)	(16-120)
LCS 480-180246/2-A	Lab Control Sample	87	88	44	82	99	33
LCSD 480-180246/3-A	Lab Control Sample Dup	92	93	48	88	100	37
MB 480-180246/1-A	Method Blank	80	89	46	86	101	35

Surrogate Legend

TBP = 2,4,6-Tribromophenol (Surr)
FBP = 2-Fluorobiphenyl
2FP = 2-Fluorophenol (Surr)
NBZ = Nitrobenzene-d5 (Surr)
TPH = p-Terphenyl-d14 (Surr)
PHL = Phenol-d5 (Surr)

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Matrix: Water — **Prep Type: TCLP**

		Percent Surrogate Recovery (Acceptance Limits)					
		TBP	FBP	2FP	NBZ	TPH	PHL
Lab Sample ID	Client Sample ID	(52-132)	(48-120)	(20-120)	(46-120)	(67-150)	(16-120)
480-58999-1	IDW Water	99	99	50	91	93	35

Surrogate Legend

TBP = 2,4,6-Tribromophenol (Surr)

Surrogate Summary

Client: New York State D.E.C.
Project/Site: Cold Spring MGP #340026

TestAmerica Job ID: 480-58999-1

FBP = 2-Fluorobiphenyl
2FP = 2-Fluorophenol (Surr)
NBZ = Nitrobenzene-d5 (Surr)
TPH = p-Terphenyl-d14 (Surr)
PHL = Phenol-d5 (Surr)

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TCX1	TCX2	DCB1	DCB2
Lab Sample ID	Client Sample ID	(23-127)	(23-127)	(19-126)	(19-126)
480-58999-1	IDW Water	43	55	10 X	12 X
LCS 480-179588/2-A	Lab Control Sample	96	117	56	74
MB 480-179588/1-A	Method Blank	95	122	69	77

Surrogate Legend

TCX = Tetrachloro-m-xylene
DCB = DCB Decachlorobiphenyl

Method: 8260C - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 480-179640/7
Matrix: Water
Analysis Batch: 179640

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane	ND		0.0010	0.00021	mg/L			05/02/14 11:25	1
2-Butanone (MEK)	ND		0.0050	0.0013	mg/L			05/02/14 11:25	1
Benzene	ND		0.0010	0.00041	mg/L			05/02/14 11:25	1
Carbon tetrachloride	ND		0.0010	0.00027	mg/L			05/02/14 11:25	1
Chlorobenzene	ND		0.0010	0.00075	mg/L			05/02/14 11:25	1
Chloroform	ND		0.0010	0.00034	mg/L			05/02/14 11:25	1
Tetrachloroethene	ND		0.0010	0.00036	mg/L			05/02/14 11:25	1
Trichloroethene	ND		0.0010	0.00046	mg/L			05/02/14 11:25	1
Vinyl chloride	ND		0.0010	0.00090	mg/L			05/02/14 11:25	1
1,1-Dichloroethene	ND		0.0010	0.00029	mg/L			05/02/14 11:25	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*94*		*66 - 137*		*05/02/14 11:25*	*1*
4-Bromofluorobenzene (Surr)	*107*		*73 - 120*		*05/02/14 11:25*	*1*
Toluene-d8 (Surr)	*104*		*71 - 126*		*05/02/14 11:25*	*1*
Dibromofluoromethane (Surr)	*100*		*60 - 140*		*05/02/14 11:25*	*1*

Lab Sample ID: LCS 480-179640/5
Matrix: Water
Analysis Batch: 179640

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dichloroethane	0.0250	0.0239		mg/L		96	75 - 127
Benzene	0.0250	0.0237		mg/L		95	71 - 124
Chlorobenzene	0.0250	0.0242		mg/L		97	72 - 120
Tetrachloroethene	0.0250	0.0252		mg/L		101	74 - 122
Trichloroethene	0.0250	0.0242		mg/L		97	74 - 123
1,1-Dichloroethene	0.0250	0.0234		mg/L		94	58 - 121

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*96*		*66 - 137*
4-Bromofluorobenzene (Surr)	*108*		*73 - 120*
Toluene-d8 (Surr)	*103*		*71 - 126*
Dibromofluoromethane (Surr)	*100*		*60 - 140*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 480-180246/1-A
Matrix: Water
Analysis Batch: 180427

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 180246

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	ND		0.0025	0.00012	mg/L		05/06/14 06:13	05/07/14 04:36	1
2,4-Dinitrotoluene	ND		0.0013	0.00011	mg/L		05/06/14 06:13	05/07/14 04:36	1
2,4,5-Trichlorophenol	ND		0.0013	0.00012	mg/L		05/06/14 06:13	05/07/14 04:36	1
2,4,6-Trichlorophenol	ND		0.0013	0.00015	mg/L		05/06/14 06:13	05/07/14 04:36	1
2-Methylphenol	ND		0.0013	0.00010	mg/L		05/06/14 06:13	05/07/14 04:36	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 480-180246/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 180427 — **Prep Batch: 180246**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
3-Methylphenol	ND		0.0025	0.00010	mg/L		05/06/14 06:13	05/07/14 04:36	1
4-Methylphenol	ND		0.0025	0.000090	mg/L		05/06/14 06:13	05/07/14 04:36	1
Hexachlorobenzene	ND		0.0013	0.00013	mg/L		05/06/14 06:13	05/07/14 04:36	1
Hexachlorobutadiene	ND		0.0013	0.00017	mg/L		05/06/14 06:13	05/07/14 04:36	1
Hexachloroethane	ND		0.0013	0.00015	mg/L		05/06/14 06:13	05/07/14 04:36	1
Nitrobenzene	ND		0.0013	0.000073	mg/L		05/06/14 06:13	05/07/14 04:36	1
Pentachlorophenol	ND		0.0025	0.00055	mg/L		05/06/14 06:13	05/07/14 04:36	1
Pyridine	ND		0.0063	0.00010	mg/L		05/06/14 06:13	05/07/14 04:36	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*80*		*52 - 132*	*05/06/14 06:13*	*05/07/14 04:36*	*1*
2-Fluorobiphenyl	*89*		*48 - 120*	*05/06/14 06:13*	*05/07/14 04:36*	*1*
2-Fluorophenol (Surr)	*46*		*20 - 120*	*05/06/14 06:13*	*05/07/14 04:36*	*1*
Nitrobenzene-d5 (Surr)	*86*		*46 - 120*	*05/06/14 06:13*	*05/07/14 04:36*	*1*
p-Terphenyl-d14 (Surr)	*101*		*67 - 150*	*05/06/14 06:13*	*05/07/14 04:36*	*1*
Phenol-d5 (Surr)	*35*		*16 - 120*	*05/06/14 06:13*	*05/07/14 04:36*	*1*

Lab Sample ID: LCS 480-180246/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 180427 — **Prep Batch: 180246**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dichlorobenzene	0.0500	0.0289		mg/L		58	32 - 120
2,4-Dinitrotoluene	0.0500	0.0517		mg/L		103	65 - 154
Hexachloroethane	0.0500	0.0266		mg/L		53	14 - 101
Pentachlorophenol	0.100	0.0816		mg/L		82	39 - 136

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2,4,6-Tribromophenol (Surr)	*87*		*52 - 132*
2-Fluorobiphenyl	*88*		*48 - 120*
2-Fluorophenol (Surr)	*44*		*20 - 120*
Nitrobenzene-d5 (Surr)	*82*		*46 - 120*
p-Terphenyl-d14 (Surr)	*99*		*67 - 150*
Phenol-d5 (Surr)	*33*		*16 - 120*

Lab Sample ID: LCSD 480-180246/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 180427 — **Prep Batch: 180246**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,4-Dichlorobenzene	0.0500	0.0309		mg/L		62	32 - 120	7	36
2,4-Dinitrotoluene	0.0500	0.0557		mg/L		111	65 - 154	8	20
Hexachloroethane	0.0500	0.0261		mg/L		52	14 - 101	2	46
Pentachlorophenol	0.100	0.0845		mg/L		85	39 - 136	4	37

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2,4,6-Tribromophenol (Surr)	*92*		*52 - 132*

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 480-180246/3-A
Matrix: Water
Analysis Batch: 180427

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 180246

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2-Fluorobiphenyl	*93*		*48 - 120*
2-Fluorophenol (Surr)	*48*		*20 - 120*
Nitrobenzene-d5 (Surr)	*88*		*46 - 120*
p-Terphenyl-d14 (Surr)	*100*		*67 - 150*
Phenol-d5 (Surr)	*37*		*16 - 120*

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Lab Sample ID: MB 480-179588/1-A
Matrix: Water
Analysis Batch: 179873

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 179588

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.50	0.18	ug/L		05/02/14 06:36	05/03/14 17:05	1
PCB-1221	ND		0.50	0.18	ug/L		05/02/14 06:36	05/03/14 17:05	1
PCB-1232	ND		0.50	0.18	ug/L		05/02/14 06:36	05/03/14 17:05	1
PCB-1242	ND		0.50	0.18	ug/L		05/02/14 06:36	05/03/14 17:05	1
PCB-1248	ND		0.50	0.18	ug/L		05/02/14 06:36	05/03/14 17:05	1
PCB-1254	ND		0.50	0.25	ug/L		05/02/14 06:36	05/03/14 17:05	1
PCB-1260	ND		0.50	0.25	ug/L		05/02/14 06:36	05/03/14 17:05	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*95*		*23 - 127*	*05/02/14 06:36*	*05/03/14 17:05*	*1*
Tetrachloro-m-xylene	*122*		*23 - 127*	*05/02/14 06:36*	*05/03/14 17:05*	*1*
DCB Decachlorobiphenyl	*69*		*19 - 126*	*05/02/14 06:36*	*05/03/14 17:05*	*1*
DCB Decachlorobiphenyl	*77*		*19 - 126*	*05/02/14 06:36*	*05/03/14 17:05*	*1*

Lab Sample ID: LCS 480-179588/2-A
Matrix: Water
Analysis Batch: 179873

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 179588

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
PCB-1016			4.00	3.67		ug/L		92	51 - 137		
PCB-1260			4.00	4.48		ug/L		112	45 - 139		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Tetrachloro-m-xylene	*96*		*23 - 127*
Tetrachloro-m-xylene	*117*		*23 - 127*
DCB Decachlorobiphenyl	*56*		*19 - 126*
DCB Decachlorobiphenyl	*74*		*19 - 126*

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 480-179696/1-A
Matrix: Water
Analysis Batch: 180131

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 179696

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.015	0.0056	mg/L		05/02/14 10:25	05/03/14 11:31	1
Barium	ND		0.0020	0.00070	mg/L		05/02/14 10:25	05/03/14 11:31	1
Cadmium	ND		0.0020	0.00050	mg/L		05/02/14 10:25	05/03/14 11:31	1
Chromium	ND		0.0040	0.0010	mg/L		05/02/14 10:25	05/03/14 11:31	1
Lead	ND		0.010	0.0030	mg/L		05/02/14 10:25	05/03/14 11:31	1
Selenium	ND		0.025	0.0087	mg/L		05/02/14 10:25	05/03/14 11:31	1
Silver	ND		0.0060	0.0017	mg/L		05/02/14 10:25	05/03/14 11:31	1

Lab Sample ID: LCS 480-179696/2-A
Matrix: Water
Analysis Batch: 180131

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 179696

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	1.00	1.01		mg/L		101	80 - 120
Barium	1.00	1.00		mg/L		100	80 - 120
Cadmium	1.00	0.999		mg/L		100	80 - 120
Chromium	1.00	1.03		mg/L		103	80 - 120
Lead	1.00	1.00		mg/L		100	80 - 120
Selenium	1.00	0.998		mg/L		100	80 - 120
Silver	1.00	0.996		mg/L		100	80 - 120

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 480-179758/1-A
Matrix: Water
Analysis Batch: 180154

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 179758

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		05/05/14 08:00	05/05/14 10:56	1

Lab Sample ID: LCS 480-179758/2-A
Matrix: Water
Analysis Batch: 180154

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 179758

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.00667	0.00695		mg/L		104	80 - 120

Lab Sample ID: 480-58999-1 MS
Matrix: Water
Analysis Batch: 180154

Client Sample ID: IDW Water
Prep Type: TCLP
Prep Batch: 179758

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	ND		0.00667	0.00702		mg/L		105	75 - 125

Method: 7470A - Mercury (CVAA) (Continued)

Lab Sample ID: 480-58999-1 MSD
Matrix: Water
Analysis Batch: 180154

Client Sample ID: IDW Water
Prep Type: TCLP
Prep Batch: 179758

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND		0.00667	0.00690		mg/L		103	75 - 125	2	20

Method: 1010A - Ignitability, Pensky-Martens Closed Cup Method

Lab Sample ID: LCS 480-179815/1
Matrix: Water
Analysis Batch: 179815

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Flashpoint	81.0	80.00		Degrees F		99	97.5 - 102.5

Lab Sample ID: 480-58999-1 DU
Matrix: Water
Analysis Batch: 179815

Client Sample ID: IDW Water
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Flashpoint	>176.0		>176.0		Degrees F		NC	10

Method: 9012 - Cyanide, Reactive

Lab Sample ID: MB 480-179770/1-A
Matrix: Water
Analysis Batch: 180033

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 179770

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Reactive	ND		10.0	0.0030	mg/L		05/02/14 00:50	05/05/14 06:25	1

Lab Sample ID: LCS 480-179770/2-A
Matrix: Water
Analysis Batch: 180033

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 179770

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Reactive	1000	303.8		mg/L		30	10 - 100

Lab Sample ID: LCSD 480-179770/3-A
Matrix: Water
Analysis Batch: 180033

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 179770

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cyanide, Reactive	1000	298.8		mg/L		30	10 - 100	2	20

Client: New York State D.E.C.
Project/Site: Cold Spring MGP #340026

TestAmerica Job ID: 480-58999-1

Method: 9034 - Sulfide, Reactive

Lab Sample ID: MB 480-179766/1-A
Matrix: Water
Analysis Batch: 180094

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 179766

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide, Reactive	ND		10.0	0.57	mg/L		05/02/14 00:50	05/05/14 09:30	1

Lab Sample ID: LCS 480-179766/2-A
Matrix: Water
Analysis Batch: 180094

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 179766

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfide, Reactive	1000	761.4		mg/L		76	10 - 100

Lab Sample ID: LCSD 480-179766/3-A
Matrix: Water
Analysis Batch: 180094

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 179766

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfide, Reactive	1000	801.5		mg/L		80	10 - 100	5	20

QC Association Summary

Client: New York State D.E.C.
Project/Site: Cold Spring MGP #340026

TestAmerica Job ID: 480-58999-1

GC/MS VOA

Analysis Batch: 179640

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-58999-1	IDW Water	TCLP	Water	8260C	179685
LCS 480-179640/5	Lab Control Sample	Total/NA	Water	8260C	
MB 480-179640/7	Method Blank	Total/NA	Water	8260C	

Leach Batch: 179685

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-58999-1	IDW Water	TCLP	Water	1311	

GC/MS Semi VOA

Leach Batch: 179668

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-58999-1	IDW Water	TCLP	Water	1311	

Prep Batch: 180246

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-58999-1	IDW Water	TCLP	Water	3510C	179668
LCS 480-180246/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 480-180246/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	
MB 480-180246/1-A	Method Blank	Total/NA	Water	3510C	

Analysis Batch: 180427

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-58999-1	IDW Water	TCLP	Water	8270D	180246
LCS 480-180246/2-A	Lab Control Sample	Total/NA	Water	8270D	180246
LCSD 480-180246/3-A	Lab Control Sample Dup	Total/NA	Water	8270D	180246
MB 480-180246/1-A	Method Blank	Total/NA	Water	8270D	180246

GC Semi VOA

Prep Batch: 179588

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-58999-1	IDW Water	Total/NA	Water	3510C	
LCS 480-179588/2-A	Lab Control Sample	Total/NA	Water	3510C	
MB 480-179588/1-A	Method Blank	Total/NA	Water	3510C	

Analysis Batch: 179873

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-58999-1	IDW Water	Total/NA	Water	8082A	179588
LCS 480-179588/2-A	Lab Control Sample	Total/NA	Water	8082A	179588
MB 480-179588/1-A	Method Blank	Total/NA	Water	8082A	179588

Metals

Leach Batch: 179668

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-58999-1	IDW Water	TCLP	Water	1311	
480-58999-1 MS	IDW Water	TCLP	Water	1311	
480-58999-1 MSD	IDW Water	TCLP	Water	1311	

Metals (Continued)

Prep Batch: 179696

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-58999-1	IDW Water	TCLP	Water	3010A	179668
LCS 480-179696/2-A	Lab Control Sample	Total/NA	Water	3010A	
MB 480-179696/1-A	Method Blank	Total/NA	Water	3010A	

Prep Batch: 179758

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-58999-1	IDW Water	TCLP	Water	7470A	179668
480-58999-1 MS	IDW Water	TCLP	Water	7470A	179668
480-58999-1 MSD	IDW Water	TCLP	Water	7470A	179668
LCS 480-179758/2-A	Lab Control Sample	Total/NA	Water	7470A	
MB 480-179758/1-A	Method Blank	Total/NA	Water	7470A	

Analysis Batch: 180131

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-58999-1	IDW Water	TCLP	Water	6010C	179696
LCS 480-179696/2-A	Lab Control Sample	Total/NA	Water	6010C	179696
MB 480-179696/1-A	Method Blank	Total/NA	Water	6010C	179696

Analysis Batch: 180154

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-58999-1	IDW Water	TCLP	Water	7470A	179758
480-58999-1 MS	IDW Water	TCLP	Water	7470A	179758
480-58999-1 MSD	IDW Water	TCLP	Water	7470A	179758
LCS 480-179758/2-A	Lab Control Sample	Total/NA	Water	7470A	179758
MB 480-179758/1-A	Method Blank	Total/NA	Water	7470A	179758

General Chemistry

Prep Batch: 179766

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-58999-1	IDW Water	Total/NA	Water	7.3.4	
LCS 480-179766/2-A	Lab Control Sample	Total/NA	Water	7.3.4	
LCSD 480-179766/3-A	Lab Control Sample Dup	Total/NA	Water	7.3.4	
MB 480-179766/1-A	Method Blank	Total/NA	Water	7.3.4	

Prep Batch: 179770

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-58999-1	IDW Water	Total/NA	Water	7.3.3	
LCS 480-179770/2-A	Lab Control Sample	Total/NA	Water	7.3.3	
LCSD 480-179770/3-A	Lab Control Sample Dup	Total/NA	Water	7.3.3	
MB 480-179770/1-A	Method Blank	Total/NA	Water	7.3.3	

Analysis Batch: 179815

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-58999-1	IDW Water	Total/NA	Water	1010A	
480-58999-1 DU	IDW Water	Total/NA	Water	1010A	
LCS 480-179815/1	Lab Control Sample	Total/NA	Water	1010A	

General Chemistry (Continued)

Analysis Batch: 180033

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-58999-1	IDW Water	Total/NA	Water	9012	179770
LCS 480-179770/2-A	Lab Control Sample	Total/NA	Water	9012	179770
LCSD 480-179770/3-A	Lab Control Sample Dup	Total/NA	Water	9012	179770
MB 480-179770/1-A	Method Blank	Total/NA	Water	9012	179770

Analysis Batch: 180094

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-58999-1	IDW Water	Total/NA	Water	9034	179766
LCS 480-179766/2-A	Lab Control Sample	Total/NA	Water	9034	179766
LCSD 480-179766/3-A	Lab Control Sample Dup	Total/NA	Water	9034	179766
MB 480-179766/1-A	Method Blank	Total/NA	Water	9034	179766

Analysis Batch: 180095

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-58999-1	IDW Water	Total/NA	Water	9040C	
LCS 480-180095/1	Lab Control Sample	Total/NA	Water	9040C	

Lab Chronicle

Client: New York State D.E.C.
Project/Site: Cold Spring MGP #340026

TestAmerica Job ID: 480-58999-1

Client Sample ID: IDW Water
Date Collected: 04/29/14 10:30
Date Received: 05/01/14 09:00

Lab Sample ID: 480-58999-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	1311			179685	05/02/14 09:39	MRB	TAL BUF
TCLP	Analysis	8260C		4	179640	05/02/14 16:12	TRB	TAL BUF
TCLP	Leach	1311			179668	05/02/14 09:03	MRB	TAL BUF
TCLP	Prep	3510C			180246	05/06/14 06:13	MCZ	TAL BUF
TCLP	Analysis	8270D		1	180427	05/07/14 11:05	HTL	TAL BUF
Total/NA	Prep	3510C			179588	05/02/14 06:36	JLS	TAL BUF
Total/NA	Analysis	8082A		1	179873	05/03/14 21:35	JMM	TAL BUF
TCLP	Leach	1311			179668	05/02/14 09:03	MRB	TAL BUF
TCLP	Prep	3010A			179696	05/02/14 10:25	EHD	TAL BUF
TCLP	Analysis	6010C		1	180131	05/03/14 11:51		TAL BUF
TCLP	Leach	1311			179668	05/02/14 09:03	MRB	TAL BUF
TCLP	Prep	7470A			179758	05/05/14 08:00	EHD	TAL BUF
TCLP	Analysis	7470A		1	180154	05/05/14 11:01	LRK	TAL BUF
Total/NA	Analysis	1010A		1	179815	05/02/14 09:29	RP	TAL BUF
Total/NA	Prep	7.3.3			179770	05/02/14 00:50	LAW	TAL BUF
Total/NA	Analysis	9012		1	180033	05/05/14 06:25	LAW	TAL BUF
Total/NA	Prep	7.3.4			179766	05/02/14 00:50	LAW	TAL BUF
Total/NA	Analysis	9034		1	180094	05/05/14 09:30	LAW	TAL BUF
Total/NA	Analysis	9040C		1	180095	05/05/14 10:49	VAJ	TAL BUF

Laboratory References:

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

Certification Summary

Client: New York State D.E.C.
Project/Site: Cold Spring MGP #340026

TestAmerica Job ID: 480-58999-1

Laboratory: TestAmerica Buffalo

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Arkansas DEQ	State Program	6	88-0686	07-06-14
California	State Program	9	1169CA	09-30-14
Connecticut	State Program	1	PH-0568	09-30-14
Florida	NELAP	4	E87672	06-30-14
Georgia	State Program	4	N/A	03-31-15
Illinois	NELAP	5	200003	09-30-14
Iowa	State Program	7	374	03-01-15
Kansas	NELAP	7	E-10187	01-31-15 *
Kentucky (DW)	State Program	4	90029	12-31-14
Kentucky (UST)	State Program	4	30	03-31-15
Louisiana	NELAP	6	02031	06-30-14
Maine	State Program	1	NY00044	12-04-14
Maryland	State Program	3	294	03-31-15
Massachusetts	State Program	1	M-NY044	06-30-14
Michigan	State Program	5	9937	03-31-15
Minnesota	NELAP	5	036-999-337	12-31-14
New Hampshire	NELAP	1	2337	11-17-14
New Jersey	NELAP	2	NY455	06-30-14
New York	NELAP	2	10026	03-31-15
North Dakota	State Program	8	R-176	03-31-14 *
Oklahoma	State Program	6	9421	08-31-14
Oregon	NELAP	10	NY200003	06-09-14
Pennsylvania	NELAP	3	68-00281	07-31-14
Rhode Island	State Program	1	LAO00328	12-30-14
Tennessee	State Program	4	TN02970	03-31-15
Texas	NELAP	6	T104704412-11-2	07-31-14
USDA	Federal		P330-11-00386	11-22-14
Virginia	NELAP	3	460185	09-14-14
Washington	State Program	10	C784	02-10-15
West Virginia DEP	State Program	3	252	05-31-14
Wisconsin	State Program	5	998310390	08-31-14

* Expired certification is currently pending renewal and is considered valid.

Method Summary

Client: New York State D.E.C.
Project/Site: Cold Spring MGP #340026

TestAmerica Job ID: 480-58999-1

Method	Method Description	Protocol	Laboratory
8260C	Volatile Organic Compounds by GC/MS	SW846	TAL BUF
8270D	Semivolatile Organic Compounds (GC/MS)	SW846	TAL BUF
8082A	Polychlorinated Biphenyls (PCBs) by Gas Chromatography	SW846	TAL BUF
6010C	Metals (ICP)	SW846	TAL BUF
7470A	Mercury (CVAA)	SW846	TAL BUF
1010A	Ignitability, Pensky-Martens Closed Cup Method	SW846	TAL BUF
9012	Cyanide, Reactive	SW846	TAL BUF
9034	Sulfide, Reactive	SW846	TAL BUF
9040C	pH	SW846	TAL BUF

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

Sample Summary

Client: New York State D.E.C.
Project/Site: Cold Spring MGP #340026

TestAmerica Job ID: 480-58999-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
480-58999-1	IDW Water	Water	04/29/14 10:30	05/01/14 09:00

TestAmerica Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Phone (716) 691-2600 Fax (716) 691-7991

Chain of Custody Record

TestAmerica

480-58999 Chain of Custody

Client Information	Sampler: Bob Gimbel - EnviroTrac	Lab PM: Stone, Judy L	COC No: 480-48700-12942.1
Client Contact: Mr. George Kisluk	Phone: 631-924-3001	E-Mail: judy.stone@te	Page: Page 1 of 1
Company: URS Corporation			Job #:
Address: 257 W. Genesee Street	Due Date Requested:		
City: Buffalo	TAT Requested (days): ASAP		
State, Zip: NY, 14203			
Phone: 518-402-9814(Tel)	PO #: Callout 121210		
Email: george.kisluk@urs.com	WO #:		
Project Name: Cold Spring MGP #340026	Project #: 48006513		
Site:	SSOW#:		

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2SO3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - ph 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	7470A - Mercury	8270D - TCLP Semivolatiles	9012_ReactiveCN, 9034_Reactive	6010C - TCLP Metals ICP	8260C - TCLP Volatiles	9040C - pH	1010A - Flashpoint	8082A - TCL_PCBs_OLM04.2	PCB's TCLP	Total Number of containers	Special Instructions/Note:
			Preservation Code:		N	N	N	N	N	N	N	N	N	N			
IDW Water	4/29/14	1030	G	Water			X	X	X	X	X	X	X		X		

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:		
Relinquished by:	Date/Time: 4/30/14 1150	Company ET	Received by:	Date/Time: 4/30/14 1150	Company TAL
Relinquished by:	Date/Time: 4/30/14 1315	Company TAL	Received by:	Date/Time: 5-1-14 0900	Company TAL
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 3.8 #1

Login Sample Receipt Checklist

Client: New York State D.E.C.

Job Number: 480-58999-1

Login Number: 58999

List Source: TestAmerica Buffalo

List Number: 1

Creator: Wienke, Robert K

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	N/A	
Chlorine Residual checked.	N/A	