Draft Final

WESTAGE REALTY PROPERTY GROUNDWATER INVESTIGATION REPORT
Former Texaco Research Center
Beacon, New York

SITE ID# 314004

RCRA PERMIT# 3-1330-00048/16-0

Submitted to:

Mr. Mark Hendrickson

Chevron Environmental Management Company
Chevron Bellaire Office Building
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Submitted By:

PARSONS

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Syracuse, NY 13212

JANUARY 2011

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REVIEWED AND APPROVED BY:

Project Manager: _____ _____
Date

Technical Manager: _____ _____
Date

JANUARY 2011

TABLE OF CONTENTS

Page

LIST OF TABLES

LIST OF FIGURES

TABLE OF CONTENTS (CONTINUED)

LIST OF APPENDICES

LIST OF ACRONYMS

µg/l	Microgram Per Liter (parts per billion, ppb)
bgs	Below Ground Surface
DOT	Department of Transportation
DUSR	Data Usability Summary Report
EMC	Environmental Management Company
ft.	Feet
HDPE	High Density Polyethylene
ICM	Interim Corrective Measure
IDW	Investigation Derived Waste
ISS	Industrial Sewer System
Mg/kg	Milligram Per Kilogram
LNAPL	Light Non-Aqueous Phase Liquids
NTU	Nephelometric Turbidity Units
NYCRR	New York Code of Rules and Regulations
NYSDEC	New York State Department of Environmental Conservation
PID	Photoionization Detector
PVC	Polyvinyl Chloride
QAPP	Quality Assurance Project Plan
R	Refusal
RCRA	Resource Conservation and Recovery Act
RFI	RCRA Facility Investigation
SVOCs	Semivolatile Organic Compounds
TAL	Target Analytical List
TOGS	Technical and Operational Guidance Series
USEPA	United States Environmental Protection Agency
VOC	Volatile Organic Compound

CERTIFICATIONS

I certify that the Westage Realty Property Groundwater Investigation has been completed as described in this document and in accordance with the Work Plan dated February 2010 for the Offsite Groundwater Monitoring Well Installations which was approved by the NYSDEC by e-mail.

Craig F. Butler, P.E.
New York, No. 080807
PARSONS

Date

SECTION 1

INTRODUCTION

1.1 WORK PLAN OBJECTIVES

The scope of work discussed within this report was developed based on a review of data from the Supplemental RCRA Facility Investigation (RFI) performed in the Fall of 2008 which indicated that groundwater contamination and light non-aqueous phase liquid (LNAPL) existed along the furthest western property boundary of the former Texaco Research Center Beacon facility (Former TRCB) (Building 58 Area) and could potentially be migrating offsite. The scope of work discussed within this report was also developed to satisfy the data gaps specified above, as well as assist in the development of a site conceptual model(s), and assist in identifying potential remedial alternatives for the site. Site investigation activities included subsurface drilling, soil sampling, monitoring well installation, groundwater sampling, and geophysical work at the former TRCB facility in Beacon, New York.

The wells were installed at the request of the New York State Department of Environmental Conservation (NYSDEC) in order to obtain groundwater data so they could fulfill all requirements for the United States Environmental Protection Agency (USEPA) Environmental Indicators program to confirm that impacted groundwater is not migrating off-site from the TRCB facility.

1.2 SITE BACKGROUND

Chevron Corporation (Chevron, also historically known as Texaco and ChevronTexaco) operated a Research Center in Glenham, New York (Figure 1.1) from 1931 until its closure in 2003. The Site has also been called the Texaco Research Center and the Beacon Research Center (Site). The property is located on approximately 140 acres of land and includes four main areas. The Recreation Area is an undeveloped property located south of Washington Avenue. The Main Facility includes all of the developed areas located north of Fishkill Creek. The Washington Avenue Tank Farm (Tank Farm) is located south of Fishkill Creek and north of Washington Avenue. The Former Church Property is an undeveloped parcel located to the northwest of the Main Facility (Figure 1.2).

The Main Facility and has been used as an on-shore, non-production, non-transportation laboratory complex engaged in research, development, and technical services related to petroleum products and energy. Petroleum, coal products, and solvents have been used at the Property in connection with the research functions.

Previous investigations have included follow-on investigations to specific activities such as tank removals and spill investigations. A Phase III Resource Conservation and Recovery Act (RCRA) Facility Investigation was completed by Texaco in March 2001 (IT 2001a). In 2006, Chevron completed the closure of the Industrial Sewer System (ISS) and the completion of the Recreation Area interim corrective measure (ICM). In 2005, a Phase II Environmental Site Assessment (GSC, 2005) was completed by Groundwater Sciences Corporation on behalf of a

party interested in acquiring the Site. In the fall of 2006 and 2008, a Sitewide RCRA and Supplemental RCRA Facility Investigation were conducted by Parsons (Parsons, 2007 and 2009) for Chevron. A site wide soil boring drilling program (Parsons, 2010) was also conducted in 2010 at the site to evaluate soil quality.

From 1811 until 1930, the Site was the location of textile and woolen mills. The mills were powered by water wheels and steam engines. Blacksmith and carpentry shops were operated on site in support of the mills.

1.3 REPORT ORGANIZATION

This report has been organized into sections. Each section is briefly described below.

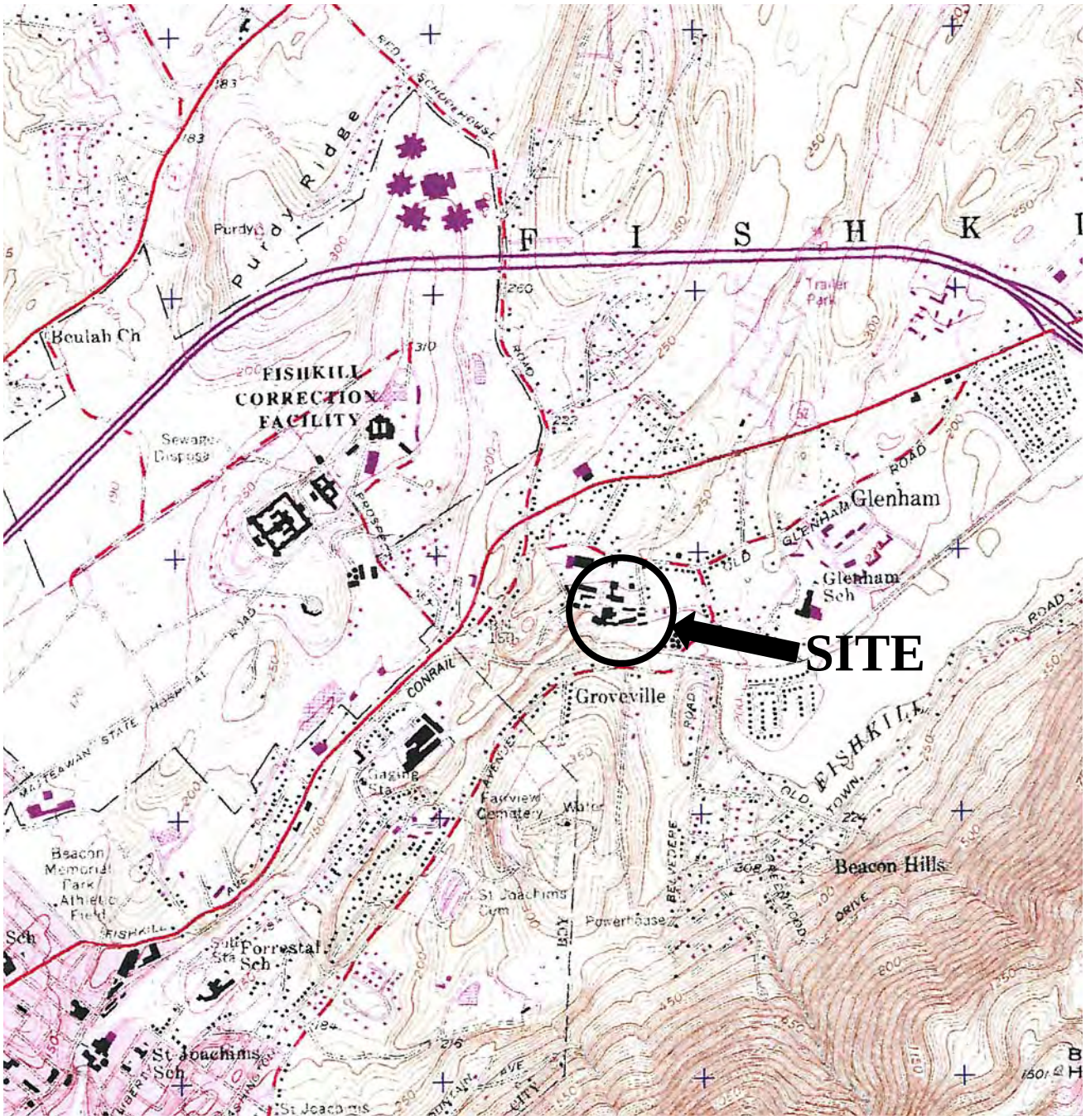
Section 1– This section contains an introduction and includes a discussion on site background and the organization of the report.

Section 2 – This section describes the scope of work performed during field activities.

Section 3 – This section provides discussion on environmental analytical data and other data collected during project activities (e.g., geophysical logging data, hydrogeological data, and etc.).

Section 4 – This section contains discussions regarding conclusions based on data collected from field activities.

Section 5 - This section lists all reference material used for developing this report.



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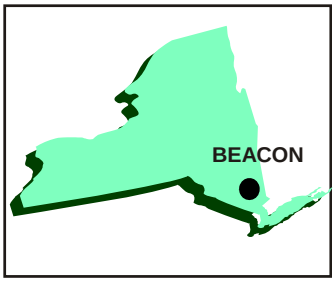

New York
Vicinity Map

N

FIGURE 1.1

CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY (EMC)
FORMER TEXACO RESEARCH FACILITY
BEACON, NEW YORK

SITE LOCATION MAP

PARSONS
301 Plainfield Road , Suite 350, Syracuse, NY 13212, Phone: (315) 451-9560

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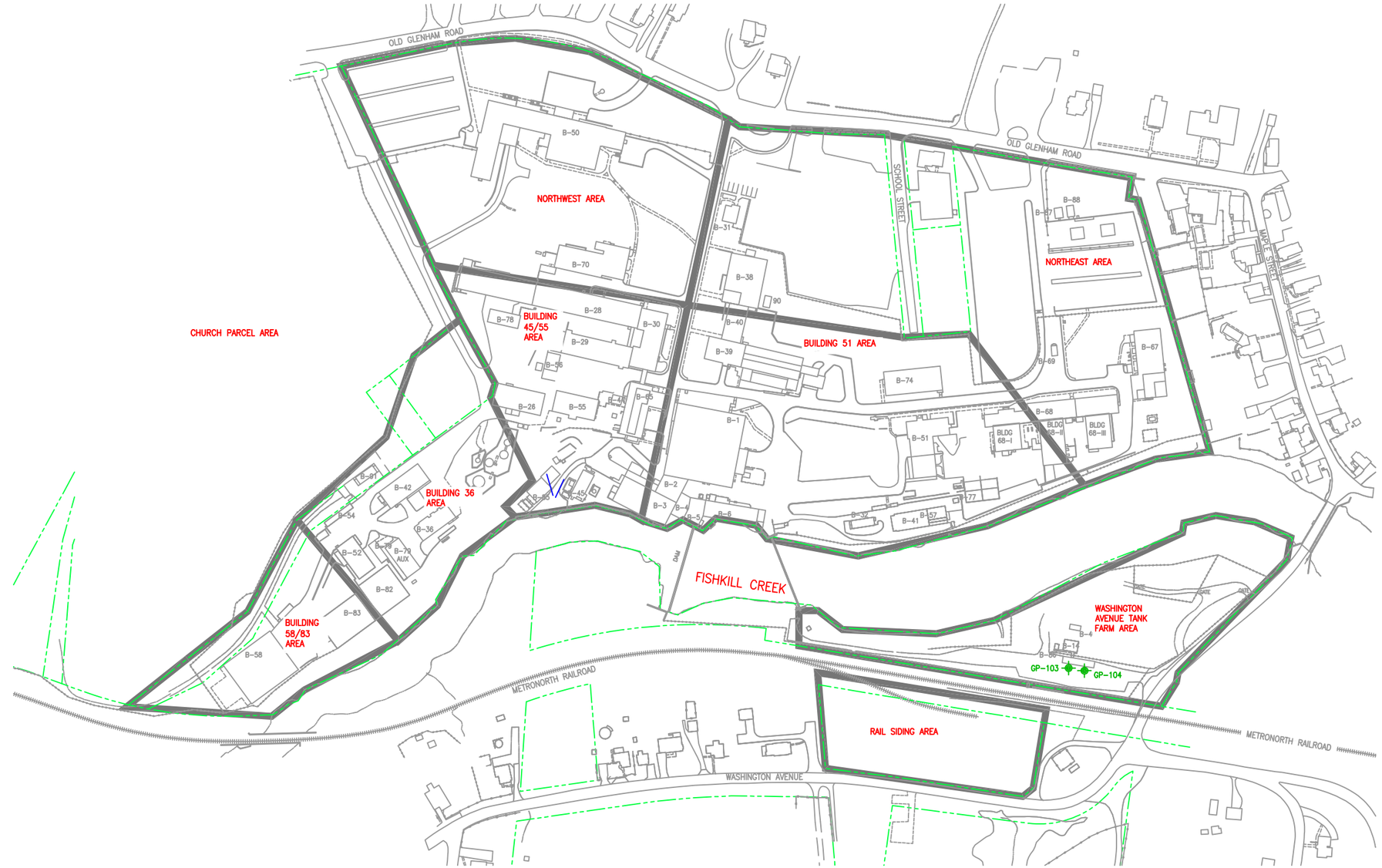

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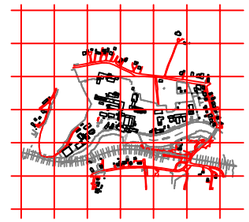
LEGEND:

TAX PARCEL BOUNDARY LINE

AREA BOUNDARY LINE

NOTE(S):



KEY PLAN

NO.	DESCRIPTION	DATE	DRAWN	CHK'D	APPV'D
A	SUPPLEMENTAL REVISIONS INCORPORATED	04/16/09	SEH	EJA	CFB

DRAWN BY: DLP	DATE: 12/14/10	SEAL
CHECKED BY: EJA	DATE: 12/14/10	
APPROVED BY:	DATE:	
PROJECT MGR.: CFB	DATE: 12/14/10	

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JOB: 444785

WBS: 05000

PROJECT TITLE

WESTAGE REALTY PROPERTY
GROUNDWATER
INVESTIGATION
FORMER TEXACO RESEARCH CENTER
BEACON, NEW YORK

DRAWING TITLE

SITE PLAN

SCALE: 1" = 120'-0"

DRAWING NO.: FIGURE 1.2

REV.: A

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SECTION 2

FIELD PROCEDURES

2.1 INTRODUCTION

The purpose of this section is to describe methods that were used during offsite groundwater monitoring well installations activities on the Westage Realty Property.

2.2 PRE-DRILLING ACTIVITIES

Before subsurface field work began, the facility owner was contacted to identify potential buried utility locations. Based on those discussions, and a review of the available Site utility maps, a Parsons geologist located proposed well locations to avoid any underground or aboveground utilities. Hand clearing to 5 feet (ft.) below grade surface (bgs) was not completed prior to beginning drilling work due to bedrock being present within a few feet of ground surface. All excavated material was containerized in accordance with the procedures discussed below for investigation derived waste. Dig Safely New York (telephone number: * 811) was contacted to provide clearance of outside underground utilities that were potentially located near the work areas.

2.3 MONITORING WELL INSTALLATION AT MAIN SITE

Three soil borings were drilled at the locations shown on Figure 2.1. All of the borings were converted to bedrock groundwater monitoring wells. Actual drilling locations were based on information collected during drilling activities and utility constraints/access, and the NYSDEC review of proposed locations as found in the work plan.

Prior to initiation of field activities, all pre-drilling procedures as described in Section 2.2 were followed. All drilling equipment that came into contact with the subsurface was thoroughly decontaminated by steam cleaning. Each boring was advanced using hollow stem auger drilling until the top of bedrock was encountered. No split spoon soil samples were collected due to bedrock existing within a few feet of ground surface. Soil cuttings from hollow stem augering were logged in the field by a Parsons geologist. All soil samples retrieved from the borings were visually inspected for signs of staining and for the presence of hydrocarbon odors and the evolution of organic vapors with a photoionization detector (PID). No soil samples were collected for chemical analysis due to the bedrock being present near ground surface and the resulting lack of soil volume to collect samples for analysis.

Once bedrock was encountered, a double-cased well was then installed to prevent the potential vertical migration of any impacted overburden groundwater that might be present. Borings for double-cased wells were advanced to approximately two-ft. into the top of competent bedrock utilizing hollow-stem augers or until auger refusal. Once the desired depth into the competent bedrock was reached, a 6-inch diameter steel casing was inserted into the augers and

grout was injected into the casing and annulus between the borehole and steel casing. The grout was injected up to the top of the casing and allowed to set for a minimum of 24 hours. The grout was then drilled out of the 6-inch diameter steel casing utilizing air-hammer drilling techniques. When the grout was displaced, air-hammering continued into the bedrock until the desired groundwater bearing zone was reached. Once the desired depth was reached, air-hammering was discontinued. During drilling activities, no significant water bearing zones were encountered at two drilling locations (SWMW-131 and 132) and drilling was advanced to deeper depths then originally planned (60 ft. below ground surface (bgs.)) to locate such zones. SWMW-131 was drilled to a maximum depth of 184 ft. bgs, while SWMW-132 was drilled to a maximum depth of 150 ft. bgs.

Following air-hammering activities, borehole logging tools were used to identify hydraulically conductive fractures and/or fractured zones that existed at the same depths as the screened intervals of wells SWMW-114 and 125 located within the Building 58 Area on the TRCB site. The services and equipment of a qualified geophysical logging contractor were retained to complete the logging of the boreholes. A minimum of 48-hours was allotted between ending of drilling activities in a boring and commencement of boring logging. This allowed the water in the boring to equilibrate with the surrounding environment. The following suite of logs was run in each boring to identify zones of fractured bedrock for well screen placement: caliper, temperature, conductivity, acoustic and optical televiewer, and flow meter.

Once geophysical logging activities were completed, each borehole was converted to a bedrock groundwater monitoring well. Each monitoring well was constructed of 2-inch inside diameter (I.D.) flush-joint, Schedule 40 polyvinyl chloride (PVC) well screen and casing. The final depths of the borings and screened intervals were determined in the field based upon the data collected at the time the wells are drilled. Based on observations made during drilling activities, five bedrock groundwater monitoring wells were installed. Two wells, a shallow, and a deep, well were installed within the same borehole at SWMW-130 (SWMW-130(S) and SWMW-130(D)) and SWMW-132 (SWMW-132(S) and SWMW-132(D)) well locations, while a single well was installed at the SWMW-131 well location. Two wells were constructed within the same borehole due to the presence of two different hydraulic conductive fracture zones identified within the borehole. The shallow wells were constructed to monitor the shallow fractured zone identified, as well as, be equivalent in elevation to the screened zones as in bedrock wells SWMW-114 and SWMW-125 located in the Building 58 Area of the Chevron TRCB facility. The deeper wells were constructed to monitor the deeper fracture zones identified within the borehole. Each screen was also installed to capture any light non-aqueous phase liquid (LNAPL) such as identified in SWMW-114, and volatile organic compounds (VOCs) (identified in both SWMW-114 and SWMW-125) that may exist in the groundwater.

Each well was constructed by assembling the well pipes inside the open borehole. Quartz sand of a size compatible with the formation was placed through the annulus between the well pipe and the bedrock formation. The sand pack extended at least 2 ft. above the top of the well screen. Bentonite pellets were then placed above the sand pack and hydrated to form a minimum 2-ft. thick seal. A cement/ bentonite grout was placed through a tremie tube from the top of the bentonite seal to the ground surface. The PVC casing was completed with a vented locking cap and covered by a steel stick-up protective casing. The protective casings were grouted into place

to limit disturbance to the PVC well pipe. Soil boring and monitoring well construction logs are provided in Appendix A.

2.4 GROUNDWATER MONITORING WELL DEVELOPMENT

Once all the wells were installed, each well was developed by the driller. Wells were developed by either bailing or utilizing a submersible pump with dedicated polyurethane tubing. Both development methods were utilized during field activities and the method used depended on the well depth and the rate of groundwater recharge of the well. Wells SWMW-130 (S), SWMW-130 (D), and SWMW-132 (S) were developed utilizing a disposable bailer and rope since the wells are relatively shallow (less than 60 ft. bgs) and exhibited a moderate groundwater recharge rate. Wells SWMW-131 and SWMW-132 (D) were developed utilizing a submersible pump with dedicated polyurethane tubing since the wells were deep (greater than 100 ft. bgs) and exhibited a low groundwater recharge rate. Where disposable items were not used (i.e., submersible pump), the equipment was thoroughly decontaminated between well locations.

Development was performed until the monitoring well provided clean, sediment free water samples (turbidity <50 Nephelometric Turbidity Units, (NTU)) and field measurements (pH, temperature, and specific conductivity) were stabilized. Field measurements were considered acceptable when the well produced three consecutive measurements that were at least 10 minutes apart and were within 10% of each other or purged dry three consecutive times. Each well was purged dry three consecutive times due to the low recharge rates of wells with the exception of wells SWMW-130 (D) and SWMW-132 (S). Both wells were purged twice and field parameters were stabilized. (See Appendix C for well development details.)

2.5 SURVEYING OF GROUNDWATER MONITORING WELLS

Each newly installed groundwater monitoring was surveyed and measured against a common, permanent reference datum. At each well location, the elevation of the top of the PVC well casing was determined to be within ±0.01 ft. The top of the PVC casing was marked with a permanent marker inside the curb box at the point surveyed, so that any groundwater monitoring event can be based on the same reference elevation. Coordinates were measured in the New York State Plane Coordinate System, East Zone (NAD-1983) system for the horizontal datum, while the vertical datum used the site vertical datum established by Texaco in 1957. This datum was 1.07 ft. below NAVD 1988 coordinate system. All survey work was completed by a New York State licensed surveyor (Badey and Watson, Surveying Engineering, P.C). A copy of the survey data is provided in Appendix B.

2.6 GROUNDWATER SAMPLING

Following the completion of all drilling activities, each newly installed well was sampled once. Groundwater sampling was performed adhering to the following protocol.

- An electric water level probe was decontaminated.
- The static water level was measured to the nearest 0.01 foot from the surveyed well elevation mark on the top of the casing. The measurement was recorded in the field

book. Depth to groundwater was measured at approximately 31.71 ft. bgs (SWMW-130(D)) to 49.70 ft. bgs (SWMW-131).

- The well was purged by removing a minimum of three well volumes of water. Purging was conducted utilizing either a disposable HDPE bailer or a decontaminated submersible pump with dedicated tubing, depending on the well yield (groundwater recharge rate). If a well was dry before the required volumes were removed, it was allowed to recover, purged a second time, and sampled when it recovered sufficiently. Wells SWMW-130 (S), SWMW-130 (D), and SWMW-132 (S) were purged utilizing a disposable bailer and rope, while wells SWMW-131 and SWMW-132 (D) were developed utilizing a submersible pump with dedicated polyurethane tubing. The reasons for using chosen well purging methods are the same as those used for well development. (See Section 2.4).
- Samples were collected with a dedicated disposable HDPE bailer lowered with a dedicated polypropylene line. Temperature, pH, conductivity, turbidity, redox potential, and alkalinity were recorded in the field book.
- All samples were collected and analyzed in accordance with the approved Quality Assurance Project Plan (QAPP) dated August 2007, revised February 2010 (Parsons, 2010). Groundwater samples were analyzed for VOCs including methyl tert-butyl ether (MTBE) by Environmental Protection Agency (EPA) Method 8260, semivolatile organic compounds (SVOCs) by EPA Method 8270, target analyte list (TAL) metals, California Oxygenates by EPA Method 8260, sulfate, and chloride.
- Samples were submitted to Lancaster Laboratories in Lancaster, PA, a New York State certified analytical laboratory, for analyses under their existing contract with Chevron.
- Well sampling data was recorded on Groundwater Sampling Records, which are provided in Appendix C. Depth to water and groundwater elevation measurements are provided in Table 2.2.

2.7 INVESTIGATION DERIVED WASTE

All investigation derived waste (IDW), involving development water, decontamination water, and purged groundwater were staged in a polyurethane tank and transported to the onsite industrial wastewater treatment system for disposal.

Soil cuttings generated during field activities were placed in Department of Transportation (DOT) 17-H type drums and staged at an approved location for disposal by Chevron EMC.

2.8 HYDROGEOLOGIC TESTING OR "SLUG TESTING" OF GROUNDWATER MONITORING WELLS

Slug testing was performed on all newly installed groundwater monitoring wells. Slug test results were analyzed and used to calculate hydraulic conductivity values. Obtaining hydraulic conductivity values help to validate the site conceptual model and assisted in the development of

any potential remedial alternatives that may be required. Slug tests were completed on all five newly-installed groundwater monitoring wells.

2.8.1 Slug Test Methodology

All slug testing was performed following the procedures outlined in the USEPA Standard Operating Procedure (SOP#: 2046).

Slug testing at the Chevron Beacon site used one type of slug, as described below:

- The slug was composed of commercial stainless steel with approximate dimensions of 1-inch in diameter and 5.92 ft. in length. This slug was used during testing of all the wells located on the adjacent property southwest of the Chevron TRCB facility. The prescribed volume of this slug is approximately 0.037 cubic ft.

Testing water levels were recorded using a pressure transducer (Level Troll 700) and programmed and downloaded using a Rugged Reader. Prior to introducing the slug and transducer equipment into each well, all equipment was decontaminated.

2.8.2 Slug Test Data Analysis

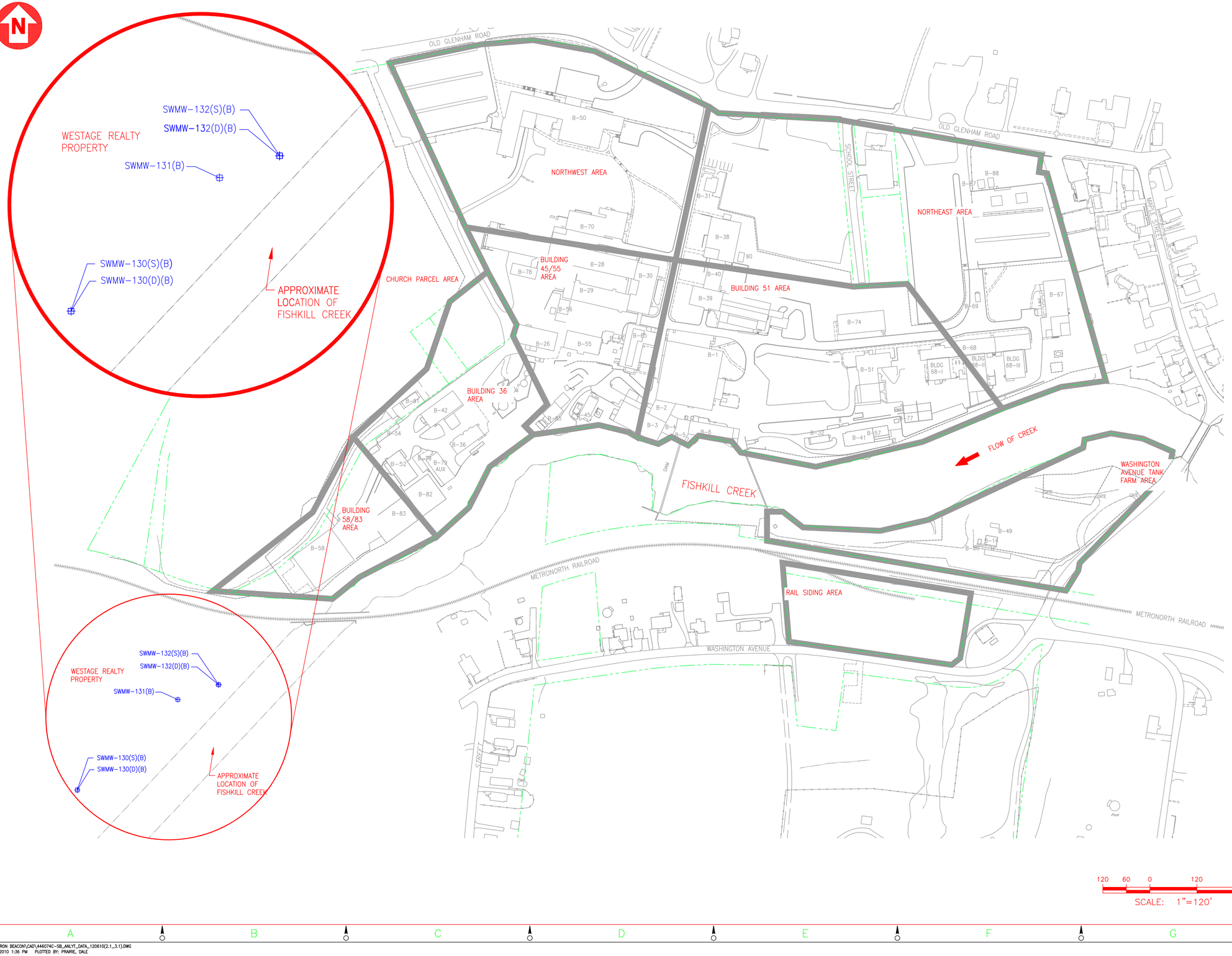
Slug test data was analyzed using the Bouwer and Rice method.

2.9 PHOTOGRAPHIC DOCUMENTATION

A photographic log documenting field activities is provided in Appendix H.

TABLE 2.1
GROUNDWATER ELEVATION SUMMARY (AUGUST 2010)
WESTAGE REALTY PROPERTY GROUNDWATER INVESTIGATION
FORMER TEXACO RESEARCH FACILITY
BEACON, NEW YORK

Well ID	Top of Casing Elevation[(1)] Feet	Depth to Product (Feet)	Depth to Water (Feet)	Product Thickness (Feet)	Elevation of Water (Feet - Texaco Datum)
SWMW-130(S)	209.79	31.75	31.75	0	178.04
SWMW-130(D)	209.83	31.71	31.71	0	178.12
SWMW-131	227.13	49.70	49.70	0	177.43
SWMW-132(S)	219.80	41.90	41.90	0	177.90
SWMW-132(D)	219.67	42.60	42.60	0	177.07



LEGEND:

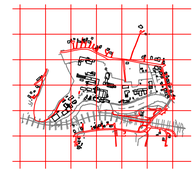
⊕ SWMW-**	GROUNDWATER MONITORING WELL LOCATION
SWMW-**(B)	DENOTES BEDROCK GROUNDWATER WELL IDENTIFICATION
SWMW-**(S)(B)	DENOTES SHALLOW BEDROCK GROUNDWATER WELL IDENTIFICATION
SWMW-**(D)(B)	DENOTES DEEP BEDROCK GROUNDWATER WELL IDENTIFICATION
	TAX PARCEL BOUNDARY LINE
	AREA BOUNDARY LINE

ACRONYM DEFINITIONS:

SWMW	WESTAGE REALTY PROPERTY MONITORING WELL

NOTES:

1. SCALE SHOWN IS FOR FULL SIZE DRAWING 22"x34".



KEY PLAN

NO.	DESCRIPTION	DATE	DRAWN	CHK'D	APPV'D

DRAWN BY: JTS	DATE: 10/22/10	SEAL
CHECKED BY	DATE	
APPROVED BY	DATE	
PROJECT MGR.	DATE	

PARSONS
COMMERCIAL TECHNOLOGY GROUP

OFFICE
301 PLAINFIELD ROAD
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JOB: 446074
WBS: 05000

PROJECT TITLE
WESTAGE REALTY PROPERTY
SUBSURFACE INVESTIGATION
FORMER TEXACO
RESEARCH CENTER
BEACON, NEW YORK

DRAWING TITLE
WESTAGE REALTY PROPERTY
GROUNDWATER MONITORING
WELL LOCATION MAP

SCALE: 1" = 120'-0"

DRAWING NO.: FIGURE 2.1

REV.: A

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SECTION 3

PROJECT RESULTS

3.1 INTRODUCTION

The purpose of this section is to discuss the project data (i.e. analytical data, geophysical logging data, slug test data, etc.).

3.2 ANALYTICAL RESULTS

Five groundwater samples were collected and submitted for laboratory analyses. The analytical results are summarized in Tables 3.1 through 3.3 and graphically depicted on Figure 3.1. A copy of the analytical laboratory report with chain-of-custody documentation is included in Appendix D and a brief discussion of the results is present below.

Groundwater samples

The analytical data results indicated that no VOCs were present in any of the samples collected exceeding NYSDEC Technical and Operational Guidance Series (TOGS) groundwater criteria, while two samples (SWMW-131 and 132(D)) contained one SVOC parameter (bis-2-ethylhexylphthalate) that exceeded NYSDEC TOGS groundwater criteria. One or more TAL Metals exceeding NYSDEC TOGS were also indicated in all samples collected and one sample (SWMW-132(S)) contained sulfate at a concentration that exceeded NYSDEC TOGS groundwater criteria.

All samples collected were analyzed by Lancaster Laboratories located in Lancaster, Pennsylvania following the procedures outlines in the Parsons Generic Work Plan (Parsons, 2007).

The data submitted by the laboratory have been reviewed and validated, following the guidelines outlined in the project QAPP. The analytical data were found to be acceptable in terms of deliverable completeness, accuracy, precision, representativeness, completeness and comparability. A copy of the Data Usability Summary Report (DUSR) for the groundwater samples is included in Appendix E.

3.3 GEOPHYSICAL BOREHOLE LOGGING RESULTS

Geophysical borehole logging activities was performed to identify hydraulic conductivity fractures at three boreholes (SWMW-130, 131, and 132). Based on logging results, both sealed and open fractures were identified within the bedrock at various depths. Well screens were installed in all three boreholes to straddle the open fractures identified at elevations equal to the screened intervals that exist at monitoring wells SWMW-114 and 125 in the Building 58 Area located at the TRCB Facility and to monitor deeper open fractures identified within the boreholes. The fractures were monitored for LNAPL, and VOC impacts that may have migrated beyond the southernmost boundary of the TRCB property (Building 58 Area). A geologic cross-

section (A-A') was created showing all open fractures identified within each borehole, as well as, monitoring well screen placement for each well. See Figures 3.2 through 3.4 for cross section information. A copy of the geophysical report is provided in Appendix F.

3.4 HYDROGEOLOGIC TESTING OR SLUG TESTING OF GROUNDWATER MONITORING WELL RESULTS

On August 4 through 5, 2010, hydrogeologic aquifer or slug testing was conducted on the newly installed monitoring wells located on the Westage Realty Property. Slug testing was conducted to determine the horizontal conductivity of distinct geologic horizons under *in situ* conditions and to assist in predicting the distribution of potential contaminated plumes, if any.

Wells were chosen for testing based on one main criterion. Groundwater monitoring wells were selected that were situated in a non-homogenous subsurface formations, By testing non-homogenous formations, a more precise and accurate average hydraulic conductivity value could be obtained for the site and used for remedial alternative design calculations.

Slug test data was analyzed using the Bouwer and Rice method. The Bouwer and Rice method for slug test analysis is the standard method used for determining the hydraulic conductivity of subsurface geologic formations in which monitoring wells have been installed. The methodology is primarily used for unconfined aquifer systems (i.e. the type of aquifer system that is present on the Westage Realty Property).

Slug test data indicates a hydraulic conductivity ranging from E-02 to E-04 within the subsurface of the Westage Realty Property. This range indicates that the subsurface aquifer is semi-permeable and groundwater transportation through the aquifer moves at a low to moderate rate. A summary of the results of the slug testing is summarized on Table G-1 located in Appendix G, along with slug test analyses spreadsheets used to evaluate data.

TABLE 3.1
ANIONS AND METALS IN GROUNDWATER
WESTAGE REALTY PROPERTY GRONDWATER INVESTIGATION
FORMER TEXACO RESEARCH CENTER
BEACON, NEW YORK

	Field Sample ID			SWMW-130(S)(8-3-10)	SWMW-130(D)(8-3-10)	SWMW-131(8-3-10)	SWMW-1131(8-3-10)*	SWMW-132(S)(8-3-10)	SWMW-132(D)(8-3-10)
	Location			SWMW-130	SWMW-130	SWMW-131	SWMW-1131	SWMW-132	SWMW-132
	Sample Date			08/03/2010	08/03/2010	08/03/2010	08/03/2010	08/03/2010	08/03/2010
	Sample Delivery Group			1205994	1205994	1205994	1205994	1205994	1205994
	Matrix			Water	Water	Water	Water	Water	Water
	Sample Purpose			Regular sample	Regular sample	Regular sample	Duplicate sample	Regular sample	Regular sample
	Sample Type			Groundwater Sample	Groundwater Sample	Groundwater Sample	Groundwater Sample	Groundwater Sample	Groundwater Sample
Parameter Name	**Analytical Method**	**Units**	**TOGS [1]**						
Anions by EPA Method 300.0									
Chloride	EPA 300.0	mg/l	250	1.6 J	1.6 J	8 J	7.3 J	35.9 J	5.7 J
Sulfate	EPA 300.0	mg/l	250	16.5	18.3	128	136	347	29.9
Metals by EPA Method 6010B									
Aluminum	SW-846 6010B	mg/l	0.1	0.1 J	0.633 J	0.261 J	0.267 J	4.87	0.202 J
Antimony	SW-846 6010B	mg/l	0.003	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Arsenic	SW-846 6010B	mg/l	0.025	0.0098 U	0.0098 U	0.0098 U	0.0098 U	0.0098 U	0.0098 U
Barium	SW-846 6010B	mg/l	1	0.0484	0.0299	0.271	0.262	0.116	0.12
Beryllium	SW-846 6010B	mg/l	0.003	0.0014 U	0.0014 U	0.0014 U	0.0014 U	0.0014 U	0.0014 U
Cadmium	SW-846 6010B	mg/l	0.005	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U
Calcium	SW-846 6010B	mg/l	NS	61200	45900	21600	20900	81000	35200
Chromium	SW-846 6010B	mg/l	0.05	0.0034 U	0.0034 U	0.0246	0.024	0.162	0.0034 U
Cobalt	SW-846 6010B	mg/l	NS	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U
Copper	SW-846 6010B	mg/l	0.2	0.0032 U	0.0085 U	0.0079 U	0.0092 U	0.02	0.0054 U
Iron	SW-846 6010B	mg/l	0.3	0.11 UJ	0.77 J	0.199 UJ	0.196 UJ	2.88	0.113 UJ
Lead	SW-846 6010B	mg/l	0.025	0.0069 UJ	0.0069 UJ	0.0069 UJ	0.0069 UJ	0.0077 J	0.0069 UJ
Magnesium	SW-846 6010B	mg/l	35	3.51 J	3.48 J	0.166 J	0.181 J	0.98	4.17 J
Manganese	SW-846 6010B	mg/l	0.3	0.0204 J	0.0316 J	0.0018 J	0.0022 J	0.0764	0.0032 J
Nickel	SW-846 6010B	mg/l	0.1	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U
Potassium	SW-846 6010B	mg/l	NS	1.27	1.06	382	366	147	2.46
Selenium	SW-846 6010B	mg/l	0.01	0.0089 U	0.0089 U	0.0089 U	0.0089 U	0.0089 U	0.0089 U
Silver	SW-846 6010B	mg/l	0.05	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U
Sodium	SW-846 6010B	mg/l	20	8.69	7.14	229	217	149	7.78
Thallium	SW-846 6010B	mg/l	0.0005	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U
Vanadium	SW-846 6010B	mg/l	NS	0.0025 U	0.0025 U	0.0111	0.0106	0.0237	0.0025 U
Zinc	SW-846 6010B	mg/l	2	0.0081 U	0.0081 U	0.0081 U	0.0081 U	0.0135 J	0.0081 U
Mercury by EPA Method 7470A									
Mercury	SW-846 7470A	mg/l	0.0007	0.000056 U	0.000056 U	0.000056 U	0.000056 U	0.000056 U	0.000056 U

TABLE 3.2
VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER
WESTAGE REALTY PROPERTY GROUNDWATER INVESTIGATION
FORMER TEXACO RESEARCH CENTER
BEACON, NEW YORK

	Field Sample ID Location Sample Date Sample Delivery Group Matrix Sample Purpose Sample Type			SWMW-130(S)(8-3-10) SWMW-130 08/03/2010 1205994 Water Regular sample Groundwater Sample	SWMW-130(D)(8-3-10) SWMW-130 08/03/2010 1205994 Water Regular sample Groundwater Sample	SWMW-131(8-3-10) SWMW-131 08/03/2010 1205994 Water Regular sample Groundwater Sample	SWMW-1131(8-3-10)* SWMW-1131 08/03/2010 1205994 Water Duplicate sample Groundwater Sample	SWMW-132(S)(8-3-10) SWMW-132 08/03/2010 1205994 Water Regular sample Groundwater Sample
Parameter Name	**Analytical Method**	**Units**	**TOGS (1)**					
VOCs by EPA Method 8260B								
1,1,1-Trichloroethane(2)	SW-846 8260B	ug/l	5	0.8 U	0.8 U	0.8 UJ	0.8 UJ	0.8 U
1,1,2,2-Tetrachloroethane(2)	SW-846 8260B	ug/l	5	1 U	1 U	1 UJ	1 UJ	1 U
1,1,2-Trichloroethane(2)	SW-846 8260B	ug/l	1	0.8 U	0.8 U	0.8 UJ	0.8 UJ	0.8 U
1,1-Dichloroethane(2)	SW-846 8260B	ug/l	5	1 U	1 U	1 UJ	1 UJ	1 U
1,1-Dichloroethene (Dichloroethylene)(2)	SW-846 8260B	ug/l	5	0.8 U	0.8 U	0.8 UJ	0.8 UJ	0.8 U
1,2-Dichloroethane(2)	SW-846 8260B	ug/l	0.6	1 U	1 U	1 UJ	1 UJ	1 U
1,2-Dichloropropane(2)	SW-846 8260B	ug/l	1	1 U	1 U	1 UJ	1 UJ	1 U
2-Butanone (Methyl ethyl ketone)	SW-846 8260B	ug/l	5	3 U	3 U	3 UJ	3 UJ	3 U
2-Hexanone	SW-846 8260B	ug/l	50	3 U	3 U	3 UJ	3 UJ	3 U
4-Methyl-2-pentanone	SW-846 8260B	ug/l	NS	3 U	3 U	3 UJ	3 UJ	3 U
Acetone	SW-846 8260B	ug/l	50	6 U	6 U	6 UJ	6 UJ	10 J
Benzene	SW-846 8260B	ug/l	1	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 U
Bromodichloromethane(2)	SW-846 8260B	ug/l	50	1 U	1 U	1 UJ	1 UJ	1 U
Bromoform	SW-846 8260B	ug/l	50	1 U	1 U	1 UJ	1 UJ	1 U
Bromomethane (Methyl bromide)	SW-846 8260B	ug/l	5	1 U	1 U	1 UJ	1 UJ	1 U
Carbon Disulfide	SW-846 8260B	ug/l	60	1 U	1 U	1 UJ	1 UJ	1 U
Carbon Tetrachloride(2)	SW-846 8260B	ug/l	5	1 U	1 U	1 UJ	1 UJ	1 U
Chlorobenzene(2)	SW-846 8260B	ug/l	5	0.8 U	0.8 U	0.8 UJ	0.8 UJ	0.8 U
Chloroethane(2)	SW-846 8260B	ug/l	5	1 U	1 U	1 UJ	1 UJ	1 U
Chloroform(2)	SW-846 8260B	ug/l	7	0.8 U	0.8 U	0.8 UJ	0.8 UJ	0.8 U
Chloromethane (Methyl chloride)(2)	SW-846 8260B	ug/l	5	1 U	1 U	1 UJ	1 UJ	1 U
cis-1,2-Dichloroethene(2)	SW-846 8260B	ug/l	5	0.8 U	0.8 U	0.8 UJ	0.8 UJ	0.8 U
cis-1,3-Dichloropropene(2)	SW-846 8260B	ug/l	NS	1 U	1 U	1 UJ	1 UJ	1 U
Dibromochloromethane(2)	SW-846 8260B	ug/l	50	1 U	1 U	1 UJ	1 UJ	1 U
Diisopropyl ether	SW-846 8260B	ug/l	NS	0.8 U	0.8 U	0.8 UJ	0.8 UJ	0.8 U
Ethyl-t-butylether	SW-846 8260B	ug/l	NS	0.8 U	0.8 U	0.8 UJ	0.8 UJ	0.8 U
Ethylbenzene	SW-846 8260B	ug/l	5	0.8 U	0.8 U	0.8 UJ	0.8 UJ	0.8 U
Methyl-t-butyl ether	SW-846 8260B	ug/l	10	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 U
Methylene chloride (Dichloromethane)(2)	SW-846 8260B	ug/l	5	2 U	2 U	2 UJ	2 UJ	2 U
Styrene	SW-846 8260B	ug/l	5	1 U	1 U	1 UJ	1 UJ	1 U
Tert-amyl methyl ether	SW-846 8260B	ug/l	NS	0.8 U	0.8 U	0.8 UJ	0.8 UJ	0.8 U
Tertiary Butyl Alcohol	SW-846 8260B	ug/l	NS	10 U	10 U	10 UJ	10 UJ	10 U
Tetrachloroethene(2)	SW-846 8260B	ug/l	5	0.8 U	0.8 U	0.8 UJ	0.8 UJ	0.8 U
Toluene	SW-846 8260B	ug/l	5	0.7 U	0.7 U	0.7 UJ	0.7 UJ	0.7 U
trans-1,2-Dichloroethene(2)	SW-846 8260B	ug/l	5	0.8 U	0.8 U	0.8 UJ	0.8 UJ	0.8 U
trans-1,3-Dichloropropene(2)	SW-846 8260B	ug/l	0.4	1 U	1 U	1 UJ	1 UJ	1 U
Trichloroethene (Trichloroethylene)(2)	SW-846 8260B	ug/l	5	1 U	1 U	1 UJ	1 UJ	1 U
Vinyl chloride (Chloroethene)(2)	SW-846 8260B	ug/l	2	1 U	1 U	1 UJ	1 UJ	1 U
Xylenes, Total	SW-846 8260B	ug/l	5	0.8 U	0.8 U	0.8 UJ	0.8 UJ	0.8 U
Total CVOCs	SW-846 8260B	ug/l	NS	3.8 U	3.8 U	3.8 UJ	3.8 UJ	3.8 U
Total VOCs (including CVOCs)	SW-846 8260B	ug/l	NS	24 U	24 U	24 UJ	24 UJ	10 J

TABLE 3.2
VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER
WESTAGE REALTY PROPERTY GROUNDWATER INVESTIGATION
FORMER TEXACO RESEARCH CENTER
BEACON, NEW YORK

	Field Sample ID Location Sample Date Sample Delivery Group Matrix Sample Purpose Sample Type			SWMW-132(D)(8-3-10) SWMW-132 08/03/2010 1205994 Water Regular sample Groundwater Sample
Parameter Name	**Analytical Method**	**Units**	**TOGS (1)**	
VOCs by EPA Method 8260B				
1,1,1-Trichloroethane(2)	SW-846 8260B	ug/l	5	0.8 U
1,1,2,2-Tetrachloroethane(2)	SW-846 8260B	ug/l	5	1 U
1,1,2-Trichloroethane(2)	SW-846 8260B	ug/l	1	0.8 U
1,1-Dichloroethane(2)	SW-846 8260B	ug/l	5	1 U
1,1-Dichloroethene (Dichloroethylene)(2)	SW-846 8260B	ug/l	5	0.8 U
1,2-Dichloroethane(2)	SW-846 8260B	ug/l	0.6	1 U
1,2-Dichloropropane(2)	SW-846 8260B	ug/l	1	1 U
2-Butanone (Methyl ethyl ketone)	SW-846 8260B	ug/l	5	3 U
2-Hexanone	SW-846 8260B	ug/l	50	3 U
4-Methyl-2-pentanone	SW-846 8260B	ug/l	NS	3 U
Acetone	SW-846 8260B	ug/l	50	6 U
Benzene	SW-846 8260B	ug/l	1	0.5 U
Bromodichloromethane(2)	SW-846 8260B	ug/l	50	1 U
Bromoform	SW-846 8260B	ug/l	50	1 U
Bromomethane (Methyl bromide)	SW-846 8260B	ug/l	5	1 U
Carbon Disulfide	SW-846 8260B	ug/l	60	1 U
Carbon Tetrachloride(2)	SW-846 8260B	ug/l	5	1 U
Chlorobenzene(2)	SW-846 8260B	ug/l	5	0.8 U
Chloroethane(2)	SW-846 8260B	ug/l	5	1 U
Chloroform(2)	SW-846 8260B	ug/l	7	0.8 U
Chloromethane (Methyl chloride)(2)	SW-846 8260B	ug/l	5	1 U
cis-1,2-Dichloroethene(2)	SW-846 8260B	ug/l	5	0.8 U
cis-1,3-Dichloropropene(2)	SW-846 8260B	ug/l	NS	1 U
Dibromochloromethane(2)	SW-846 8260B	ug/l	50	1 U
Diisopropyl ether	SW-846 8260B	ug/l	NS	0.8 U
Ethyl-t-butylether	SW-846 8260B	ug/l	NS	0.8 U
Ethylbenzene	SW-846 8260B	ug/l	5	0.8 U
Methyl-t-butyl ether	SW-846 8260B	ug/l	10	0.5 U
Methylene chloride (Dichloromethane)(2)	SW-846 8260B	ug/l	5	2 U
Styrene	SW-846 8260B	ug/l	5	1 U
Tert-amyl methyl ether	SW-846 8260B	ug/l	NS	0.8 U
Tertiary Butyl Alcohol	SW-846 8260B	ug/l	NS	10 U
Tetrachloroethene(2)	SW-846 8260B	ug/l	5	0.8 U
Toluene	SW-846 8260B	ug/l	5	0.7 U
trans-1,2-Dichloroethene(2)	SW-846 8260B	ug/l	5	0.8 U
trans-1,3-Dichloropropene(2)	SW-846 8260B	ug/l	0.4	1 U
Trichloroethene (Trichloroethylene)(2)	SW-846 8260B	ug/l	5	1 U
Vinyl chloride (Chloroethene)(2)	SW-846 8260B	ug/l	2	1 U
Xylenes, Total	SW-846 8260B	ug/l	5	0.8 U
Total CVOCs	SW-846 8260B	ug/l	NS	3.8 UJ
Total VOCs (including CVOCs)	SW-846 8260B	ug/l	NS	24 UJ

TABLE 3.3
SEMIVOLATILE ORGANIC COMPOUNDS IN GROUNDWATER
WESTAGE REALTY PROPERTY GROUNDWATER INVESTIGATION
FORMER TEXACO RESEARCH CENTER
BEACON, NEW YORK

	Field Sample ID Location Sample Date Sample Delivery Group Matrix Sample Purpose Sample Type			SWMW-130(S)(8-3-10) SWMW-130 08/03/2010 1205994 Water Regular sample Groundwater Sample	SWMW-130(D)(8-3-10) SWMW-130 08/03/2010 1205994 Water Regular sample Groundwater Sample	SWMW-131(8-3-10) SWMW-131 08/03/2010 1205994 Water Regular sample Groundwater Sample	SWMW-1131(8-3-10)* SWMW-1131 08/03/2010 1205994 Water Duplicate sample Groundwater Sample	SWMW-132(S)(8-3-10) SWMW-132 08/03/2010 1205994 Water Regular sample Groundwater Sample	SWMW-132(D)(8-3-10) SWMW-132 08/03/2010 1205994 Water Regular sample Groundwater Sample
Parameter Name	**Analytical Method**	**Units**	**TOGS [1]**						
SVOCs by EPA Method 8270C									
1,2,4-Trichlorobenzene	SW-846 8270C	ug/l	5	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichlorobenzene (o-Dichlorobenzene)	SW-846 8270C	ug/l	3	1 U	1 U	1 U	1 U	1 U	1 U
1,3-Dichlorobenzene	SW-846 8270C	ug/l	3	1 U	1 U	1 U	1 U	1 U	1 U
1,4-Dichlorobenzene	SW-846 8270C	ug/l	3	1 U	1 U	1 U	1 U	1 U	1 U
2,4,5-Trichlorophenol	SW-846 8270C	ug/l	NS	1 U	1 U	1 U	1 U	1 U	1 U
2,4,6-Trichlorophenol	SW-846 8270C	ug/l	NS	1 U	1 U	1 U	1 U	1 U	1 U
2,4-Dichlorophenol	SW-846 8270C	ug/l	5	1 U	1 U	1 U	1 U	1 U	1 U
2,4-Dimethylphenol	SW-846 8270C	ug/l	50	3 U	3 U	3 U	3 U	3 U	3 U
2,4-Dinitrophenol	SW-846 8270C	ug/l	10	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrotoluene	SW-846 8270C	ug/l	5	1 U	1 U	1 U	1 U	1 U	1 U
2,6-Dinitrotoluene	SW-846 8270C	ug/l	5	1 U	1 U	1 U	1 U	1 U	1 U
2-Chloronaphthalene	SW-846 8270C	ug/l	10	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ
2-Chlorophenol (o-Chlorophenol)	SW-846 8270C	ug/l	NS	1 U	1 U	1 U	1 U	1 U	1 U
2-Methyl-naphthlalene	SW-846 8270C	ug/l	50	1 U	1 U	1 U	1 U	1 U	1 U
2-Methylphenol (o-Cresol)	SW-846 8270C	ug/l	NS	1 U	1 U	1 U	1 U	1 U	1 U
2-Nitroaniline (o-Nitroaniline)	SW-846 8270C	ug/l	5	1 U	1 U	1 U	1 U	1 U	1 U
2-Nitrophenol (o-Nitrophenol)	SW-846 8270C	ug/l	NS	1 U	1 U	1 U	1 U	1 U	1 U
3,3'-Dichlorobenzidine	SW-846 8270C	ug/l	5	2 U	2 U	2 U	2 U	2 U	2 U
3-Nitroaniline	SW-846 8270C	ug/l	5	1 U	1 U	1 U	1 U	1 U	1 U
4,6-Dinitro-2-methylphenol (4,6-Dinitro-o-cresol)	SW-846 8270C	ug/l	NS	5 U	5 U	5 U	5 U	5 U	5 U
4-Bromophenylphenylether	SW-846 8270C	ug/l	NS	1 U	1 U	1 U	1 U	1 U	1 U
4-Chloroaniline	SW-846 8270C	ug/l	5	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ
4-Chlorophenyl phenyl ether	SW-846 8270C	ug/l	NS	2 U	2 U	2 U	2 U	2 U	2 U
4-Nitroaniline	SW-846 8270C	ug/l	5	1 U	1 U	1 U	1 U	1 U	1 U
4-Nitrophenol	SW-846 8270C	ug/l	NS	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthene[3]	SW-846 8270C	ug/l	20	1 U	1 U	1 U	1 U	1 U	1 U
Acenaphthylene	SW-846 8270C	ug/l	NS	1 U	1 U	1 U	1 U	1 U	1 U
Anthracene[3]	SW-846 8270C	ug/l	50	1 U	1 U	1 U	1 U	1 U	1 U
Benzo(a)anthracene[3]	SW-846 8270C	ug/l	0.002	1 U	1 U	1 U	1 U	1 U	1 U
Benzo(a)pyrene[3]	SW-846 8270C	ug/l	NS	1 U	1 U	1 U	1 U	1 U	1 U
Benzo(b)fluoranthene[3]	SW-846 8270C	ug/l	0.002	1 U	1 U	1 U	1 U	1 U	1 U
Benzo(g,h,i)perylene[3]	SW-846 8270C	ug/l	NS	1 U	1 U	1 U	1 U	1 U	1 U
Benzo(k)fluoranthene[3]	SW-846 8270C	ug/l	0.002	1 U	1 U	1 U	1 U	1 U	1 U
bis(2-Chloroethoxy)methane	SW-846 8270C	ug/l	5	1 U	1 U	1 U	1 U	1 U	1 U
bis(2-Chloroethyl) ether	SW-846 8270C	ug/l	1	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ
Bis(2-chloroisopropyl) ether	SW-846 8270C	ug/l	5	1 U	1 U	1 U	1 U	1 U	1 U
bis(2-Ethylhexyl)phthalate	SW-846 8270C	ug/l	5	8 UJ	11 UJ	110 J	12 UJ	6 UJ	52 J
Butylbenzylphthalate	SW-846 8270C	ug/l	50	2 U	2 U	2 U	2 U	2 U	2 U
Carbazole	SW-846 8270C	ug/l	NS	1 U	1 U	1 U	1 U	1 U	1 U
Chrysene[3]	SW-846 8270C	ug/l	0.002	1 U	1 U	1 U	1 U	1 U	1 U
Di-n-butylphthalate	SW-846 8270C	ug/l	50	2 U	2 U	2 U	2 U	2 U	2 U
Di-n-octylphthalate	SW-846 8270C	ug/l	50	2 U	2 U	2 U	2 U	2 U	2 U
Dibenz(a,h)anthracene[3]	SW-846 8270C	ug/l	NS	1 U	1 U	1 U	1 U	1 U	1 U
Dibenzofuran	SW-846 8270C	ug/l	NS	1 U	1 U	1 U	1 U	1 U	1 U
Diethylphthalate	SW-846 8270C	ug/l	50	2 U	2 U	2 U	2 U	2 U	2 U
Dimethylphthalate	SW-846 8270C	ug/l	50	2 U	2 U	2 U	2 U	2 U	2 U
Fluoranthene[3]	SW-846 8270C	ug/l	50	1 U	1 U	1 U	1 U	1 U	1 U
Fluorene	SW-846 8270C	ug/l	50	1 U	1 U	1 U	1 U	1 U	1 U
Hexachlorobenzene	SW-846 8270C	ug/l	0.04	1 U	1 U	1 U	1 U	1 U	1 U
Hexachlorobutadiene	SW-846 8270C	ug/l	0.5	1 U	1 U	1 U	1 U	1 U	1 U
Hexachlorocyclopentadiene	SW-846 8270C	ug/l	5	5 U	5 U	5 U	5 U	5 U	5 U
Hexachloroethane	SW-846 8270C	ug/l	5	1 U	1 U	1 U	1 U	1 U	1 U
Indeno(1,2,3-cd)pyrene	SW-846 8270C	ug/l	0.002	1 U	1 U	1 U	1 U	1 U	1 U
Isophorone	SW-846 8270C	ug/l	50	1 U	1 U	1 U	1 U	4 J	1 U
N-Nitrosodi-n-propylamine	SW-846 8270C	ug/l	NS	1 U	1 U	1 U	1 U	1 U	1 U
N-Nitrosodiphenylamine (Diphenylamine)	SW-846 8270C	ug/l	50	2 U	2 U	2 U	2 U	2 U	2 U
Naphthalene[3]	SW-846 8270C	ug/l	10	1 U	1 U	1 U	1 U	1 U	1 U
Nitrobenzene	SW-846 8270C	ug/l	0.4	1 U	1 U	1 U	1 U	1 U	1 U
p-Chloro-m-cresol	SW-846 8270C	ug/l	NS	1 U	1 U	1 U	1 U	1 U	1 U
p-Cresol	SW-846 8270C	ug/l	NS	2 U	2 U	2 U	2 U	2 U	2 U
Pentachlorophenol	SW-846 8270C	ug/l	1	3 U	3 U	3 U	3 U	3 U	3 U
Phenanthrene[3]	SW-846 8270C	ug/l	50	1 U	1 U	1 U	1 U	1 U	1 U
Phenol	SW-846 8270C	ug/l	1	9 UJ	11 UJ	12 UJ	3 UJ	4 UJ	1 U
Pyrene[3]	SW-846 8270C	ug/l	50	1 U	1 U	1 U	1 U	1 U	1 U
Total PAHs	SW-846 8260B	ug/l	NS	1 U	1 U	1 U	1 U	1 U	1 U
Total SVOCs (including PAHs)	SW-846 8260B	ug/l	NS	38 UJ	32 UJ	110 J	33 UJ	31 UJ	52 J

Notes for Tables 3.1, 3.2, and 3.3

	Concentration of parameter(s) exceeds regulatory groundwater screening criterion
J	The analyte was positively identified, But the quantitation is an estimation.
U	The analyte was analyzed for, but not detected. The associated numerical value is at or below the method detection limit
UJ	The analyte was not detected; however, the result is estimated due to discrepancies in meeting certain analyte-specific quality control criteria.
NS	Not specified.
(1)	Groundwater criteria obtained from the NYSDEC document entitled, "Division of Water Technical and Operational Guidance Series (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations, June 1998; Errata Sheet for June 1998 Edition.
(2)	Chlorinated volatile organic compounds (CVOCs)
(3)	Polycyclic Aromatic Hydrocarbon (PAHs)
*	Duplicate sample.

SWMW-131*
08/03/2010
0.0098U
0.271
0.002U
0.0246
0.0069UJ
0.0089U
0.0023U
0.000056U
3.8UJ
24UJ
1U
110J

WESTAGE REALTY
PROPERTY

SWMW-131(B)

SWMW-132(S)(B)
SWMW-131(D)(B)

SWMW-132(S)	SWMW-132(D)
08/03/2010	08/03/2010
0.0098U	0.0098U
0.116	0.12
0.002U	0.002U
0.162	0.0034U
0.0077J	0.0069UJ
0.0089U	0.0089U
0.0023U	0.0023U
0.000056U	0.000056U
3.8U	3.8UJ
10J	24UJ
1U	1U
31UJ	52J

SWMW-130(S)	SWMW-130(D)
08/03/2010	08/03/2010
0.0098U	0.0098U
0.0484	0.0299
0.002U	0.002U
0.0034U	0.0034U
0.0069UJ	0.0069UJ
0.0089U	0.0089U
0.0023U	0.0023U
0.000056U	0.000056U
3.8U	3.8U
24U	24U
1U	1U
38UJ	32UJ

SWMW-130(S)(B)
SWMW-130(D)(B)

APPROXIMATE
LOCATION OF
FISHKILL CREEK

20 10 0 20 40
SCALE: 1"=20'

LEGEND:

SWMW-**	GROUNDWATER MONITORING WELL LOCATION
SWMW-**(B)	DENOTES BEDROCK GROUNDWATER WELL IDENTIFICATION
SWMW-**(S)(B)	DENOTES SHALLOW BEDROCK GROUNDWATER WELL IDENTIFICATION
SWMW-**(D)(B)	DENOTES DEEP BEDROCK GROUNDWATER WELL IDENTIFICATION
	TAX PARCEL BOUNDARY LINE
	AREA BOUNDARY LINE

SWMW-**	PARSONS SOIL BORING
08/03/2010	SAMPLE DATE
0.0098U	ARSENIC (mg/L)
0.0484	BARIUM (mg/L)
0.002U	CADIUM (mg/L)
0.0034U	CHROMIUM (mg/L)
0.0069UJ	LEAD (mg/L)
0.0089U	SELENIUM (mg/L)
0.0023U	SILVER (mg/L)
0.000056U	MERCURY (mg/L)
3.8U	TOTAL CVOCs (ug/L)
24U	TOTAL VOCs (ug/L)
1U	TOTAL PAHs (ug/L)
38UJ	TOTAL SVOCs (ug/L)

U THE ANALYTE WAS ANALYZED, BUT NOT DETECTED. THE ASSOCIATED NUMERICAL VALUE IS AT OR BELOW THE METHOD DETECTION LIMIT.

J THE ANALYTE WAS POSITIVELY IDENTIFIED, BUT THE QUANITITATION IS AN ESTIMATE.

110J PARAMETER THAT EXCEEDS NYSDEC TOGS CLASS GA WATER STANDARDS.

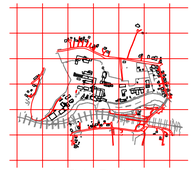
* DUPLICATE SAMPLE COLLECTED AT LOCATION. HIGHEST CONCENTRATIOIN OF EACH PARAMETER SHOWN.

ACRONYM DEFINITIONS:

SWMW WESTAGE REALTY PROPERTY MONITORING WELL

NOTES:

1. SCALE SHOWN IS FOR FULL SIZE DRAWING 22"x34".



KEY PLAN

NO.	DESCRIPTION	DATE	DRAWN	CHK'D	APPV'D

DRAWN BY: DLP — DATE: 12/6/10
CHECKED BY: EJA — DATE: 12/6/10
APPROVED BY: — DATE:
PROJECT MGR. — DATE:
SEAL

PARSONS
COMMERCIAL TECHNOLOGY GROUP

OFFICE
301 PLAINFIELD ROAD
SYRACUSE, NY 13212
(315) 451-9560

JOB 446074
WBS 05000

PROJECT TITLE
WESTAGE REALTY PROPERTY
SUBSURFACE INVESTIGATION
FORMER TEXACO
RESEARCH CENTER
BEACON, NEW YORK

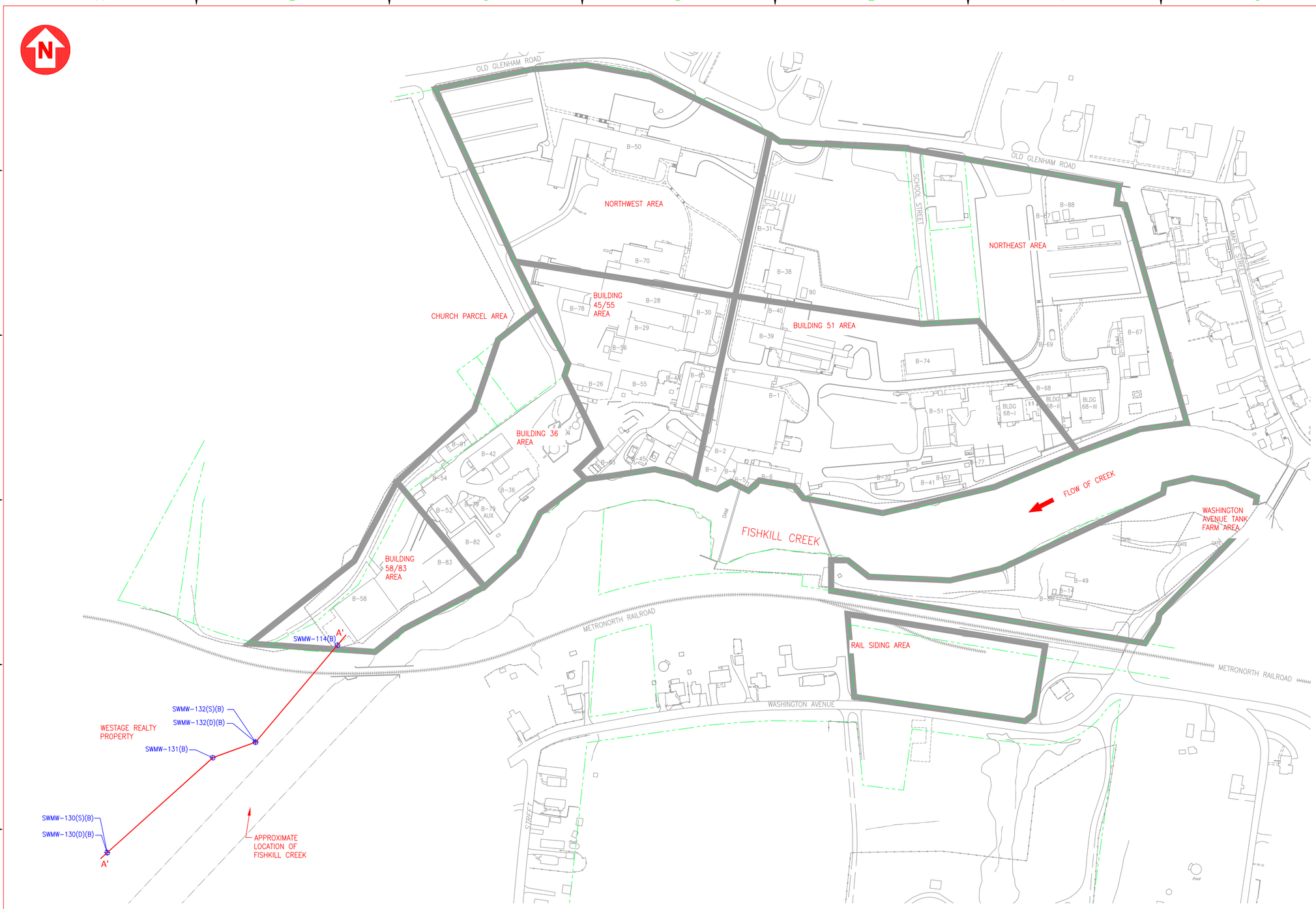
DRAWING TITLE
GROUNDWATER ANALYTICAL
DATA SUMMARY MAP
(METALS, VOCs, AND SVOCs)

SCALE: 1" = 120'-0"

DRAWING NO. FIGURE 3.1

REV. A

FILE NAME: P:\CHEVRON BEACON\CAD\446074C-SB_ANLYT_DATA_120610(2.1_3.1).DWG
PLOT DATE: 12/14/2010 1:37 PM PLOTTED BY: PRAIRIE, DALE



LEGEND:

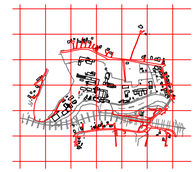
⊕ SWMW-**	GROUNDWATER MONITORING WELL LOCATION
SWMW-**(B)	DENOTES BEDROCK GROUNDWATER WELL IDENTIFICATION
SWMW-**(S)(B)	DENOTES SHALLOW BEDROCK GROUNDWATER WELL IDENTIFICATION
SWMW-**(D)(B)	DENOTES DEEP BEDROCK GROUNDWATER WELL IDENTIFICATION
	TAX PARCEL BOUNDARY LINE
	AREA BOUNDARY LINE
A — A'	CROSS SECTION A – A'

ACRONYM DEFINITIONS:

SWMW	WESTAGE REALTY PROPERTY MONITORING WELL

NOTES:

1. SCALE SHOWN IS FOR FULL SIZE DRAWING 22"x34".



KEY PLAN

NO.	DESCRIPTION	DATE	DRAWN	CHK'D	APPV'D

DRAWN BY: JTS	DATE: 10/22/10	SEAL
CHECKED BY	DATE	
APPROVED BY	DATE	
PROJECT MGR.	DATE	

PARSONS
COMMERCIAL TECHNOLOGY GROUP

OFFICE
301 PLAINFIELD ROAD
SYRACUSE, NY 13212
(315) 451-9560

JOB: 446074
WBS: 05000

PROJECT TITLE
WESTAGE REALTY PROPERTY
GROUNDWATER INVESTIGATION
FORMER TEXACO
RESEARCH CENTER
BEACON, NEW YORK

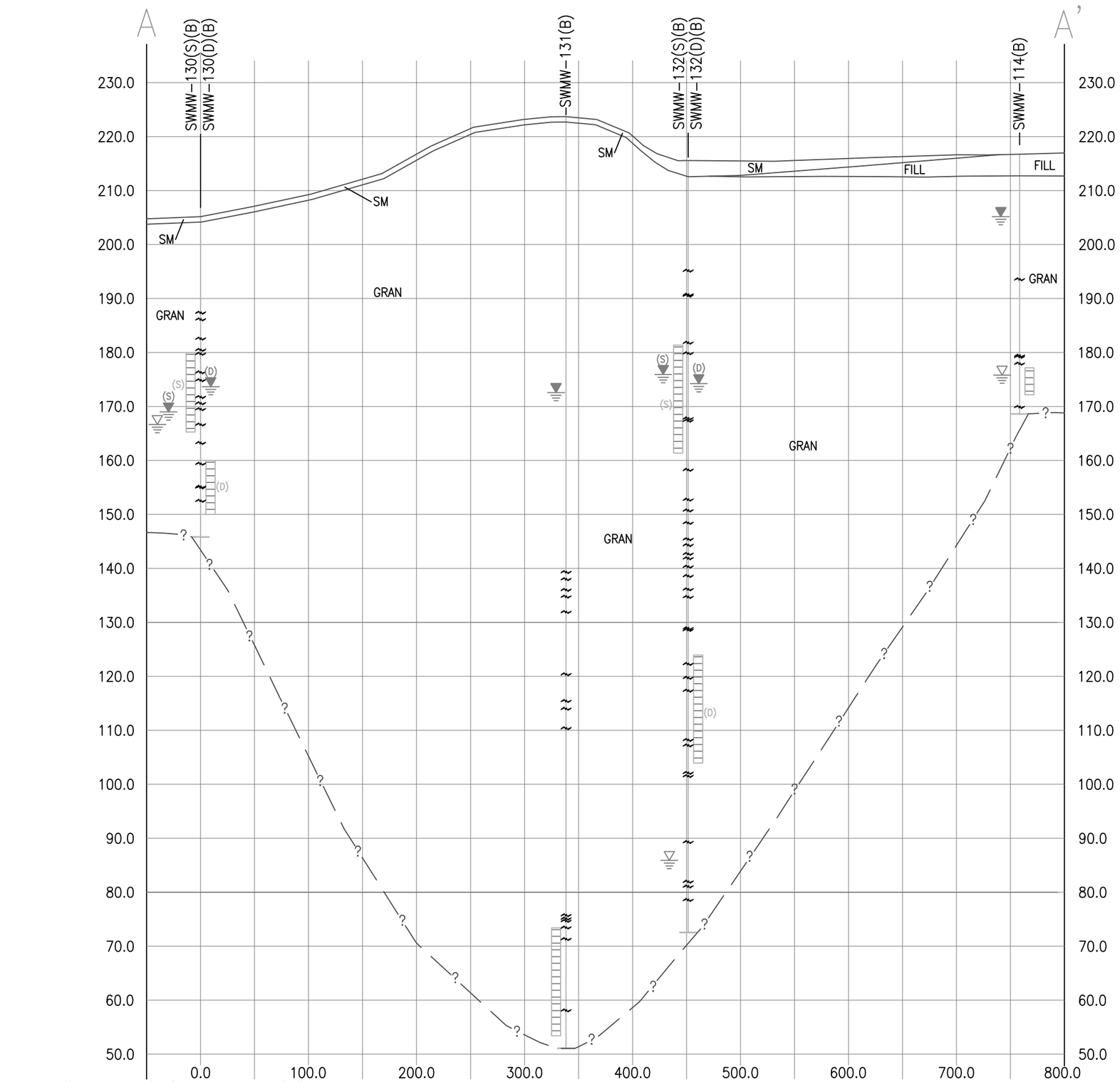
DRAWING TITLE
CROSS SECTION
LOCATION MAP

SCALE: 1" = 120'-0"

DRAWING NO.: FIGURE 3.2

REV.: A

FILE NAME: P:\CHEVRON BEACON\CAD\446074_XSEC_LOC_MAP_121310(3.2).DWG
PLOT DATE: 12/14/2010 1:56 PM PLOTTED BY: PRAIRIE, DALE



FILE NAME: P:\CHEVRON BEACON\CAD\446074_XSEC-121310(3.3).DWG
PLOT DATE: 12/14/2010 1:54 PM PLOTTED BY: PRAIRIE, DALE

LEGEND:

~ ONLY OPEN FRACTURES SHOWN

ELEVATION OF FIRST GROUNDWATER ENCOUNTER IN BEDROCK WHILE DRILLING.

ELEVATION OF WATER AFTER WELL INSTALLED AND MEASUREMENT COLLECTED ON AUGUST 2010.

NOTE:

1. SEE FIGURE 3.4 FOR CROSS SECTION LEGEND.

HORIZONTAL SCALE

100 50 0 100 200

SCALE: 1"=100'

VERTICAL SCALE

20 10 0 20 40

SCALE: 1"=20'

FIGURE 3.3

FORMER TEXACO RESEARCH CENTER
WESTAGE REALTY PROPERTY
GROUNDWATER INVESTIGATION
BEACON, NEW YORK

CROSS SECTION A-A'

PARSONS
301 PLAINFIELD ROAD, SYRACUSE, NEW YORK 13212 PHONE: 315-451-9560

LEGEND AND ABBREVIATIONS:

FILL	GENERAL MISCELLANEOUS MATERIAL (IE. SAND, BRICK, ASH, CONCRETE, GRAVEL, ETC).
GRAN	METAMORPHOSED GRANITE
SM	SILTY–SANDS, SANDS–SILT MIXTURE

?	CONTACT UNKNOWN
	WELL SCREEN INTERVAL
	ELEVATION OF FIRST GROUNDWATER ENCOUNTER IN BEDROCK WHILE DRILLING.
	ELEVATION OF WATER AFTER WELL INSTALLED AND MEASUREMENT COLLECTED ON AUGUST 2010.
(B)	BEDROCK GROUNDWATER MONITORING WELL
(S)	SHALLOW BEDROCK GROUNDWATER MONITORING WELL
(D)	DEEP BEDROCK GROUNDWATER MONITORING WELL
~	OPEN FRACTURE

FIGURE 3.4

FORMER TEXACO RESEARCH CENTER
WESTAGE REALTY PROPERTY
GROUNDWATER INVESTIGATION
BEACON, NEW YORK

CROSS SECTION LEGEND SHEET

PARSONS
290 ELWOOD DAVIS ROAD, SUITE 312, LIVERPOOL, N.Y. 13088, PHONE: 315–451–9560

FILE NAME: P:\CHEVRON BEACON\CAD\446074_XSEC_LEGEND_121310(3.4).DWG
PLOT DATE: 12/14/2010 3:09 PM PLOTTED BY: PRAIRIE, DALE

SECTION 4

CONCLUSIONS AND RECOMMENDATIONS

4.1 CONCLUSIONS

Based on the results of the drilling program, a thin layer of soil (1 to 3 ft.) exists on top of the metamorphic granite (bedrock). The soil consists of fine to medium sand, with some organic roots, and trace silt. Depth to groundwater was measured at approximately 31.71 ft. (SWMW-130(D)) to 49.70 ft. bgs (SWMW-131).

Analytical results from groundwater samples indicate that no VOCs were present, while one SVOC compound (bis (2-ethylhexyl)phthalate) was detected in two sample locations (SWMW-131 and 132(D)) that exceeded NYSDEC TOGS groundwater criteria. Metals were detected at all sampling locations at various concentrations that exceeded NYSDEC TOGS groundwater criteria. Sulfate was also detected at a concentration that exceeded the groundwater criteria at well location SWMW-132(S).

Hydraulic conductivity ranges from E-02 to E-04 within the subsurface of the Westage Realty Property, based on slug test data. The aquifer system is considered semi-permeable and groundwater transportation through aquifer moves at a low to moderate rate.

Based on analytical data results, geophysical logging data, and physical observations made during field activities, no evidence of LNAPL, petroleum hydrocarbon impacts, or VOCs including chlorinated VOCs were present, demonstrating that no migration of contaminants present within the Building 58 Area of the TRCB facility have occurred beyond the most southwestern property boundary (Building 58 Area) onto the Westage Realty Property. This conclusion can be made based on the absence of evidence of two indicator parameters that were observed within the Building 58 Area during a previous investigation (Supplemental RCRA Facility Investigation-2007): (1) the presence of LNAPL and (2) the presence of VOC compounds within the two most southwestern monitoring wells (SWMW-114 and 125). Neither observation was detected in any of the Westage Realty Property bedrock wells. In addition, the Westage wells indicated one SVOC compound (bis (2-ethylhexyl)phthalate) that was not present within the Building 58 Area wells. The absence of this compound within the Building 58 Area wells indicates that the chemical composition of the groundwater on the Westage Realty Property is dissimilar to the groundwater samples collected from the TRCB Building 58 Area.

The conclusion statement is also strengthened by the fact that the newly installed wells on the Westage property were screened within the same fracture zones as those installed at the Building 58 Area wells SWMW-114 and SWMW-125. The two Building 58 Area wells exhibited either LNAPL, VOC compounds, or both.

4.2 RECOMMENDATIONS

Based on the conclusions stated above, it is recommended that the NYSDEC submit this report to the USEPA as evidence of fulfillment of all requirements of the USEPA's Environmental Indicators program to confirm that impacted groundwater is not migrating off-site from the TRCB facility.

SECTION 5

REFERENCES

GSC 2005. Phase II Environmental Site Assessment

IT 2001a Phase III (RCRA) Facility Investigation by Texaco in March 2001

NYSDEC. 1998. Division of Water Technical Guidance Series (1.1.1). Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. New York Stat4e Department of Environmental Conservation, June 1998

Parsons, 2007. Generic Work Plan, Site Investigation Activities, Former Chevron Research Center, Beacon, New York August 2007 (Revised February 2008)

Parsons, 2007 and 2009. Sitewide RCRA and supplemental RCRA Facility Investigation were conducted by Parsons

Parsons, 2010. Work Plan for Off-Site Groundwater Monitoring Well Installations, Former Chevron Research Center, Beacon, New York, February 2010

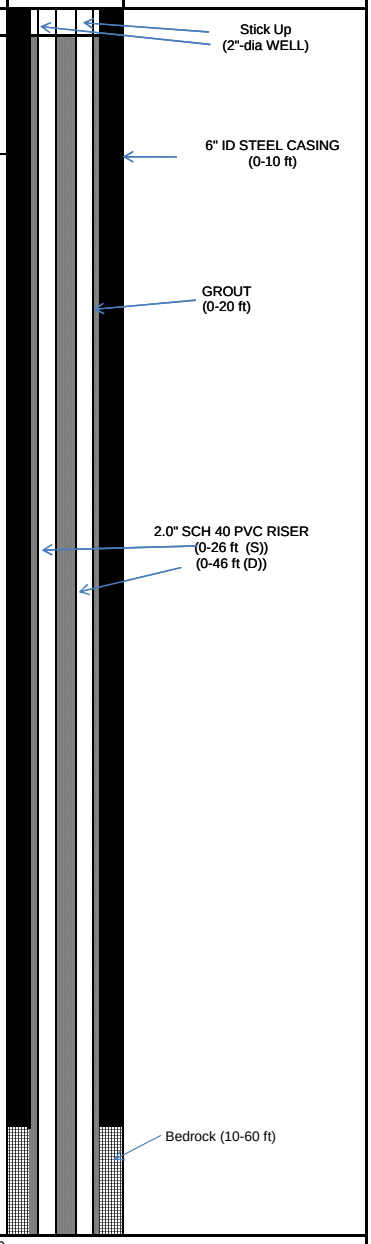
APPENDIX A

SOIL BORING AND GROUNDWATER MONITORING WELL CONSTRUCTION LOGS

Parsons Drilling Record

Contractor:	Parratt-Wolff, Inc.		**BORING/WELL No.** **SWMW-130 (S) (D)**
Driller:	Ian Grassie	**PROJECT NAME:** CVX-Beacon Westage Property Investigation	Page 1 of 7
Inspector:	Ed Ashton	**PROJECT NUMBER:** 446074	**LOCATION DESCRIPTION**
Rig Type:	Diedrich D-90 ATV		Westage Realty Property
		Weather: Sunny-80 Degrees	
GROUNDWATER OBSERVATIONS:			
DATE:	8/2/2010	**Date/Time Start:** July-2010	
DEPTH:	31.75 (S), 31.71 (D) ft TOC		See Site Plan
ELEVATION:	209.79 (S), 209.83 (D) ft TOC	**Date/Time Finish:** August - 2010	

SAMPLE DEPTH (FT)	GEOPHYSICAL LOG	BLOWS per 6"	% REC.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL
0		NA	NA	NA	(0'-1') Dry, brown, FINE to MEDIUM SAND, some organic roots, trace silt, no odor or stains - (SM) (Topsoil). (Hand shoveled)
1		NA	NA	NA	(1'-60') Metamorphic Granite. Air-hammered from 1' to 60' bgs.
2					
3					
4					
5					
6					
7					
8					
9					
10					



Notes: Groundwater sample collected on 08/03/10 for VOC 8260, SVOC 8270, TAL Metals, CA Oxygenates 8260, and sulfate/chloride 300.
GROUND SURFACE ELEVATION: 206.18 (FT TEX DAT).
TOP OF CASING ELEVATION: 209.79 (S), 209.83 (D) (FT TEX DAT).

Sample Types/Drilling Methods		
S -- Shovel	0-1	ft bgs
U -- Undisturbed Tube	NA	NA
C -- Rock Core	NA	NA
AK- Air Knifed	NA	NA
AH- Air Hammering	1-60	ft bgs

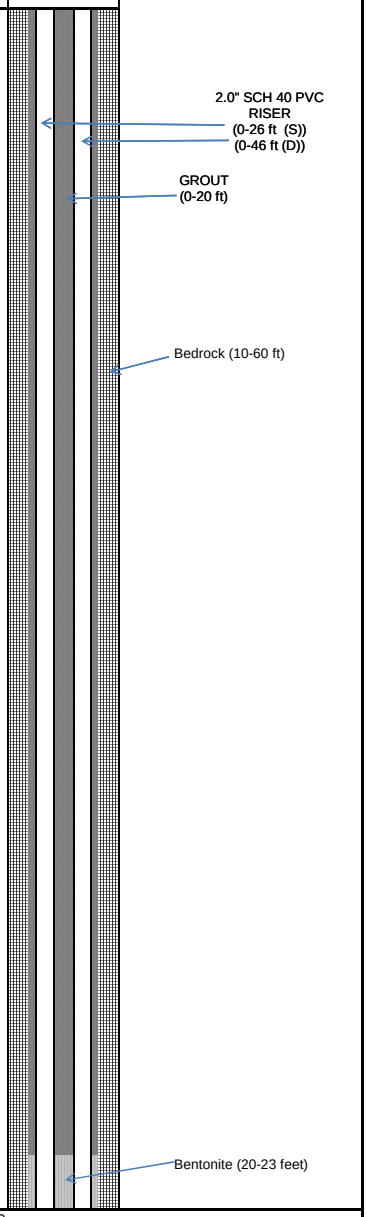
Consistency vs. Blowcount / Foot			
Granular (Sand & Gravel)		Fine Grained (Silt & Clay)	
V. Loose: 0-4	Dense: 30-50	V. Soft: <2	Stiff: 8-15
Loose: 4-10	V. Dense:: >50	Soft: 2-4	V. Stiff: 15-30
M. Dense: 10-30		M. Stiff: 4-8	Hard: > 30

Grain Content Percentages
And 35 -50%
Some 20-35%
Little 10-20%
Trace <10%

Parsons Drilling Record

Contractor:	Parratt-Wolff, Inc.		**BORING/WELL No.** **SWMW-130 (S) (D)**
Driller:	Ian Grassie	**PROJECT NAME:** CVX-Beacon Westage Property Investigation	Page 2 of 7
Inspector:	Ed Ashton	**PROJECT NUMBER:** 446074	**LOCATION DESCRIPTION**
Rig Type:	Diedrich D-90 ATV		Westage Realty Property
		Weather: Sunny-80 Degrees	
GROUNDWATER OBSERVATIONS:			
DATE:	8/2/2010	**Date/Time Start:** July-2010	See Site Plan
DEPTH:	31.75 (S), 31.71 (D) ft TOC		
ELEVATION:	209.79 (S), 209.83 (D) ft TOC	**Date/Time Finish:** August - 2010	

SAMPLE DEPTH (FT)	GEOPHYSICAL LOG	BLOWS per 6"	% REC.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL	WELL DIAGRAM	COMMENTS
10					(1'-60') Metamorphic Granite. Air-hammered from 1' to 60' bgs.		
11							
12							
13							
14					Sealed Fracture at 14.5 ' (S55W/57E/Aperture :0.0)		
15							
16							
17							
18					Sealed Fracture at 18.0' (N26E/61W/Aperture: 0.0)		
19							
20							



Notes: Groundwater sample collected on 08/03/10 for VOC 8260, SVOC 8270, TAL Metals, CA Oxygenates 8260, and sulfate/chloride 300.
GROUND SURFACE ELEVATION: 206.18 (FT TEX DAT).
TOP OF CASING ELEVATION: 209.79 (S), 209.83 (D) (FT TEX DAT).

Sample Types/Drilling Methods		
S -- Shovel	0-1	ft bgs
U -- Undisturbed Tube	NA	NA
C -- Rock Core	NA	NA
AK- Air Knifed	NA	NA
AH- Air Hammering	1-60	ft bgs

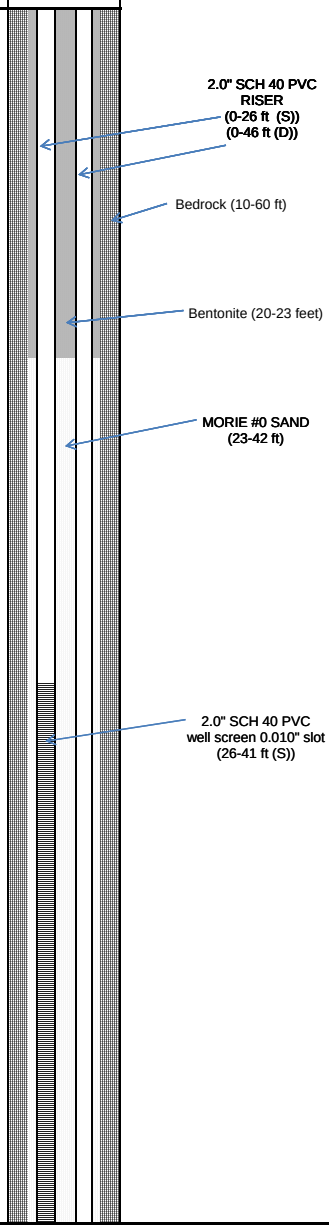
Consistency vs. Blowcount / Foot			
Granular (Sand & Gravel)		Fine Grained (Silt & Clay)	
V. Loose: 0-4	Dense: 30-50	V. Soft: <2	Stiff: 8-15
Loose: 4-10	V. Dense:: >50	Soft: 2-4	V. Stiff: 15-30
M. Dense: 10-30		M. Stiff: 4-8	Hard: > 30

Grain Content Percentages
And 35 -50%
Some 20-35%
Little 10-20%
Trace <10%

Parsons Drilling Record

Contractor:	Parratt-Wolff, Inc.		**BORING/WELL No.** SWMW-130 (S) (D)
Driller:	Ian Grassie	**PROJECT NAME:** CVX-Beacon Westage Property Investigation	Page 3 of 7
Inspector:	Ed Ashton	**PROJECT NUMBER:** 446074	**LOCATION DESCRIPTION**
Rig Type:	Diedrich D-90 ATV		Westage Realty Property
		Weather: Sunny-80 Degrees	
GROUNDWATER OBSERVATIONS:			
DATE:	8/2/2010	**Date/Time Start:** July-2010	See Site Plan
DEPTH:	31.75 (S), 31.71 (D) ft TOC		
ELEVATION:	209.79 (S), 209.83 (D) ft TOC	**Date/Time Finish:** August - 2010	

SAMPLE DEPTH (FT)	GEOPHYSICAL LOG	BLOWS per 6"	% REC.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL
20					(1'-60') Metamorphic Granite. Air-hammered from 1' to 60' bgs.
					Sealed Fractures at 20-21.5' (N50E/61W/Aperture: 0.0), (N57E/69W/Aperture: 0.0), (S15E/75E/Aperture: 0.0), (N47E/65W/Aperture: 0.0), and (N45E/64W/Aperture: 0.0)
21					
22					
23					
24					Sealed Fracture at 24' (N51E/22W/Aperture: 0.0)
25					Sealed Fracture at 25.5' (S57E/44E/Aperture: 0.0)
26					Sealed Fracture at 26.5' (N44E/78W/Aperture: 0.0)
					Sealed Fracture at 26.8' (S14E/69E/Aperture: 0.0)
27					
					Sealed Fractures at 28-28.5' (S11E/67E/Aperture: 0.0) and (N62E/48W/Aperture: 0.0)
28					
29					
30					



COMMENTS

Notes:
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GROUND SURFACE ELEVATION: 206.18 (FT TEX DAT).
TOP OF CASING ELEVATION: 209.79 (S), 209.83 (D) (FT TEX DAT).

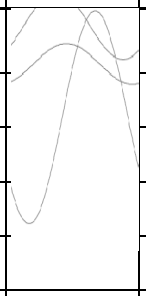
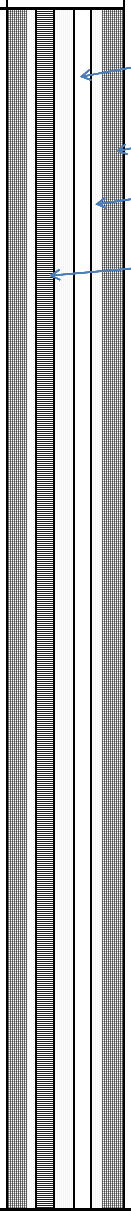
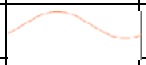
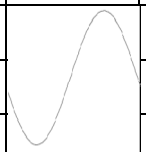
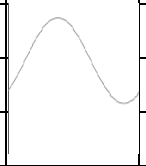
Sample Types/Drilling Methods		
S -- Shovel	0-1	ft bgs
U -- Undisturbed Tube	NA	NA
C -- Rock Core	NA	NA
AK- Air Knifed	NA	NA
AH- Air Hammering	1-60	ft bgs

Consistency vs. Blowcount / Foot			
Granular (Sand & Gravel)		Fine Grained (Silt & Clay)	
V. Loose: 0-4	Dense: 30-50	V. Soft: <2	Stiff: 8-15
Loose: 4-10	V. Dense:: >50	Soft: 2-4	V. Stiff: 15-30
M. Dense: 10-30		M. Stiff: 4-8	Hard: > 30

Grain Content Percentages
And 35 -50%
Some 20-35%
Little 10-20%
Trace <10%

Parsons Drilling Record

Contractor:	Parratt-Wolff, Inc.			**BORING/WELL No.**	**SWMW-130 (S) (D)**
Driller:	Ian Grassie	**PROJECT NAME:**	CVX-Beacon Westage Property Investigation	Page 4 of 7	
Inspector:	Ed Ashton	**PROJECT NUMBER:**	446074	**LOCATION DESCRIPTION**	
Rig Type:	Diedrich D-90 ATV			Westage Realty Property	
		Weather:	Sunny-80 Degrees		
GROUNDWATER OBSERVATIONS:					
DATE:	8/2/2010	**Date/Time Start:**	July-2010		
DEPTH:	31.75 (S), 31.71 (D) ft TOC			See Site Plan	
ELEVATION:	209.79 (S), 209.83 (D) ft TOC	**Date/Time Finish:**	August - 2010		

SAMPLE DEPTH (FT)	GEOPHYSICAL LOG	BLOWS per 6"	% REC.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL	WELL DIAGRAM	COMMENTS
30					(1'-60') Metamorphic Granite. Air-hammered from 1' to 60' bgs.		2.0" SCH 40 PVC RISER (0-46 ft (D))
					Sealed Fractures at 30-31' (N44E/54W/Aperture: 0.0), (N70E/39W/Aperture: 0.0), and (S32E/77E/Aperture: 0.0)		
31							Bedrock (10-60 ft)
							MORIE #0 SAND (23-42 ft)
32							2.0" SCH 40 PVC well screen 0.010" slot (26-41 ft (S))
33							
34							
35					Open Fracture at 35' (N48E/36W/Aperture: 0.0)		
36							
37					Sealed Fracture at 37' (S7E/70E/Aperture: 0.0)		
38							
39					Water bearing zone encountered at approximately 39-41 feet bgs.		
					Sealed Fracture at 39' (N46E/60W/Aperture: 0.0)		
40							

Notes: Groundwater sample collected on 08/03/10 for VOC 8260, SVOC 8270, TAL Metals, CA Oxygenates 8260, and sulfate/chloride 300.
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Sample Types/Drilling Methods		
S -- Shovel	0-1	ft bgs
U -- Undisturbed Tube	NA	NA
C -- Rock Core	NA	NA
AK- Air Knifed	NA	NA
AH- Air Hammering	1-60	ft bgs

Consistency vs. Blowcount / Foot			
Granular (Sand & Gravel)		Fine Grained (Silt & Clay)	
V. Loose: 0-4	Dense: 30-50	V. Soft: <2	Stiff: 8-15
Loose: 4-10	V. Dense:: >50	Soft: 2-4	V. Stiff: 15-30
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Grain Content Percentages
And 35 -50%
Some 20-35%
Little 10-20%
Trace <10%

Parsons Drilling Record

Contractor:	Parratt-Wolff, Inc.		**BORING/WELL No.** SWMW-130 (S) (D)
Driller:	Ian Grassie	**PROJECT NAME:** CVX-Beacon Westage Property Investigation	Page 5 of 7
Inspector:	Ed Ashton	**PROJECT NUMBER:** 446074	**LOCATION DESCRIPTION**
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		Weather: Sunny-80 Degrees	
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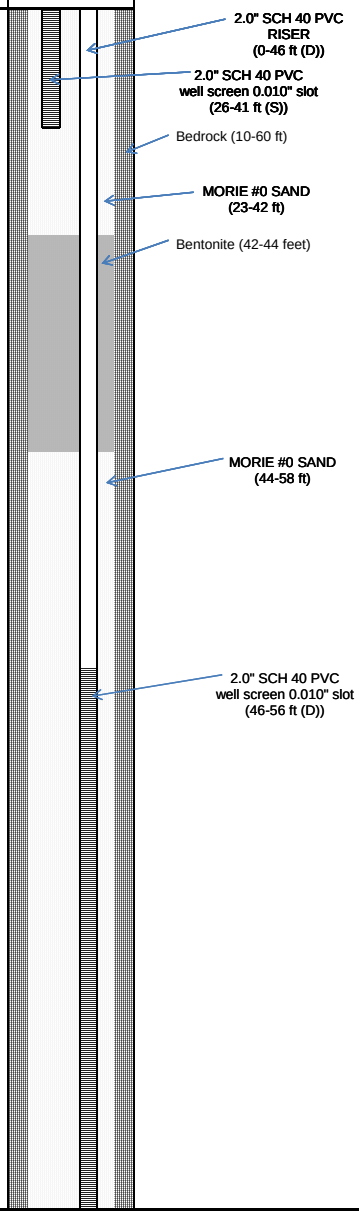
DATE:	8/2/2010	**Date/Time Start:** July-2010	
DEPTH:	31.75 (S), 31.71 (D) ft TOC		See Site Plan
ELEVATION:	209.79 (S), 209.83 (D) ft TOC	**Date/Time Finish:** August - 2010	

SAMPLE DEPTH (FT)	GEOPHYSICAL LOG	BLOWS per 6"	% REC.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL
40					(1'-60') Metamorphic Granite. Air-hammered from 1' to 60' bgs.
41					
42					Sealed Fractures at 42-43' (S51W/43E/Aperture: 0.0) and (S43W/47E/Aperture: 0.0)
43					
44					
45					
46					Sealed Fractures at 46-46.5' (S34W/62E/Aperture: 0.0) and (S7E/40E/Aperture: 0.0)
47					
48					Sealed Fracture at 48' (N63E/^4W/Aperture: 0.0)
49					Drilling pressure decreased at approximately 49-51 feet bgs and soft material and water bearing zone encountered.
50					



Notes:
Groundwater sample collected on 08/03/10 for VOC 8260, SVOC 8270, TAL Metals, CA Oxygenates 8260, and sulfate/chloride 300.
GROUND SURFACE ELEVATION: 206.18 (FT TEX DAT).
TOP OF CASING ELEVATION: 209.79 (S), 209.83 (D) (FT TEX DAT).

Sample Types/Drilling Methods		
S -- Shovel	0-1	ft bgs
U -- Undisturbed Tube	NA	NA
C -- Rock Core	NA	NA
AK- Air Knifed	NA	NA
AH- Air Hammering	1-60	ft bgs

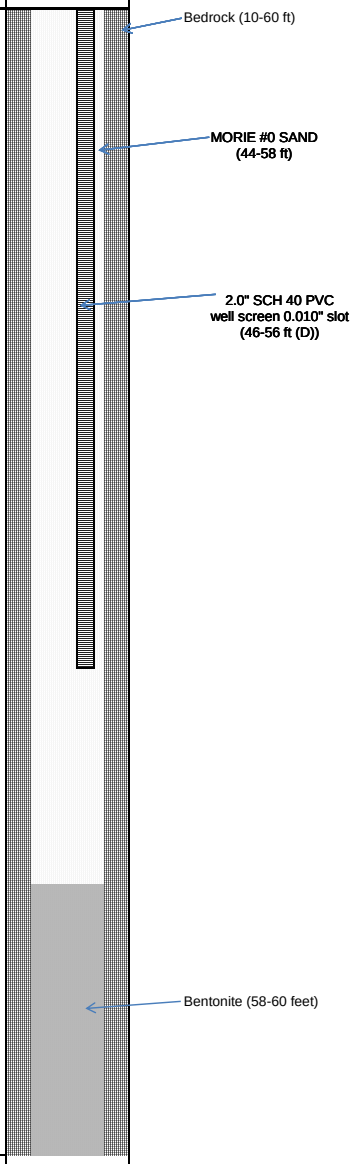
Consistency vs. Blowcount / Foot			
Granular (Sand & Gravel)		Fine Grained (Silt & Clay)	
V. Loose: 0-4	Dense: 30-50	V. Soft: <2	Stiff: 8-15
Loose: 4-10	V. Dense:: >50	Soft: 2-4	V. Stiff: 15-30
M. Dense: 10-30		M. Stiff: 4-8	Hard: > 30

Grain Content Percentages
And 35 -50%
Some 20-35%
Little 10-20%
Trace <10%

Parsons Drilling Record

Contractor:	Parratt-Wolff, Inc.		**BORING/WELL No.** **SWMW-130 (S) (D)**
Driller:	Ian Grassie	**PROJECT NAME:** CVX-Beacon Westage Property Investigation	Page 6 of 7
Inspector:	Ed Ashton	**PROJECT NUMBER:** 446074	**LOCATION DESCRIPTION**
Rig Type:	Diedrich D-90 ATV		Westage Realty Property
		Weather: Sunny-80 Degrees	
GROUNDWATER OBSERVATIONS:			
DATE:	8/2/2010	**Date/Time Start:** July-2010	See Site Plan
DEPTH:	31.75 (S), 31.71 (D) ft TOC		
ELEVATION:	209.79 (S), 209.83 (D) ft TOC	**Date/Time Finish:** August - 2010	

SAMPLE DEPTH (FT)	GEOPHYSICAL LOG	BLOWS per 6"	% REC.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL	WELL DIAGRAM	COMMENTS
50					(1'-60') Metamorphic Granite. Air-hammered from 1' to 60' bgs.		
					Open Fracture and Fracture Zone at 50-51.5' (S2W/42E/Aperture: 8.25) and (S90E/0E/Aperture: 28.03)		
51					Drilling pressure increased.		
52							
53					Open Fracture at 53' (S18W/49E/Aperture: 4.39)		
54							
55							
56							
57							
58							
59							
60							
					Boring terminated at 60 ft bgs.		



Notes: Groundwater sample collected on 08/03/10 for VOC 8260, SVOC 8270, TAL Metals, CA Oxygenates 8260, and sulfate/chloride 300.
GROUND SURFACE ELEVATION: 206.18 (FT TEX DAT).
TOP OF CASING ELEVATION: 209.79 (S), 209.83 (D) (FT TEX DAT).

Sample Types/Drilling Methods		
S -- Shovel	0-1	ft bgs
U -- Undisturbed Tube	NA	NA
C -- Rock Core	NA	NA
AK- Air Knifed	NA	NA
AH- Air Hammering	1-60	ft bgs

Consistency vs. Blowcount / Foot			
Granular (Sand & Gravel)		Fine Grained (Silt & Clay)	
V. Loose: 0-4	Dense: 30-50	V. Soft: <2	Stiff: 8-15
Loose: 4-10	V. Dense:: >50	Soft: 2-4	V. Stiff: 15-30
M. Dense: 10-30		M. Stiff: 4-8	Hard: > 30

Grain Content Percentages
And 35 -50%
Some 20-35%
Little 10-20%
Trace <10%

Parsons Drilling Record - Notes

Contractor:	Parratt-Wolff, Inc.			**BORING/WELL No.**	**SWMW-130 (S) (D)**
Driller:	Ian Grassie	**PROJECT NAME:**	CVX-Beacon Westage Property Investigation	Page 7 of 7	
Inspector:	Ed Ashton	**PROJECT NUMBER:**	446074	**LOCATION DESCRIPTION**	
Rig Type:	Diedrich D-90 ATV			Westage Realty Property	
		Weather:	Sunny-80 Degrees		
GROUNDWATER OBSERVATIONS:					
DATE:	8/2/2010	**Date/Time Start:**	July-2010		
DEPTH:	31.75 (S), 31.71 (D) ft TOC			See Site Plan	
ELEVATION:	209.79 (S), 209.83 (D) ft TOC	**Date/Time Finish:**	August - 2010		

Notes:

1) Breathing Zone Air Monitoring: Performed continuously throughout drilling activities using a Multi Rae Plus (PID & LEL). No exceedances noted.

Range of Standards:
CO: 0-0 ppm
H2S: 0-0 ppm
LEL: 0-0 %
O2: 20.9 %
PID: 0-0 ppm

2) Geophysical logging of borehole performed. Detailed information regarding geophysical analysis for this boring can be found on the televiewer and geophysical log provided by EnvrioScan-Mid-Atlantic Geosciences (see Westage Realty Property Subsurface Investigation). Geophysical log graphics are not shown exactly to scale. Exact depths of features are indicated in the description column.

3) Encountered water at ~39 to 41 ft bgs and drilled to 60 ft bgs.

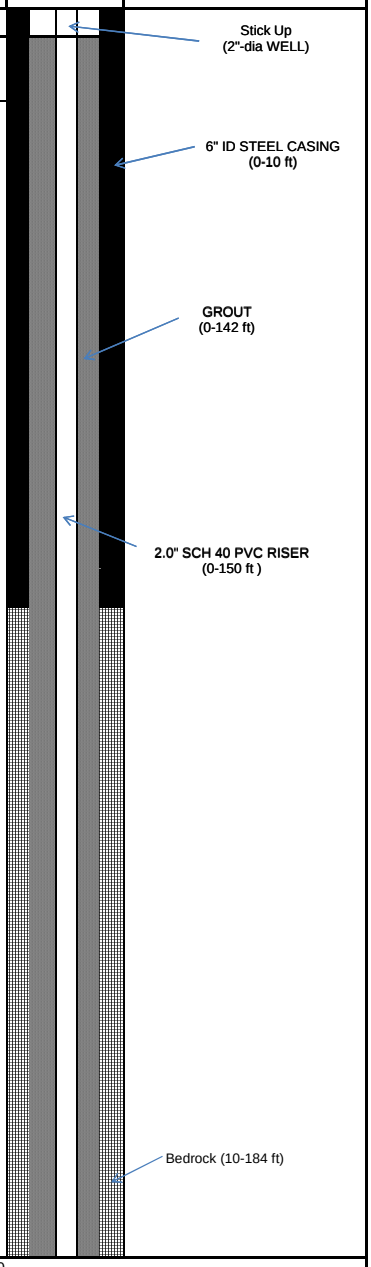
4) Apertures measured in inches.

5) Installed two bedrock groundwater monitoring wells inside borehole. One shallow (SWMW-130 (S)) and one deep (SWMW-130 (D)). Shallow well screened from 26-41 ft. bgs and deep well screened from 46-56 ft. bgs.

Parsons Drilling Record

Contractor:	Parratt-Wolff, Inc.		**BORING/WELL No.** **SWMW-131**
Driller:	Ian Grassie	**PROJECT NAME:** CVX-Beacon Westage Property Investigation	Page 1 of 11
Inspector:	Ed Ashton	**PROJECT NUMBER:** 446074	**LOCATION DESCRIPTION**
Rig Type:	Diedrich D-90 ATV		Westage Realty Property
		Weather: Sunny-80 Degrees	
GROUNDWATER OBSERVATIONS:			
DATE:	8/2/2010	**Date/Time Start:** July-2010	See Site Plan
DEPTH:	49.70 ft TOC		
ELEVATION:	227.13 ft TOC	**Date/Time Finish:** August - 2010	

SAMPLE DEPTH (FT)	GEOPHYSICAL LOG	BLOWS per 6"	% REC.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL
0		NA	NA	NA	(0'-1') Dry, brown, FINE to MEDIUM SAND, some organic roots, trace silt, no odor or stains - (SM) (Topsoil). (Hand shoveled)
		NA	NA	NA	(1'-184') Metamorphic Granite. Air-hammered from 1' to 184' bgs. No apparent water bearing zones encountered during drilling and no change in drilling pressure observed.
2					
4					
6					
8					
10					
12					
14					
16					
18					
20					



Notes: Groundwater sample collected on 08/03/10 for VOC 8260, SVOC 8270, TAL Metals, CA Oxygenates 8260, and sulfate/chloride 300.
GROUND SURFACE ELEVATION: 223.80 (FT TEX DAT).
TOP OF CASING ELEVATION: 227.13 (FT TEX DAT).

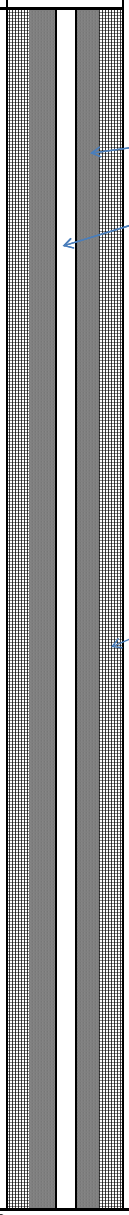
Sample Types/Drilling Methods		
S -- Shovel	0-1	ft bgs
U -- Undisturbed Tube	NA	NA
C -- Rock Core	NA	NA
AK- Air Knifed	NA	NA
AH- Air Hammering	1-184	ft bgs

Consistency vs. Blowcount / Foot			
Granular (Sand & Gravel)		Fine Grained (Silt & Clay)	
V. Loose: 0-4	Dense: 30-50	V. Soft: <2	Stiff: 8-15
Loose: 4-10	V. Dense:: >50	Soft: 2-4	V. Stiff: 15-30
M. Dense: 10-30		M. Stiff: 4-8	Hard: > 30

Grain Content Percentages
And 35 -50%
Some 20-35%
Little 10-20%
Trace <10%

Parsons Drilling Record

Contractor:	Parratt-Wolff, Inc.		**BORING/WELL No.** **SWMW-131**
Driller:	Ian Grassie	**PROJECT NAME:** CVX-Beacon Westage Property Investigation	Page 2 of 11
Inspector:	Ed Ashton	**PROJECT NUMBER:** 446074	**LOCATION DESCRIPTION**
Rig Type:	Diedrich D-90 ATV		Westage Realty Property
		Weather: Sunny-80 Degrees	
GROUNDWATER OBSERVATIONS:			
DATE:	8/2/2010	**Date/Time Start:** July-2010	See Site Plan
DEPTH:	49.70 ft TOC		
ELEVATION:	227.13 ft TOC	**Date/Time Finish:** August - 2010	

SAMPLE DEPTH (FT)	GEOPHYSICAL LOG	BLOWS per 6"	% REC.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL	WELL DIAGRAM	COMMENTS
20					(1'-184') Metamorphic Granite. Air-hammered from 1' to 184' bgs. No apparent water bearing zones encountered during drilling and no change in drilling pressure observed.		
22							
24							
26							
28							
30							
32							
34							
36							
38							
40							

Notes: Groundwater sample collected on 08/03/10 for VOC 8260, SVOC 8270, TAL Metals, CA Oxygenates 8260, and sulfate/chloride 300.
GROUND SURFACE ELEVATION: 223.80 (FT TEX DAT).
TOP OF CASING ELEVATION: 227.13 (FT TEX DAT).

Sample Types/Drilling Methods		
S -- Shovel	0-1	ft bgs
U -- Undisturbed Tube	NA	NA
C -- Rock Core	NA	NA
AK- Air Knifed	NA	NA
AH- Air Hammering	1-184	ft bgs

Consistency vs. Blowcount / Foot			
Granular (Sand & Gravel)		Fine Grained (Silt & Clay)	
V. Loose: 0-4	Dense: 30-50	V. Soft: <2	Stiff: 8-15
Loose: 4-10	V. Dense:: >50	Soft: 2-4	V. Stiff: 15-30
M. Dense: 10-30		M. Stiff: 4-8	Hard: > 30

Grain Content Percentages
And 35 -50%
Some 20-35%
Little 10-20%
Trace <10%

Parsons Drilling Record

Contractor: Parratt-Wolff, Inc.
Driller: Ian Grassie
Inspector: Ed Ashton
Rig Type: Diedrich D-90 ATV

PROJECT NAME: CVX-Beacon Westage Property Investigation
PROJECT NUMBER: 446074

BORING/WELL No. SWMW-131

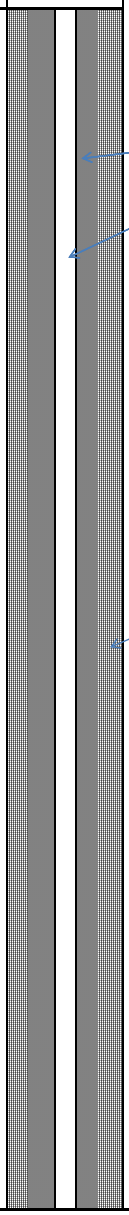
LOCATION DESCRIPTION
Westage Realty Property

Weather: Sunny-80 Degrees

GROUNDWATER OBSERVATIONS:
DATE: 8/2/2010
DEPTH: 49.70 ft TOC
ELEVATION: 227.13 ft TOC

Date/Time Start: July-2010
Date/Time Finish: August - 2010

See Site Plan

SAMPLE DEPTH (FT)	GEOPHYSICAL LOG	BLOWS per 6"	% REC.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL	WELL DIAGRAM	COMMENTS
40					(1'-184') Metamorphic Granite. Air-hammered from 1' to 184' bgs. No apparent water bearing zones encountered during drilling and no change in drilling pressure observed.		
42							
44							
46							
48							
50							
52							
54							
56							
58							
60							

Notes: Groundwater sample collected on 08/03/10 for VOC 8260, SVOC 8270, TAL Metals, CA Oxygenates 8260, and sulfate/chloride 300.
GROUND SURFACE ELEVATION: 223.80 (FT TEX DAT).
TOP OF CASING ELEVATION: 227.13 (FT TEX DAT).

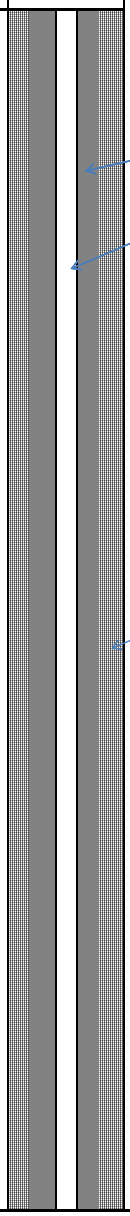
Sample Types/Drilling Methods		
S -- Shovel	0-1	ft bgs
U -- Undisturbed Tube	NA	NA
C -- Rock Core	NA	NA
AK- Air Knifed	NA	NA
AH- Air Hammering	1-184	ft bgs

Consistency vs. Blowcount / Foot			
Granular (Sand & Gravel)		Fine Grained (Silt & Clay)	
V. Loose: 0-4	Dense: 30-50	V. Soft: <2	Stiff: 8-15
Loose: 4-10	V. Dense:: >50	Soft: 2-4	V. Stiff: 15-30
M. Dense: 10-30		M. Stiff: 4-8	Hard: > 30

Grain Content Percentages
And 35 -50%
Some 20-35%
Little 10-20%
Trace <10%

Parsons Drilling Record

Contractor:	Parratt-Wolff, Inc.			**BORING/WELL No.**	**SWMW-131**
Driller:	Ian Grassie	**PROJECT NAME:**	CVX-Beacon Westage Property Investigation	Page 4 of 11	
Inspector:	Ed Ashton	**PROJECT NUMBER:**	446074	**LOCATION DESCRIPTION**	
Rig Type:	Diedrich D-90 ATV			Westage Realty Property	
		Weather:	Sunny-80 Degrees		
GROUNDWATER OBSERVATIONS:					
DATE:	8/2/2010	**Date/Time Start:**	July-2010		
DEPTH:	49.70 ft TOC			See Site Plan	
ELEVATION:	227.13 ft TOC	**Date/Time Finish:**	August - 2010		

SAMPLE DEPTH (FT)	GEOPHYSICAL LOG	BLOWS per 6"	% REC.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL	WELL DIAGRAM	COMMENTS
60					(1'-184') Metamorphic Granite. Air-hammered from 1' to 184' bgs. No apparent water bearing zones encountered during drilling and no change in drilling pressure observed.		GROUT (0-142 ft) 2.0" SCH 40 PVC RISER (0-150 ft) Bedrock (10-184 ft)
62							
64							
66							
68							
70							
72							
74							
76							
78							
80							

Notes: Groundwater sample collected on 08/03/10 for VOC 8260, SVOC 8270, TAL Metals, CA Oxygenates 8260, and sulfate/chloride 300.
GROUND SURFACE ELEVATION: 223.80 (FT TEX DAT).
TOP OF CASING ELEVATION: 227.13 (FT TEX DAT).

Sample Types/Drilling Methods		
S -- Shovel	0-1	ft bgs
U -- Undisturbed Tube	NA	NA
C -- Rock Core	NA	NA
AK- Air Knifed	NA	NA
AH- Air Hammering	1-184	ft bgs

Consistency vs. Blowcount / Foot			
Granular (Sand & Gravel)		Fine Grained (Silt & Clay)	
V. Loose: 0-4	Dense: 30-50	V. Soft: <2	Stiff: 8-15
Loose: 4-10	V. Dense:: >50	Soft: 2-4	V. Stiff: 15-30
M. Dense: 10-30		M. Stiff: 4-8	Hard: > 30

Grain Content Percentages
And 35 -50%
Some 20-35%
Little 10-20%
Trace <10%

Parsons Drilling Record

Contractor: Parratt-Wolff, Inc.
Driller: Ian Grassie
Inspector: Ed Ashton
Rig Type: Diedrich D-90 ATV

PROJECT NAME: CVX-Beacon Westage Property Investigation
PROJECT NUMBER: 446074

Weather: Sunny-80 Degrees

Date/Time Start: July-2010

Date/Time Finish: August - 2010

BORING/WELL No. SWMW-131
Page 5 of 11
LOCATION DESCRIPTION
Westage Realty Property

See Site Plan

GROUNDWATER OBSERVATIONS:
DATE: 8/2/2010
DEPTH: 49.70 ft TOC
ELEVATION: 227.13 ft TOC

SAMPLE DEPTH (FT)	GEOPHYSICAL LOG	BLOWS per 6"	% REC.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL	WELL DIAGRAM	COMMENTS
80					(1'-184') Metamorphic Granite. Air-hammered from 1' to 184' bgs. No apparent water bearing zones encountered during drilling and no change in drilling pressure observed.		
82					Sealed Fractures at 82-91' (N28E/83W/Aperture: 0.0), (N29E/82W/Aperture: 0.0), and (N25E/81W/Aperture: 0.0)		GROUT (0-142 ft)
84							2.0" SCH 40 PVC RISER (0-150 ft)
86							
88							
90							Bedrock (10-184 ft)
92							
94							
96							
98							
100							

Notes: Groundwater sample collected on 08/03/10 for VOC 8260, SVOC 8270, TAL Metals, CA Oxygenates 8260, and sulfate/chloride 300.
GROUND SURFACE ELEVATION: 223.80 (FT TEX DAT).
TOP OF CASING ELEVATION: 227.13 (FT TEX DAT).

Sample Types/Drilling Methods		
S -- Shovel	0-1	ft bgs
U -- Undisturbed Tube	NA	NA
C -- Rock Core	NA	NA
AK- Air Knifed	NA	NA
AH- Air Hammering	1-184	ft bgs

Consistency vs. Blowcount / Foot			
Granular (Sand & Gravel)		Fine Grained (Silt & Clay)	
V. Loose: 0-4	Dense: 30-50	V. Soft: <2	Stiff: 8-15
Loose: 4-10	V. Dense:: >50	Soft: 2-4	V. Stiff: 15-30
M. Dense: 10-30		M. Stiff: 4-8	Hard: > 30

Grain Content Percentages
And 35 -50%
Some 20-35%
Little 10-20%
Trace <10%

Parsons Drilling Record

Contractor:	Parratt-Wolff, Inc.			**BORING/WELL No.**	**SWMW-131**
Driller:	Ian Grassie	**PROJECT NAME:**	CVX-Beacon Westage Property Investigation	Page 6 of 11	
Inspector:	Ed Ashton	**PROJECT NUMBER:**	446074	**LOCATION DESCRIPTION**	
Rig Type:	Diedrich D-90 ATV			Westage Realty Property	
		Weather:	Sunny-80 Degrees		
GROUNDWATER OBSERVATIONS:					
DATE:	8/2/2010	**Date/Time Start:**	July-2010	See Site Plan	
DEPTH:	49.70 ft TOC				
ELEVATION:	227.13 ft TOC	**Date/Time Finish:**	August - 2010		

SAMPLE DEPTH (FT)	GEOPHYSICAL LOG	BLOWS per 6"	% REC.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL	WELL DIAGRAM	COMMENTS
100					(1'-184') Metamorphic Granite. Air-hammered from 1' to 184' bgs. No apparent water bearing zones encountered during drilling and no change in drilling pressure observed.		
102							GROUT (0-142 ft)
104							2.0" SCH 40 PVC RISER (0-150 ft)
106							
108					Open Fracture at 108' (S58E/37E/Aperture: 0.0)		
110					Sealed Fracture at 110' (N20E/30W/Aperture: 0.0)		Bedrock (10-184 ft)
112							
114							
116							
118							
120							

Notes: Groundwater sample collected on 08/03/10 for VOC 8260, SVOC 8270, TAL Metals, CA Oxygenates 8260, and sulfate/chloride 300.
GROUND SURFACE ELEVATION: 223.80 (FT TEX DAT).
TOP OF CASING ELEVATION: 227.13 (FT TEX DAT).

Sample Types/Drilling Methods		
S -- Shovel	0-1	ft bgs
U -- Undisturbed Tube	NA	NA
C -- Rock Core	NA	NA
AK- Air Knifed	NA	NA
AH- Air Hammering	1-184	ft bgs

Consistency vs. Blowcount / Foot			
Granular (Sand & Gravel)		Fine Grained (Silt & Clay)	
V. Loose: 0-4	Dense: 30-50	V. Soft: <2	Stiff: 8-15
Loose: 4-10	V. Dense:: >50	Soft: 2-4	V. Stiff: 15-30
M. Dense: 10-30		M. Stiff: 4-8	Hard: > 30

Grain Content Percentages
And 35 -50%
Some 20-35%
Little 10-20%
Trace <10%

Parsons Drilling Record

Contractor: Parratt-Wolff, Inc.
Driller: Ian Grassie
Inspector: Ed Ashton
Rig Type: Diedrich D-90 ATV

PROJECT NAME: CVX-Beacon Westage Property Investigation
PROJECT NUMBER: 446074

Weather: Sunny-80 Degrees

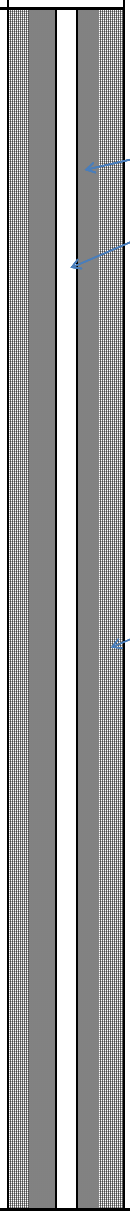
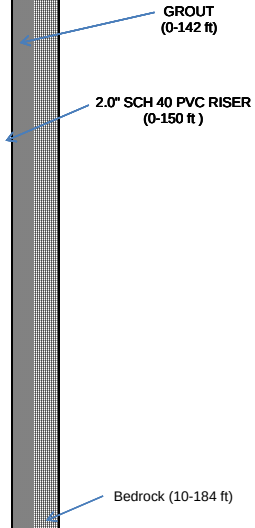
Date/Time Start: July-2010

Date/Time Finish: August - 2010

BORING/WELL No. SWMW-131
Page 7 of 11
LOCATION DESCRIPTION
Westage Realty Property

See Site Plan

GROUNDWATER OBSERVATIONS:
DATE: 8/2/2010
DEPTH: 49.70 ft TOC
ELEVATION: 227.13 ft TOC

SAMPLE DEPTH (FT)	GEOPHYSICAL LOG	BLOWS per 6"	% REC.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL	WELL DIAGRAM	COMMENTS
120					(1'-184') Metamorphic Granite. Air-hammered from 1' to 184' bgs. No apparent water bearing zones encountered during drilling and no change in drilling pressure observed.		
122							
124							
126							
128							
130							
132							
					Sealed Fracture at 133' (N2W/16W/Aperture: 0.0)		
134							
136					Sealed Fracture at 136' (S73W/59E/Aperture: 0.0)		
138							
					Sealed Fracture at 139' (S43W/70E/Aperture: 0.0)		
140							

Notes: Groundwater sample collected on 08/03/10 for VOC 8260, SVOC 8270, TAL Metals, CA Oxygenates 8260, and sulfate/chloride 300.
GROUND SURFACE ELEVATION: 223.80 (FT TEX DAT).
TOP OF CASING ELEVATION: 227.13 (FT TEX DAT).

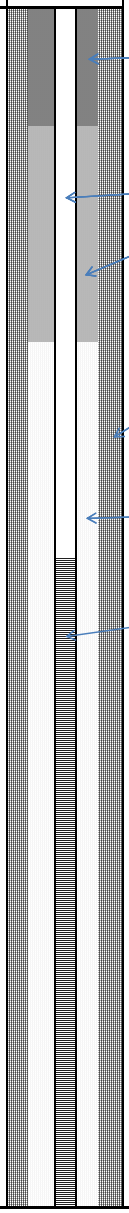
Sample Types/Drilling Methods		
S -- Shovel	0-1	ft bgs
U -- Undisturbed Tube	NA	NA
C -- Rock Core	NA	NA
AK- Air Knifed	NA	NA
AH- Air Hammering	1-184	ft bgs

Consistency vs. Blowcount / Foot			
Granular (Sand & Gravel)		Fine Grained (Silt & Clay)	
V. Loose: 0-4	Dense: 30-50	V. Soft: <2	Stiff: 8-15
Loose: 4-10	V. Dense:: >50	Soft: 2-4	V. Stiff: 15-30
M. Dense: 10-30		M. Stiff: 4-8	Hard: > 30

Grain Content Percentages
And 35 -50%
Some 20-35%
Little 10-20%
Trace <10%

Parsons Drilling Record

Contractor:	Parratt-Wolff, Inc.		**BORING/WELL No.** **SWMW-131**
Driller:	Ian Grassie	**PROJECT NAME:** CVX-Beacon Westage Property Investigation	Page 8 of 11
Inspector:	Ed Ashton	**PROJECT NUMBER:** 446074	**LOCATION DESCRIPTION**
Rig Type:	Diedrich D-90 ATV		Westage Realty Property
		Weather: Sunny-80 Degrees	
GROUNDWATER OBSERVATIONS:			
DATE:	8/2/2010	**Date/Time Start:** July-2010	See Site Plan
DEPTH:	49.70 ft TOC		
ELEVATION:	227.13 ft TOC	**Date/Time Finish:** August - 2010	

SAMPLE DEPTH (FT)	GEOPHYSICAL LOG	BLOWS per 6"	% REC.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL	WELL DIAGRAM	COMMENTS
140		NA			(1'-184') Metamorphic Granite. Air-hammered from 1' to 184' bgs. No apparent water bearing zones encountered during drilling and no change in drilling pressure observed.		GROUT (0-142 ft) 2.0" SCH 40 PVC RISER (0-150 ft) Bentonite (142-146 feet) Bedrock (10-184 ft) MORIE #0 SAND (146-172 ft) 2.0" SCH 40 PVC well screen 0.010" slot (150-170 ft)
142		NA					
144							
146							
148							
150					Open Fractures at 150-152' (N43E/64W/Aperture: 1.22) and (N88E/58W/Aperture: 0.0)		
152							
154							
156							
158							
160							

Notes: Groundwater sample collected on 08/03/10 for VOC 8260, SVOC 8270, TAL Metals, CA Oxygenates 8260, and sulfate/chloride 300.
GROUND SURFACE ELEVATION: 223.80 (FT TEX DAT).
TOP OF CASING ELEVATION: 227.13 (FT TEX DAT).

Sample Types/Drilling Methods		
S -- Shovel	0-1	ft bgs
U -- Undisturbed Tube	NA	NA
C -- Rock Core	NA	NA
AK- Air Knifed	NA	NA
AH- Air Hammering	1-184	ft bgs

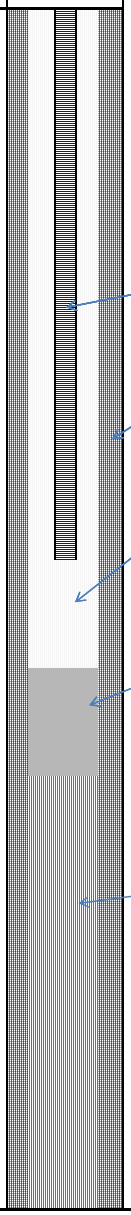
Consistency vs. Blowcount / Foot			
Granular (Sand & Gravel)		Fine Grained (Silt & Clay)	
V. Loose: 0-4	Dense: 30-50	V. Soft: <2	Stiff: 8-15
Loose: 4-10	V. Dense:: >50	Soft: 2-4	V. Stiff: 15-30
M. Dense: 10-30		M. Stiff: 4-8	Hard: > 30

Grain Content Percentages
And 35 -50%
Some 20-35%
Little 10-20%
Trace <10%

Parsons Drilling Record

Contractor:	Parratt-Wolff, Inc.		**BORING/WELL No.** SWMW-131
Driller:	Ian Grassie	**PROJECT NAME:** CVX-Beacon Westage Property Investigation	Page 9 of 11
Inspector:	Ed Ashton	**PROJECT NUMBER:** 446074	**LOCATION DESCRIPTION**
Rig Type:	Diedrich D-90 ATV		Westage Realty Property
		Weather: Sunny-80 Degrees	
GROUNDWATER OBSERVATIONS:			
DATE:	8/2/2010	**Date/Time Start:** July-2010	See Site Plan
DEPTH:	49.70 ft TOC		
ELEVATION:	227.13 ft TOC	**Date/Time Finish:** August - 2010	

SAMPLE DEPTH (FT)	GEOPHYSICAL LOG	BLOWS per 6"	% REC.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL	WELL DIAGRAM	COMMENTS
160					(1'-184') Metamorphic Granite. Air-hammered from 1' to 184' bgs. No apparent water bearing zones encountered during drilling and no change in drilling pressure observed.		
162							
164							
					Open Fracture at 165' (S73W/44E/Aperture: 1.97)		
166							
168							
170							
172							
174							
176							
178							
180							



Notes: Groundwater sample collected on 08/03/10 for VOC 8260, SVOC 8270, TAL Metals, CA Oxygenates 8260, and sulfate/chloride 300.
GROUND SURFACE ELEVATION: 223.80 (FT TEX DAT).
TOP OF CASING ELEVATION: 227.13 (FT TEX DAT).

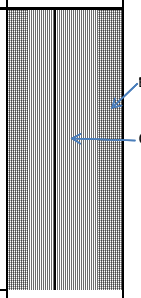
Sample Types/Drilling Methods		
S -- Shovel	0-1	ft bgs
U -- Undisturbed Tube	NA	NA
C -- Rock Core	NA	NA
AK- Air Knifed	NA	NA
AH- Air Hammering	1-184	ft bgs

Consistency vs. Blowcount / Foot			
Granular (Sand & Gravel)		Fine Grained (Silt & Clay)	
V. Loose: 0-4	Dense: 30-50	V. Soft: <2	Stiff: 8-15
Loose: 4-10	V. Dense:: >50	Soft: 2-4	V. Stiff: 15-30
M. Dense: 10-30		M. Stiff: 4-8	Hard: > 30

Grain Content Percentages
And 35 -50%
Some 20-35%
Little 10-20%
Trace <10%

Parsons Drilling Record

Contractor:	Parratt-Wolff, Inc.		**BORING/WELL No.** **SWMW-131**
Driller:	Ian Grassie	**PROJECT NAME:** CVX-Beacon Westage Property Investigation	Page 10 of 11
Inspector:	Ed Ashton	**PROJECT NUMBER:** 446074	**LOCATION DESCRIPTION**
Rig Type:	Diedrich D-90 ATV		Westage Realty Property
		Weather: Sunny-80 Degrees	
GROUNDWATER OBSERVATIONS:			
DATE:	8/2/2010	**Date/Time Start:** July-2010	See Site Plan
DEPTH:	49.70 ft TOC		
ELEVATION:	227.13 ft TOC	**Date/Time Finish:** August - 2010	

SAMPLE DEPTH (FT)	GEOPHYSICAL LOG	BLOWS per 6"	% REC.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL	WELL DIAGRAM	COMMENTS
180					(1'-184') Metamorphic Granite. Air-hammered from 1' to 184' bgs. No apparent water bearing zones encountered during drilling and no change in drilling pressure observed.		Bedrock (10-184 ft) Cave-in material (172-184 ft)
182							
184							
					Boring terminated at 184 ft bgs.		

Notes: Groundwater sample collected on 08/03/10 for VOC 8260, SVOC 8270, TAL Metals, CA Oxygenates 8260, and sulfate/chloride 300.
GROUND SURFACE ELEVATION: 223.80 (FT TEX DAT).
TOP OF CASING ELEVATION: 227.13 (FT TEX DAT).

Sample Types/Drilling Methods		
S -- Shovel	0-1	ft bgs
U -- Undisturbed Tube	NA	NA
C -- Rock Core	NA	NA
AK- Air Knifed	NA	NA
AH- Air Hammering	1-184	ft bgs

Consistency vs. Blowcount / Foot			
Granular (Sand & Gravel)		Fine Grained (Silt & Clay)	
V. Loose: 0-4	Dense: 30-50	V. Soft: <2	Stiff: 8-15
Loose: 4-10	V. Dense:: >50	Soft: 2-4	V. Stiff: 15-30
M. Dense: 10-30		M. Stiff: 4-8	Hard: > 30

Grain Content Percentages
And 35 -50%
Some 20-35%
Little 10-20%
Trace <10%

Parsons Drilling Record - Notes

Contractor:	Parratt-Wolff, Inc.			**BORING/WELL No.**	**SWMW-131**
Driller:	Ian Grassie	**PROJECT NAME:**	CVX-Beacon Westage Property Investigation	Page 11 of 11	
Inspector:	Ed Ashton	**PROJECT NUMBER:**	446074	**LOCATION DESCRIPTION**	
Rig Type:	Diedrich D-90 ATV			Westage Realty Property	
		Weather:	Sunny-80 Degrees		
GROUNDWATER OBSERVATIONS:					
DATE:	8/2/2010	**Date/Time Start:**	July-2010		
DEPTH:	49.70 ft TOC			See Site Plan	
ELEVATION:	227.13 ft TOC	**Date/Time Finish:**	August - 2010		

Notes:

1) Breathing Zone Air Monitoring: Performed continuously throughout drilling activities using a Multi Rae Plus (PID & LEL). No exceedances noted.

Range of Standards:
CO: 0-0 ppm
H2S: 0-0 ppm
LEL: 0-0 %
O2: 20.9 %
PID: 0-0 ppm

2) Geophysical logging of borehole performed. Detailed information regarding geophysical analysis for this boring can be found on the televiewer and geophysical log provided by EnvrioScan-Mid-Atlantic Geosciences (see Westage Realty Property Subsurface Investigation). Geophysical log graphics are not shown exactly to scale. Exact depths of features are indicated in the description column.

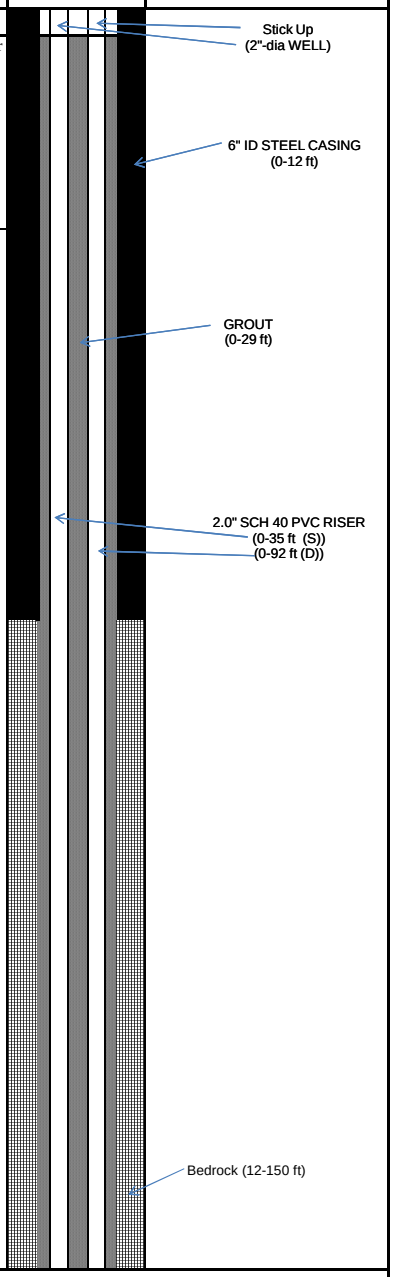
3) No immediate water encountered during drilling activities.

4) Apertures measured in inches.

Parsons Drilling Record

Contractor:	Parratt-Wolff, Inc.		**BORING/WELL No.** SWMW-132 (S) (D)
Driller:	Ian Grassie	**PROJECT NAME:** CVX-Beacon Westage Property Investigation	Page 1 of 9
Inspector:	Ed Ashton	**PROJECT NUMBER:** 446074	**LOCATION DESCRIPTION**
Rig Type:	Diedrich D-90 ATV		Westage Realty Property
		Weather: Sunny-80 Degrees	
GROUNDWATER OBSERVATIONS:			
DATE:	8/3/2010	**Date/Time Start:** July-2010	See Site Plan
DEPTH:	41.90 (S), 42.60 (D) ft TOC		
ELEVATION:	219.80 (S), 219.67 (D) ft TOC	**Date/Time Finish:** August - 2010	

SAMPLE DEPTH (FT)	GEOPHYSICAL LOG	BLOWS per 6"	% REC.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL
0		NA	NA	NA	(0'-3') Dry, brown, FINE to MEDIUM SAND, some organic roots, trace silt, no odor or stains - (SM) (Topsoil). (Hand shoveled)
2					
		NA	NA	NA	(3'-150') Metamorphic Granite. Air-hammered from 3' to 150 ' bgs.
4					
6					
8					
10					
12					
14					
16					
18					
20					



Notes:
Groundwater sample collected on 08/03/10 for VOC 8260, SVOC 8270, TAL Metals, CA Oxygenates 8260, and sulfate/chloride 300.
GROUND SURFACE ELEVATION: 216.87 ((FT TEX DAT).
TOP OF CASING ELEVATION: 219.80 (S), 219.67 (D) (FT TEX DAT).

Sample Types/Drilling Methods		
S -- Shovel	0-3	ft bgs
U -- Undisturbed Tube	NA	NA
C -- Rock Core	NA	NA
AK- Air Knifed	NA	NA
AH- Air Hammering	3-150	ft bgs

Consistency vs. Blowcount / Foot			
Granular (Sand & Gravel)		Fine Grained (Silt & Clay)	
V. Loose: 0-4	Dense: 30-50	V. Soft: <2	Stiff: 8-15
Loose: 4-10	V. Dense:: >50	Soft: 2-4	V. Stiff: 15-30
M. Dense: 10-30		M. Stiff: 4-8	Hard: > 30

Grain Content Percentages
And 35 -50%
Some 20-35%
Little 10-20%
Trace <10%

Parsons Drilling Record

Contractor:	Parratt-Wolff, Inc.		**BORING/WELL No.** SWMW-132 (S) (D)
Driller:	Ian Grassie	**PROJECT NAME:** CVX-Beacon Westage Property Investigation	Page 2 of 9
Inspector:	Ed Ashton	**PROJECT NUMBER:** 446074	**LOCATION DESCRIPTION**
Rig Type:	Diedrich D-90 ATV		Westage Realty Property
		Weather: Sunny-80 Degrees	
GROUNDWATER OBSERVATIONS:			
DATE:	8/3/2010	**Date/Time Start:** July-2010	See Site Plan
DEPTH:	41.90 (S), 42.60 (D) ft TOC		
ELEVATION:	219.80 (S), 219.67 (D) ft TOC	**Date/Time Finish:** August - 2010	

SAMPLE DEPTH (FT)	GEOPHYSICAL LOG	BLOWS per 6"	% REC.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL	WELL DIAGRAM	COMMENTS
20					(3'-150') Metamorphic Granite. Air-hammered from 3' to 150 ' bgs.		
22					Open Fracture at 22' (N31E/73W/Aperture: 0.00)		GROUT (0-29 ft)
24					Series of Fractures at 24-28' (N41E/82W/Aperture: 0.00-Sealed Fracture), (S27W/29E/Aperture: 0.00-Open Fracture), (N34E/69W/Aperture: 0.00-Open Fracture), (N4E/63W/Aperture: 0.00-Sealed Fracture), and (N10E/69W/Aperture: 0.0-Sealed Fracture)		2.0" SCH 40 PVC RISER (0-35 ft (S)) (0-92 ft (D))
26							
28							Bentonite (29-31 feet)
30					Sealed Fracture at 30' (S45W/69E/Aperture: 0.00)		
32							Bedrock (12-150 ft)
34							
36					Open Fractures at 35-37' (N57E/75W/Aperture: 0.00) and (N89W/22W/Aperture: 6.58)		2.0" SCH 40 PVC well screen 0.010" slot (35-55 ft (S)) MORIE #0 SAND (31-57 ft)
38							
40							

Notes: Groundwater sample collected on 08/03/10 for VOC 8260, SVOC 8270, TAL Metals, CA Oxygenates 8260, and sulfate/chloride 300.
GROUND SURFACE ELEVATION: 216.87 ((FT TEX DAT).
TOP OF CASING ELEVATION: 219.80 (S), 219.67 (D) (FT TEX DAT).

Sample Types/Drilling Methods		
S -- Shovel	0-3	ft bgs
U -- Undisturbed Tube	NA	NA
C -- Rock Core	NA	NA
AK- Air Knifed	NA	NA
AH- Air Hammering	3-150	ft bgs

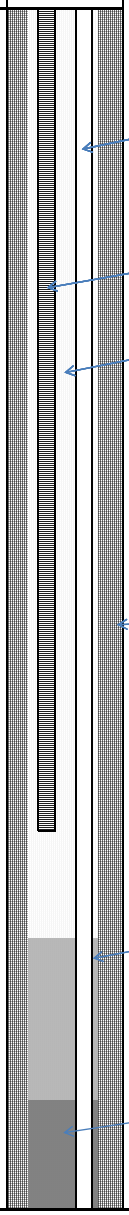
Consistency vs. Blowcount / Foot			
Granular (Sand & Gravel)		Fine Grained (Silt & Clay)	
V. Loose: 0-4	Dense: 30-50	V. Soft: <2	Stiff: 8-15
Loose: 4-10	V. Dense:: >50	Soft: 2-4	V. Stiff: 15-30
M. Dense: 10-30		M. Stiff: 4-8	Hard: > 30

Grain Content Percentages
And 35 -50%
Some 20-35%
Little 10-20%
Trace <10%

Parsons Drilling Record

Contractor:	Parratt-Wolff, Inc.			**BORING/WELL No.**	**SWMW-132 (S) (D)**
Driller:	Ian Grassie	**PROJECT NAME:**	CVX-Beacon Westage Property Investigation	Page 3 of 9	
Inspector:	Ed Ashton	**PROJECT NUMBER:**	446074	**LOCATION DESCRIPTION**	
Rig Type:	Diedrich D-90 ATV			Westage Realty Property	
		Weather:	Sunny-80 Degrees		
GROUNDWATER OBSERVATIONS:					
DATE:	8/3/2010	**Date/Time Start:**	July-2010		
DEPTH:	41.90 (S), 42.60 (D) ft TOC			See Site Plan	
ELEVATION:	219.80 (S), 219.67 (D) ft TOC	**Date/Time Finish:**	August - 2010		

SAMPLE DEPTH (FT)	GEOPHYSICAL LOG	BLOWS per 6"	% REC.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL	WELL DIAGRAM	COMMENTS
40					(3'-150') Metamorphic Granite. Air-hammered from 3' to 150 ' bgs.		
42							
44							
46					Open Fractures at 46-47' (N40E/62W/Aperture: 0.00) and (N56E/51W/Aperture: 0.00)		
48							
50					Open Fractures at 49-50' (N36E/74W/Aperture: 0.00) and (N40E/74W/Aperture: 0.00)		
52					Open Fracture at 52' (N23E/67W/Aperture: 0.00)		
54							
56							
58							
60					Sealed Fracture at 59' (N23E/74W/Aperture: 0.00)		



Notes: Groundwater sample collected on 08/03/10 for VOC 8260, SVOC 8270, TAL Metals, CA Oxygenates 8260, and sulfate/chloride 300.
GROUND SURFACE ELEVATION: 216.87 ((FT TEX DAT).
TOP OF CASING ELEVATION: 219.80 (S), 219.67 (D) (FT TEX DAT).

Sample Types/Drilling Methods		
S -- Shovel	0-3	ft bgs
U -- Undisturbed Tube	NA	NA
C -- Rock Core	NA	NA
AK- Air Knifed	NA	NA
AH- Air Hammering	3-150	ft bgs

Consistency vs. Blowcount / Foot			
Granular (Sand & Gravel)		Fine Grained (Silt & Clay)	
V. Loose: 0-4	Dense: 30-50	V. Soft: <2	Stiff: 8-15
Loose: 4-10	V. Dense:: >50	Soft: 2-4	V. Stiff: 15-30
M. Dense: 10-30		M. Stiff: 4-8	Hard: > 30

Grain Content Percentages
And 35 -50%
Some 20-35%
Little 10-20%
Trace <10%

Parsons Drilling Record

Contractor:	Parratt-Wolff, Inc.		**BORING/WELL No.** **SWMW-132 (S) (D)**
Driller:	Ian Grassie	**PROJECT NAME:** CVX-Beacon Westage Property Investigation	Page 4 of 9
Inspector:	Ed Ashton	**PROJECT NUMBER:** 446074	**LOCATION DESCRIPTION**
Rig Type:	Diedrich D-90 ATV		Westage Realty Property
		Weather: Sunny-80 Degrees	
GROUNDWATER OBSERVATIONS:			
DATE:	8/3/2010	**Date/Time Start:** July-2010	
DEPTH:	41.90 (S), 42.60 (D) ft TOC		See Site Plan
ELEVATION:	219.80 (S), 219.67 (D) ft TOC	**Date/Time Finish:** August - 2010	

SAMPLE DEPTH (FT)	GEOPHYSICAL LOG	BLOWS per 6"	% REC.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL	WELL DIAGRAM	COMMENTS
60					(3'-150') Metamorphic Granite. Air-hammered from 3' to 150 ' bgs.		
62					Series of Fractures at 63-68' (N85W/57W/Aperture: 0.00-Open Fracture), (N17E/77W/Aperture: 0.00-Sealed Fracture), (S50E/82E/Aperture: 0.00-Sealed Fracture), (S22E/80E/Aperture: 0.00-Sealed Fracture), (N61E/76W/Aperture: 0.0-Open Fracture), and (S46W/22E/Aperture: 0.00-Open Fracture)		GROUT (60-84 ft)
64							2.0" SCH 40 PVC RISER (0-92 ft)
66							
68							
70							
72					Series of Fractures at 71-76' (S64W/51E/Aperture: 3.27-Open Fracture), (S86W/38E/Aperture: 0.00-Open Fracture), (N27E/75W/Aperture: 0.00-Open Fracture), (N41W/23W/Aperture: 0.00-Open Fracture), and (S57W/55E/Aperture: 0.00-Open Fracture)		Bedrock (12-150 ft)
74							
76							
78					Series of Fractures at 78-79' (S85E/57E/Aperture: 0.00-Open Fracture) and (S24W/69E/Aperture: 0.00-Sealed Fracture)		
80							

Notes: Groundwater sample collected on 08/03/10 for VOC 8260, SVOC 8270, TAL Metals, CA Oxygenates 8260, and sulfate/chloride 300.
GROUND SURFACE ELEVATION: 216.87 ((FT TEX DAT).
TOP OF CASING ELEVATION: 219.80 (S), 219.67 (D) (FT TEX DAT).

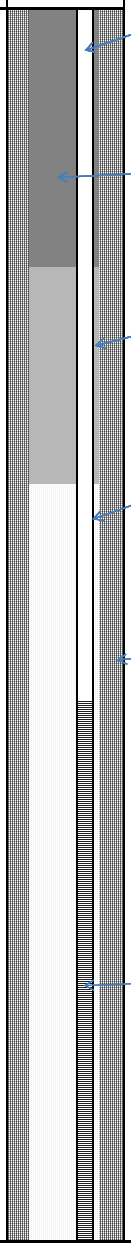
Sample Types/Drilling Methods		
S -- Shovel	0-3	ft bgs
U -- Undisturbed Tube	NA	NA
C -- Rock Core	NA	NA
AK- Air Knifed	NA	NA
AH- Air Hammering	3-150	ft bgs

Consistency vs. Blowcount / Foot				
Granular (Sand & Gravel)		Fine Grained (Silt & Clay)		
V. Loose: 0-4	Dense: 30-50	V. Soft: <2	Stiff: 8-15	
Loose: 4-10	V. Dense:: >50	Soft: 2-4	V. Stiff: 15-30	
M. Dense: 10-30		M. Stiff: 4-8	Hard: > 30	

Grain Content Percentages
And 35 -50%
Some 20-35%
Little 10-20%
Trace <10%

Parsons Drilling Record

Contractor:	Parratt-Wolff, Inc.		**BORING/WELL No.** SWMW-132 (S) (D)
Driller:	Ian Grassie	**PROJECT NAME:** CVX-Beacon Westage Property Investigation	Page 5 of 9
Inspector:	Ed Ashton	**PROJECT NUMBER:** 446074	**LOCATION DESCRIPTION**
Rig Type:	Diedrich D-90 ATV		Westage Realty Property
		Weather: Sunny-80 Degrees	
GROUNDWATER OBSERVATIONS:			
DATE:	8/3/2010	**Date/Time Start:** July-2010	See Site Plan
DEPTH:	41.90 (S), 42.60 (D) ft TOC		
ELEVATION:	219.80 (S), 219.67 (D) ft TOC	**Date/Time Finish:** August - 2010	

SAMPLE DEPTH (FT)	GEOPHYSICAL LOG	BLOWS per 6"	% REC.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL	WELL DIAGRAM	COMMENTS
80					(3'-150') Metamorphic Granite. Air-hammered from 3' to 150 ' bgs. Series of Fractures at 80-89' (S16E/58E/Aperture: 0.00-Open Fracture), (S60W/80E/Aperture: 0.00-Sealed Fracture), (S15W/68E/Aperture: 0.00-Open Fracture), (N53E/52W/Aperture: 0.00-Open Fracture), and (N51E/47W/Aperture: 0.00-Open Fracture)		2.0" SCH 40 PVC RISER (0-92 ft)
82							GROUT (60-84 ft)
84							Bentonite (84-88 feet)
86							
88							MORIE #0 SAND (88-117 ft)
90					Sealed Fractures at 90-92' (N53E/80W/Aperture: 0.00) and (S71W/21E/Aperture: 0.00)		Bedrock (12-150 ft)
92							
94							
					Open Fracture at 95' (N57E/57W/Aperture: 2.51)		
96							
					Open Fracture at 97' (S57W/38E/Aperture: 0.00)		2.0" SCH 40 PVC well screen 0.010" slot (92-112 ft (D))
98							
					Sealed Fractures at 99-100' (S41W/74E/Aperture: 0.00) and (N90E/17W/Aperture: 0.00)		
100							

Notes: Groundwater sample collected on 08/03/10 for VOC 8260, SVOC 8270, TAL Metals, CA Oxygenates 8260, and sulfate/chloride 300.
GROUND SURFACE ELEVATION: 216.87 ((FT TEX DAT).
TOP OF CASING ELEVATION: 219.80 (S), 219.67 (D) (FT TEX DAT).

Sample Types/Drilling Methods		
S -- Shovel	0-3	ft bgs
U -- Undisturbed Tube	NA	NA
C -- Rock Core	NA	NA
AK- Air Knifed	NA	NA
AH- Air Hammering	3-150	ft bgs

Consistency vs. Blowcount / Foot			
Granular (Sand & Gravel)		Fine Grained (Silt & Clay)	
V. Loose: 0-4	Dense: 30-50	V. Soft: <2	Stiff: 8-15
Loose: 4-10	V. Dense:: >50	Soft: 2-4	V. Stiff: 15-30
M. Dense: 10-30		M. Stiff: 4-8	Hard: > 30

Grain Content Percentages
And 35 -50%
Some 20-35%
Little 10-20%
Trace <10%

Parsons Drilling Record

Contractor:	Parratt-Wolff, Inc.		**BORING/WELL No.** SWMW-132 (S) (D)
Driller:	Ian Grassie	**PROJECT NAME:** CVX-Beacon Westage Property Investigation	Page 6 of 9
Inspector:	Ed Ashton	**PROJECT NUMBER:** 446074	**LOCATION DESCRIPTION**
Rig Type:	Diedrich D-90 ATV		Westage Realty Property
		Weather: Sunny-80 Degrees	
GROUNDWATER OBSERVATIONS:			
DATE:	8/3/2010	**Date/Time Start:** July-2010	
DEPTH:	41.90 (S), 42.60 (D) ft TOC		See Site Plan
ELEVATION:	219.80 (S), 219.67 (D) ft TOC	**Date/Time Finish:** August - 2010	

SAMPLE DEPTH (FT)	GEOPHYSICAL LOG	BLOWS per 6"	% REC.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL	WELL DIAGRAM	COMMENTS
100					(3'-150') Metamorphic Granite. Air-hammered from 3' to 150 ' bgs.		
							2.0" SCH 40 PVC well screen 0.010" slot (92-112 ft (D))
102							
104					Sealed Fracture at 104' (S75E/7E/Aperture: 0.00)		
106							
							MORIE #0 SAND (88-117 ft)
108					Open Fractures at 108-110' (S51W/75E/Aperture: 1.89) and (S83W/58E/Aperture: 0.00)		
110							
							Bedrock (12-150 ft)
112							
114					Open Fractures at 114-116' (S53E/58E/Aperture: 0.00) and (S16W/58E/Aperture: 0.00)		
116							
118							
							GROUT (117-150 ft)
120							

Notes: Groundwater sample collected on 08/03/10 for VOC 8260, SVOC 8270, TAL Metals, CA Oxygenates 8260, and sulfate/chloride 300.
GROUND SURFACE ELEVATION: 216.87 ((FT TEX DAT).
TOP OF CASING ELEVATION: 219.80 (S), 219.67 (D) (FT TEX DAT).

Sample Types/Drilling Methods		
S -- Shovel	0-3	ft bgs
U -- Undisturbed Tube	NA	NA
C -- Rock Core	NA	NA
AK- Air Knifed	NA	NA
AH- Air Hammering	3-150	ft bgs

Consistency vs. Blowcount / Foot			
Granular (Sand & Gravel)		Fine Grained (Silt & Clay)	
V. Loose: 0-4	Dense: 30-50	V. Soft: <2	Stiff: 8-15
Loose: 4-10	V. Dense:: >50	Soft: 2-4	V. Stiff: 15-30
M. Dense: 10-30		M. Stiff: 4-8	Hard: > 30

Grain Content Percentages	
And	35 -50%
Some	20-35%
Little	10-20%
Trace	<10%

Parsons Drilling Record

Contractor:	Parratt-Wolff, Inc.		**BORING/WELL No.** SWMW-132 (S) (D)
Driller:	Ian Grassie	**PROJECT NAME:** CVX-Beacon Westage Property Investigation	Page 7 of 9
Inspector:	Ed Ashton	**PROJECT NUMBER:** 446074	**LOCATION DESCRIPTION**
Rig Type:	Diedrich D-90 ATV		Westage Realty Property
		Weather: Sunny-80 Degrees	
GROUNDWATER OBSERVATIONS:			
DATE:	8/3/2010	**Date/Time Start:** July-2010	
DEPTH:	41.90 (S), 42.60 (D) ft TOC		See Site Plan
ELEVATION:	219.80 (S), 219.67 (D) ft TOC	**Date/Time Finish:** August - 2010	

SAMPLE DEPTH (FT)	GEOPHYSICAL LOG	BLOWS per 6"	% REC.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL	WELL DIAGRAM	COMMENTS
120					(3'-150') Metamorphic Granite. Air-hammered from 3' to 150 ' bgs.		
					Sealed Fractures at 120-122' (N17E/73W/Aperture: 0.00) and (N19E/75W/Aperture: 0.00)		
122							GROUT (117-150 ft)
124							
126					Bed at 126-128' (S62W/39E/Aperture: 17.21)		
128							
130					Between 130 to 135 ft. a soft zone and water bearing encountered. Sealed Fracture at 130' (N39W/44W/ Aperture: 0.00)		
							Bedrock (12-150 ft)
132							
134							
					Open Fracture at 135' (N45W/27W/ Aperture: 0.00)		
136					Open Fractures at 136-138' (N58W/36W/Aperture: 0.00) and (S86E/63E/Aperture: 0.00)		
138							
140							

Notes: Groundwater sample collected on 08/03/10 for VOC 8260, SVOC 8270, TAL Metals, CA Oxygenates 8260, and sulfate/chloride 300.
GROUND SURFACE ELEVATION: 216.87 ((FT TEX DAT).
TOP OF CASING ELEVATION: 219.80 (S), 219.67 (D) (FT TEX DAT).

Sample Types/Drilling Methods		
S -- Shovel	0-3	ft bgs
U -- Undisturbed Tube	NA	NA
C -- Rock Core	NA	NA
AK- Air Knifed	NA	NA
AH- Air Hammering	3-150	ft bgs

Consistency vs. Blowcount / Foot			
Granular (Sand & Gravel)		Fine Grained (Silt & Clay)	
V. Loose: 0-4	Dense: 30-50	V. Soft: <2	Stiff: 8-15
Loose: 4-10	V. Dense:: >50	Soft: 2-4	V. Stiff: 15-30
M. Dense: 10-30		M. Stiff: 4-8	Hard: > 30

Grain Content Percentages	
And	35 -50%
Some	20-35%
Little	10-20%
Trace	<10%

Parsons Drilling Record

Contractor: Parratt-Wolff, Inc.
Driller: Ian Grassie
Inspector: Ed Ashton
Rig Type: Diedrich D-90 ATV

PROJECT NAME: CVX-Beacon Westage Property Investigation
PROJECT NUMBER: 446074

Weather: Sunny-80 Degrees

Date/Time Start: July-2010

Date/Time Finish: August - 2010

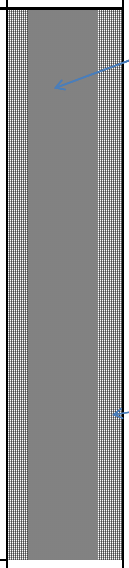
BORING/WELL No. SWMW-132 (S) (D)

Page 8 of 9

LOCATION DESCRIPTION
Westage Realty Property

See Site Plan

GROUNDWATER OBSERVATIONS:
DATE: 8/3/2010
DEPTH: 41.90 (S), 42.60 (D) ft TOC
ELEVATION: 219.80 (S), 219.67 (D) ft TOC

SAMPLE DEPTH (FT)	GEOPHYSICAL LOG	BLOWS per 6"	% REC.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL	WELL DIAGRAM	COMMENTS
140					(3'-150') Metamorphic Granite. Air-hammered from 3' to 150 ' bgs.		GROUT (117-150 ft)
142							
144							
146							Bedrock (12-150 ft)
148							
150					Terminated boring at 150 ft bgs.		
152							
154							
156							
158							
160							

Notes: Groundwater sample collected on 08/03/10 for VOC 8260, SVOC 8270, TAL Metals, CA Oxygenates 8260, and sulfate/chloride 300.
GROUND SURFACE ELEVATION: 216.87 ((FT TEX DAT).
TOP OF CASING ELEVATION: 219.80 (S), 219.67 (D) (FT TEX DAT).

Sample Types/Drilling Methods		
S -- Shovel	0-3	ft bgs
U -- Undisturbed Tube	NA	NA
C -- Rock Core	NA	NA
AK- Air Knifed	NA	NA
AH- Air Hammering	3-150	ft bgs

Consistency vs. Blowcount / Foot			
Granular (Sand & Gravel)		Fine Grained (Silt & Clay)	
V. Loose: 0-4	Dense: 30-50	V. Soft: <2	Stiff: 8-15
Loose: 4-10	V. Dense:: >50	Soft: 2-4	V. Stiff: 15-30
M. Dense: 10-30		M. Stiff: 4-8	Hard: > 30

Grain Content Percentages
And 35 -50%
Some 20-35%
Little 10-20%
Trace <10%

Parsons Drilling Record - Notes

Contractor:	Parratt-Wolff, Inc.			**BORING/WELL No.**	**SWMW-132 (S) (D)**
Driller:	Ian Grassie	**PROJECT NAME:**	CVX-Beacon Westage Property Investigation	Page 9 of 9	
Inspector:	Ed Ashton	**PROJECT NUMBER:**	446074	**LOCATION DESCRIPTION**	
Rig Type:	Diedrich D-90 ATV			Westage Realty Property	
		Weather:	Sunny-80 Degrees		
GROUNDWATER OBSERVATIONS:					
DATE:	8/3/2010	**Date/Time Start:**	July-2010		
DEPTH:	41.90 (S), 42.60 (D) ft TOC			See Site Plan	
ELEVATION:	219.80 (S), 219.67 (D) ft TOC	**Date/Time Finish:**	August - 2010		

Notes:

1) Breathing Zone Air Monitoring: Performed continuously throughout drilling activities using a Multi Rae Plus (PID & LEL). No exceedances noted.

Range of Standards:
CO: 0-0 ppm
H2S: 0-0 ppm
LEL: 0-0 %
O2: 20.9 %
PID: 0-0 ppm

2) Geophysical logging of borehole performed. Detailed information regarding geophysical analysis for this boring can be found on the televiewer and geophysical log provided by EnvrioScan-Mid-Atlantic Geosciences (see Westage Realty Property Subsurface Investigation). Geophysical log graphics are not shown exactly to scale. Exact depths of features are indicated in the description column.

3) Encountered water at ~130 to 135 ft bgs and drilled to 150 ft bgs.

4) Apertures measured in inches.

(5) Installed two bedrock groundwater monitoring wells inside borehole. One shallow (SWMW-132 (S)) and one deep (SWMW-132 (D)). Shallow well screened from 35-55 ft. bgs and deep well screened from 92-112 ft. bgs.

APPENDIX B

SURVEY DATA SUMMARY

Report of Monitoring Well Locations
Accompanying Survey prepared for Parsons Commercial Technology Group, Inc.
Texaco/Chevron Site - Glenham, NY
August 27, 2010

	Texaco System		NYSEZ (NAD83)		Texaco Datum	Ground El. (Ft.)			
Well ID	North (Ft.)	East (Ft.)	North (Ft.)	East (Ft.)	Casing El. (Ft.)	(Top Concrete)	B&W #	Remarks	Date
SWMW-130S	3435.11	2313.42	977275.12	644570.93	209.79	206.18	4986		17-Aug-10
SWMW-130D	3435.43	2313.43	977275.43	644570.94	209.83	206.18	4985		17-Aug-10
SWMW-131	3663.28	2572.14	977505.73	644827.44	227.13	223.80	4976		17-Aug-10
SWMW-132S	3700.29	2676.54	977543.74	644931.46	219.80	216.87	4981		17-Aug-10
SWMW-132D	3700.32	2676.29	977543.77	644931.22	219.67	216.87	4982		17-Aug-10

APPENDIX C

GROUNDWATER MONITORING WELL SAMPLING LOGS

PARSONS
GROUNDWATER SAMPLING RECORD

SITE NAME: CVX-Westage Well Sampling- Beacon, NY
PROJECT NUMBER: 446074

SAMPLE NUMBER: **SWMW-130 (S)** WEATHER: Sunny-80 degrees
DATE: 8/3/10 TIME: 1115

SAMPLERS: Ed Ashton of Parsons
Kim Hayden of Parsons

DESCRIPTION OF SAMPLING POINT

Sample Location: Monitoring well -SWMW-130(S)
Screen/Sample Depth: TD= 41 feet from top of casing
Sampling Method: HDPE disposable bailer and rope

GROUNDWATER PURGING

Initial Static Water Level: 31.75 feet
One Well Volume: 3 Volumes

2-Inch Casing:	9.25	Feet of Water x 0.16 Gallons/Foot =	1.50	Gallons	4.52
3-Inch Casing:		Feet of Water x 0.36 Gallons/Foot =		Gallons	
4-Inch Casing:		Feet of Water x 0.65 Gallons/Foot =		Gallons	

Volume of groundwater purged: 13 Gallons
Purging Device: HDPE disposable bailer and rope
Purge Water Disposition (e.g., contained) poly. tank and transferred to onsite wastewater treatment plant

SAMPLE DESCRIPTION

Color: clear then got turbid
Odor: none
Other: none
Sample Analyzed for: 8260, 8270, TAL Metals, sulfate, and chloride
QC Samples at this Location none
QC Samples Analyzed for: none

FIELD MEASUREMENTS

Temperature (C): 16.07°
pH: 6.81
Conductivity (ms/cm): 0.413
Turbidity (NTU): 137
Dissolved Oxygen (mg/l): 12.88
Eh (Redox Potential) (mv) 155
Phenol Alk. (mg/l): NA
Methyl. Alk. (mg/l): NA
Ferrous Iron (mg/l): NA

SAMPLE CUSTODY

Chain of Custody Number:
Shipped Via: Fedex
Laboratory: Lancaster Laboratories
Airbill Number:

COMMENTS Developed well using HDPE disposable bailer and rope. (Purged dry three times)

PARSONS
GROUNDWATER SAMPLING RECORD

SITE NAME: CVX-Westage Well Sampling- Beacon, NY
PROJECT NUMBER: 446074

SAMPLE NUMBER: **SWMW-130 (D)** WEATHER: Sunny-80 degrees
DATE: 8/3/10 TIME: 1120

SAMPLERS: Ed Ashton of Parsons
Kim Hayden of Parsons

DESCRIPTION OF SAMPLING POINT

Sample Location: Monitoring well -SWMW-130(D)
Screen/Sample Depth: TD= 56 feet from top of casing
Sampling Method: HDPE disposable bailer and rope

GROUNDWATER PURGING

Initial Static Water Level: 31.71 feet
One Well Volume: 3 Volumes

2-Inch Casing:	24.29	Feet of Water x 0.16 Gallons/Foot =	3.95	Gallons	11.87
3-Inch Casing:		Feet of Water x 0.36 Gallons/Foot =		Gallons	
4-Inch Casing:		Feet of Water x 0.65 Gallons/Foot =		Gallons	

Volume of groundwater purged: # Gallons
Purging Device: HDPE disposable bailer and rope
Purge Water Disposition (e.g., contained) poly. tank and transferred to onsite wastewater treatment plant

SAMPLE DESCRIPTION

Color: clear then got turbid
Odor: none
Other: none
Sample Analyzed for: 8260, 8270, TAL Metals, sulfate, and chloride
QC Samples at this Location none
QC Samples Analyzed for: none

FIELD MEASUREMENTS

Temperature (C): 17.27° Dissolved Oxygen (mg/l): 11.44
pH: 6.37 Eh (Redox Potential) (mv) 180
Conductivity (ms/cm): 0.280 Phenol Alk. (mg/l): NA
Turbidity (NTU): 28.6 Methyl. Alk. (mg/l): NA
Ferrous Iron (mg/l): NA

SAMPLE CUSTODY

Chain of Custody Number: Laboratory: Lancaster Laboratories
Shipped Via: Fedex Airbill Number:

COMMENTS Developed well using HDPE disposable bailer and rope.
(Purged dry two times and parameters stabilized)

PARSONS
GROUNDWATER SAMPLING RECORD

SITE NAME: CVX-Westage Well Sampling- Beacon, NY
PROJECT NUMBER: 446074

SAMPLE NUMBER: **SWMW-131** WEATHER: Sunny-80 degrees
DATE: 8/3/10 TIME: 1330

SAMPLERS: Ed Ashton of Parsons
Kim Hayden of Parsons

DESCRIPTION OF SAMPLING POINT

Sample Location: Monitoring well -SWMW-131
Screen/Sample Depth: TD= 170 feet from top of casing
Sampling Method: HDPE disposable bailer and rope

GROUNDWATER PURGING

Initial Static Water Level: 49.70 feet
One Well Volume: 3 Volumes

2-Inch Casing:	120.03	Feet of Water x 0.16 Gallons/Foot =	19.60	Gallons	58.82
3-Inch Casing:		Feet of Water x 0.36 Gallons/Foot =		Gallons	
4-Inch Casing:		Feet of Water x 0.65 Gallons/Foot =		Gallons	

Volume of groundwater purged: # Gallons
Purging Device: Submersible pump and dedicated polyurethane tubing.
Purge Water Disposition (e.g., contained) poly. tank and transferred to onsite wastewater treatment plant

SAMPLE DESCRIPTION

Color: clear then got turbid
Odor: none
Other: none
Sample Analyzed for: 8260, 8270, TAL Metals, sulfate, and chloride
QC Samples at this Location SWMW-1131 (Duplicate Sample)
QC Samples Analyzed for: 8260, 8270, TAL Metals, sulfate, and chloride

FIELD MEASUREMENTS

Temperature (C): 17.85°
pH: 11.81
Conductivity (ms/cm): 4.50
Turbidity (NTU): 24.7
Dissolved Oxygen (mg/l): 12.76
Eh (Redox Potential) (mv) -18
Phenol Alk. (mg/l): NA
Methyl. Alk. (mg/l): NA
Ferrous Iron (mg/l): NA

SAMPLE CUSTODY

Chain of Custody Number:
Shipped Via: Fedex
Laboratory: Lancaster Laboratories
Airbill Number:

COMMENTS Developed well using submersible pump and dedicated polyurethane tubing.
(Purged dry three times)

PARSONS
GROUNDWATER SAMPLING RECORD

SITE NAME: CVX-Westage Well Sampling- Beacon, NY
PROJECT NUMBER: 446074

SAMPLE NUMBER: **SWMW-132 (S)** WEATHER: Sunny-80 degrees
DATE: 8/3/10 TIME: 1515

SAMPLERS: Ed Ashton of Parsons
Kim Hayden of Parsons

DESCRIPTION OF SAMPLING POINT

Sample Location: Monitoring well -SWMW-132(S)
Screen/Sample Depth: TD= 55 feet from top of casing
Sampling Method: HDPE disposable bailer and rope

GROUNDWATER PURGING

Initial Static Water Level: 41.90 feet
One Well Volume: 3 Volumes

2-Inch Casing:	13.1	Feet of Water x 0.16 Gallons/Foot =	2.13	Gallons	6.40
3-Inch Casing:		Feet of Water x 0.36 Gallons/Foot =		Gallons	
4-Inch Casing:		Feet of Water x 0.65 Gallons/Foot =		Gallons	

Volume of groundwater purged: 15 Gallons
Purging Device: HDPE disposable bailer and rope
Purge Water Disposition (e.g., contained) poly. tank and transferred to onsite wastewater treatment plant

SAMPLE DESCRIPTION

Color: clear then got turbid
Odor: none
Other: none
Sample Analyzed for: 8260, 8270, TAL Metals, sulfate, and chloride
QC Samples at this Location none
QC Samples Analyzed for: none

FIELD MEASUREMENTS

Temperature (C): 16.82°
pH: 11.29
Conductivity (ms/cm): 2.99
Turbidity (NTU): 52.4
Dissolved Oxygen (mg/l): 13.02
Eh (Redox Potential) (mv) 38
Phenol Alk. (mg/l): NA
Methyl. Alk. (mg/l): NA
Ferrous Iron (mg/l): NA

SAMPLE CUSTODY

Chain of Custody Number:
Shipped Via: Fedex
Laboratory: Lancaster Laboratories
Airbill Number:

COMMENTS Developed well using HDPE disposable bailer and rope.
(Purged dry two times and parameters stabilized)

PARSONS
GROUNDWATER SAMPLING RECORD

SITE NAME: CVX-Westage Well Sampling- Beacon, NY
PROJECT NUMBER: 446074

SAMPLE NUMBER: **SWMW-132 (D)** WEATHER: Sunny-80 degrees
DATE: 8/3/10 TIME: 1430

SAMPLERS: Ed Ashton of Parsons
Kim Hayden of Parsons

DESCRIPTION OF SAMPLING POINT

Sample Location: Monitoring well -SWMW-132(D)
Screen/Sample Depth: TD= 112 feet from top of casing
Sampling Method: HDPE disposable bailer and rope

GROUNDWATER PURGING

Initial Static Water Level: 42.6 feet
One Well Volume: 3 Volumes

2-Inch Casing:	69.4	Feet of Water x 0.16 Gallons/Foot =	11.31	Gallons	33.9
3-Inch Casing:		Feet of Water x 0.36 Gallons/Foot =		Gallons	
4-Inch Casing:		Feet of Water x 0.65 Gallons/Foot =		Gallons	

Volume of groundwater purged: 60 Gallons
Purging Device: Submersible pump and dedicated polyurethane tubing.
Purge Water Disposition (e.g., contained) poly. tank and transferred to onsite wastewater treatment plant

SAMPLE DESCRIPTION

Color: clear then got turbid
Odor: none
Other: none
Sample Analyzed for: 8260, 8270, TAL Metals, sulfate, and chloride
QC Samples at this Location SWMW-132 (D) MS/MSD
QC Samples Analyzed for: 8260, 8270, TAL Metals, sulfate, and chloride

FIELD MEASUREMENTS

Temperature (C): 20.76°
pH: 9.22
Conductivity (ms/cm): 0.334
Turbidity (NTU): 86.4
Dissolved Oxygen (mg/l): 11.03
Eh (Redox Potential) (mv) 41
Phenol Alk. (mg/l): NA
Methyl. Alk. (mg/l): NA
Ferrous Iron (mg/l): NA

SAMPLE CUSTODY

Chain of Custody Number:
Shipped Via: Fedex
Laboratory: Lancaster Laboratories
Airbill Number:

COMMENTS Developed well using submersible pump and dedicated polyurethane tubing.
(Purged dry three times)

APPENDIX D

LABORATORY ANALYTICAL RESULTS WITH CHAIN-OF-CUSTODIES (DATA PROVIDED ON DISK)

APPENDIX E

DATA REVIEW SUMMARY REPORT

DATA REVIEW SUMMARY REPORT
FOR SAMPLES COLLECTED AT THE
WESTAGE PROPERTY WELL INSTALLATION AND SAMPLING PROJECT

FORMER TEXACO RESEARCH CENTER
BEACON, NY

Data Review by: Richard Cheatham
Parsons – Denver, Colorado

1.0 INTRODUCTION

The following data review summary report covers groundwater samples and the associated field quality control (QC) samples collected at the Westage Property on August 03, 2010 as part of the Westage Property Well Installation and Sampling Project at the Former Texaco Research Center in Beacon, NY (Site ID#314004). Field program quality control samples included a field duplicate sample for ground waters, an equipment blank, and an aqueous trip blank. All samples were collected by Parsons and analyzed by Lancaster Laboratories, Lancaster, PA (Lancaster) following the procedures outlined in the Generic Quality Assurance Project Plan for the Former Chevron Research Center, dated August 2007 (i.e. project QAPP). Analytical results were reported in a NYSDEC ASP Category B deliverables package identified as SDG# CBN83, which contained the sample results for analyses conducted for sample group 1205994. All samples were identified on the chain-of-custody record (COC) as being analyzed for "8260-VOCs [i.e. Volatile Organic Compounds (VOCs) and "California oxygenates" by method SW-846 8260B], "8270-SVOCs" [i.e. Semivolatile Organic Compounds (SVOCs) by method SW-846 8270C], "TAL metals" (by methods SW6010B and SW7470A), and sulfate and chloride (by method EPA 300.0). All samples were analyzed as specified on the COC.

The data submitted by the laboratory has been reviewed and validated, as described below, following the guidelines and procedures outlined in the project QAPP to assess the precision, accuracy, representativeness, completeness, and comparability (PARCC) of the analytical data. Table 1 summarizes the sample data that has been reviewed. Table 2 summarizes the data validation qualifiers and qualification reasons. Table 3 summarizes data use selection decisions for instances where laboratory reported more than one result for a given analyte. Field duplicate sample results are summarized on Table 4 of this report.

1.1 Sampling, Chain-of-Custody, and Sample Identification

The groundwater samples were collected, properly preserved, shipped under COC records, and received at Lancaster within one day of sampling. All samples were received intact and in good condition at Lancaster. No sample documentation discrepancies were noted on the laboratory sample receipt log.

2.0 DATA REVIEW CRITERIA

Information reviewed and evaluated as part of the validation process included sample results; calibration results; laboratory control sample results (LCS); matrix spike/matrix spike duplicate (MS/MSD) results; parent/field duplicate (FD) results; trip blank field QC samples results; method blanks; “laboratory comments”; and chain-of-custody (COC) forms.

In addition, the summarized sample analysis results for one water sample (SWMW-130(S)(8-3-10), as well as the associated QC sample results and QA/QC data were verified from the "raw" analytical data as part of the raw data verification “spot check”.

The data packages were evaluated for deliverables completeness with reference to the project QAPP requirements.

The analyses and findings presented in this report are based on the reviewed information, and whether requirements in the project QAPP were met.

2.1 Accuracy

Accuracy was evaluated using the percent recovery (%R) obtained from LCSs (blank spikes), MS, and MSD, as well as of internal standard information and surrogate compound recoveries for each project sample.

2.2 Precision

Analytical Precision was evaluated based on the relative percent difference (%RPD) of MS/MSD sample analysis results and of internal laboratory duplicate results.

Total Precision (of the sampling and analysis process) was evaluated based on the relative percent difference (%RPD) of sample/field duplicate results. The field duplicate RPD results are advisory only; sample results are not qualified based on field duplicate RPD results.

2.3 Representativeness

Representativeness expresses the degree to which sample data accurately and precisely represents actual site conditions. Representativeness has been evaluated by:

- Comparing the COC procedures to those described in the project QAPP;
- Comparing actual analytical procedures to those described in the Project QAPP;
- Evaluating calibration and calibration verification information;
- Evaluating instrument tuning information;
- Evaluating analytical holding times;
- Examining trip blanks for contamination of, or cross-contamination of, samples during sample handling and shipment;
- Examining laboratory blanks for cross contamination of samples during sample preparation and analysis; and,
- Evaluating field duplicate sample results.

2.4 Completeness (laboratory completeness)

Laboratory completeness has been evaluated by comparing the total number of samples collected with the total number of samples with valid analytical data, calculating a "percent completeness" value, and comparing the "percent completeness" with the project QAPP criterion of 90% for each type of analysis.

2.5 Comparability

Comparability has been evaluated by:

- Evaluating the sample analysis methods used; and,
- Confirming the use, by the laboratory, of standard reporting units and reporting formats, including for reporting of QC data.

3.0 DELIVERABLES (DATA PACKAGE) COMPLETENESS AND COMPLIANCE

Deliverables Completeness is considered acceptable. The data for the groundwater samples were reported in a NYSDEC ASP Category B (type) deliverables package identified as SDG CBN83. This package contained all sample COC forms, case narratives including sample/analysis summary forms, QA/QC summaries with supporting documentation, relevant calibration data, instrument and method performance data, documentation of the laboratories ability to attain the method detection limits for target analytes in required matrices, data report forms with examples of calculations, and raw data.

Deliverables Compliance is considered acceptable. The data was produced and reported consistent with the project QAPP and the requested data package deliverables, protocol-required QA/QC criteria were met, and problems encountered during the analytical process and actions taken to correct the problems were reported in the data packages. NYSDEC ASP Category B data deliverables packages were requested and provided for all samples.

4.0 PARCC ASSESSMENT SUMMARY

4.1 Accuracy

Accuracy for groundwater sample analyses is considered acceptable for all analyses, with the exception of VOCs or SVOCs associated with non-compliant surrogate recoveries in certain samples and with SVOCs and chloride associated with non-compliant MS or MSD recovery. Laboratory reported in case narrative that 3-Methylphenol and 4-Methylphenol cannot be resolved under the chromatographic conditions used for sample analysis; therefore, the reported 4-Methylphenol value is a combination of results from both compounds. Also laboratory reported that N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine; therefore, the reported result for N-nitrosodiphenylamine represents the combined total of both compounds.

Evaluation results are as follows:

- Surrogate compound recoveries (%R) for samples were within applicable (laboratory) control limits (and also within Project QAPP control limits for water samples), with exceptions discussed in Section 5.0.
- LCS recoveries (%R) were within applicable (laboratory) control limits (and also within QAPP control limits for water samples), with exceptions discussed in Section 5.0.
- MS/MSD recoveries (%R) were within applicable (laboratory) control limits (and also within Project QAPP control limits for water samples), with exceptions discussed in Section 5.0.
- Internal standard results were within applicable (laboratory) control limits (and also within Project QAPP control limits for water samples).

4.2 Precision

Analytical Precision is considered acceptable for all groundwater sample analyses. Evaluation results are as follows:

- MS/MSD RPD values were within applicable (laboratory) control limits (and also within project QAPP control limits for water samples), with exceptions discussed in Section 5.0.
- LCS/LCSD RPD values were within applicable (laboratory) control limits (and also within Project QAPP control limits for water samples.
- Laboratory duplicate RPD values were within applicable (laboratory) control limits (and also within project QAPP control limits for water samples) for metals analyses.

Total Precision is considered acceptable for groundwater sample analyses. Evaluation results are as follows:

- Sample results are not qualified based on field duplicate RPD results; they are advisory only. The project QAPP does not include a criterion for field duplicate RPD. However, for all analytes, the field duplicate pair results showed good agreement.
- Analysis results for the field duplicate pairs are summarized on Table 4.

4.3 Representativeness

Representativeness is considered acceptable for groundwater sample analyses. Based on associated blank contamination (method blank or equipment blank), the associated sample results were qualified as undetected (“U”) and are considered as possible false-positive results with the low analyte concentration being attributed to sample contamination. Evaluation results are as follows:

- Analytical holding times, as specified in the project QAPP were met for all initial sample analyses; holding times were exceeded for certain SVOC sample re-analyses, as discussed in Section 5.0. The results from the sample re-analyses for SVOCs that

were performed outside of holding time were reported in the analytical report, but not in the electronic data deliverable (EDD) prepared by the laboratory.

- The method blanks associated with each sample analysis were generally free of target analytes at a reportable level, with exceptions discussed in Section 5.0.
- The trip blanks associated with the VOCs sample analysis were free of any target analyte at a reportable level.
- The equipment blanks associated with the sample analyses were generally free of target analytes at a reportable level, with exceptions discussed in Section 5.0.
- The samples were analyzed using the methods specified in the Project QAPP.
- Instrument tuning was acceptable for all sample analyses
- Instrument calibration and continuing calibration verification were compliant, with the exception of the minor exceptions discussed in Section 5.0.
- Certain samples were analyzed at dilution to provide results with all target analyte concentrations within the calibration range with both sets of results reported by laboratory on sample result report forms in the analytical report; however, the EDD prepared by the laboratory included the reporting of only one result for each analyte for each sample (i.e. the results that were within the calibration range whether from the original undiluted analysis or the higher dilution analysis).

4.4 Completeness

Completeness is considered acceptable for all groundwater sample analyses. Sample results are considered as usable for project purposes.

4.5 Comparability

Comparability is considered acceptable for all groundwater sample analyses. The samples were analyzed using the methods specified in the project QAPP and data, including QC results, were reported using industry-standard reporting units and reporting formats

5.0 DATA REVIEW RESULTS

5.1 Method SW8260B VOCs Analysis Data

The following items were reviewed for compliancy in the analysis by Lancaster using Method SW8260B and following NYSDEC Method 95-1 (10/95):

- Custody documentation;
- Sample preservation;
- Analytical holding times;
- Initial calibration;
- Instrument performance (BFB ion abundance criteria);
- Initial calibration verification (ICV) results;
- Continuing calibration verification (CCV) results;
- Internal standard area counts and retention times;
- Surrogate recoveries;
- Method blank results;
- Matrix spike/matrix spike duplicate (MS/MSD) precision and accuracy;
- Laboratory control sample (LCS) recoveries;
- Laboratory control sample duplicate (LCSD) results, if required;
- Laboratory method blank contamination;
- Field duplicate precision;
- Field QC blank samples (trip blank, equipment blank) contamination;
- Sample result verification and identification;
- Analysis sequence;
- Quantitation limits;
- Sample quantitation; and,
- Data completeness.

For sample group 1205994, SDG CBN83, these items were considered compliant and acceptable in accordance with the validation protocols, with the exception of surrogate %R and MS/MSD %R results. Sample SWMW-132(D)(8-3-10) was used for MS/MSD analyses. Equipment blank EB-1(8-3-10) and trip blank "Trip_Blank") were analyzed with this sample group. Field duplicate sample pair SWMW-131(08-03-10)/SWMW-1131(08-03-10) was analyzed with this sample group; results are summarized on Table 4.

Surrogate Compound Recovery

Surrogate compound recoveries were compliant, with the exceptions shown below. All VOCs are qualified if one or more surrogate compounds exhibited non-compliant recovery; however, non-detect results associated with a surrogate exhibiting high bias (high %R) are not qualified. Evaluation results are shown below.

For sample group 11205994, CBN839, samples SWMW-131(8-03-10) and SWMW-1131(8-03-10) exhibited non-compliant surrogate recovery indicating a potential low bias of reported concentrations for all VOCs. These samples were re-extracted and exhibited similar non-compliant surrogate recoveries; both sets of data were reported with data selection decisions summarized on Table 3.

SDG/ Sample Group	Lab ID/ lab file ID	Surrogate (%R)	QC limit	Analytes Affected	Data Qualifier
CBN83/1205994	6049764	Dibromofluoromethane (53)	80-116	All VOCs	UJ
CBN83/1205994	6049764RE	Dibromofluoromethane (55)	80-116	All VOCs	UJ
CBN83/1205994	6049765	Dibromofluoromethane (55)	80-116	All VOCs	UJ
CBN83/1205994	6049765RE	Dibromofluoromethane (56)	80-116	All VOCs	UJ

MS/MSD Precision and Accuracy

MS/MSD precision (relative percent differences; RPDs) and accuracy (percent recoveries; %Rs) measurements were within QC acceptance limits and considered acceptable, with the exceptions noted below. Non-detect sample results associated with a non-compliant MS/MSD result exhibiting high bias (high %R) were not qualified. All groundwater samples were qualified based on a non-compliant MS/MSD results, with the exception that non-detect sample results associated with a non-compliant MS/MSD result exhibiting high bias (high %R) were not qualified.

SDG/ Sample Group	MS/MSD ID	Analyte	MS/MSD %R	QC Limit	Affected Samples	Data Qualifier
CBN83/11205994	SWMW-132(D)	Acetone	268/187	52-139	6049770	J
CBN83/11205994	SWMW-132(D)	t-Butyl alcohol	245/122	67-119	None, all ND	None

5.2 Method SW8270C SVOCs Analysis Data

The following items were reviewed for compliancy in the analysis by Lancaster using Method SW8270C:

- Custody documentation;
- Sample preservation;
- Holding times;
- Initial calibration;
- GC/MS instrument performance (DFTPP ion abundance criteria);
- ICV results;
- CCV results;
- Internal standard area counts and retention times;
- Method blank;
- Surrogate recoveries;
- MS/MSD precision and accuracy;

- LCS recoveries;
- LCSD results;
- Laboratory method blank contamination;
- Field duplicate precision;
- Field QC blank samples (equipment blank) contamination;
- Sample result verification and identification;
- Analysis sequence;
- Quantitation limits;
- Sample quantitation; and,
- Data completeness.

For sample group 1205994, SDG CBN83, these items were considered compliant and acceptable in accordance with the validation protocols, with the exception of analytical holding time, LCS/LCSD results, MS/MSD results, surrogate results, method blank results, equipment blank results, CCV percent difference (%D), sample result verification and identification, and sample quantitation (calibration range exceedance). Sample SWMW-132(D)(8-3-10) was used for MS/MSD analyses. Equipment blank EB-1(8-3-10) was analyzed with this sample group. Field duplicate sample pair SWMW-131(08-03-10)/SWMW-1131(08-03-10) was analyzed with this sample group; results are summarized on Table 4.

Analytical Holding Time

For SDG CBN83, sample group 1205994, all samples were initially extracted within holding time (7-days from sampling to extraction). Five samples were re-analyzed outside of extraction holding time and all SVOC results for each sample were qualified as estimated (J). The initial analysis results for each sample were used preferentially; data use selection decisions are summarized on Table 3.

Sample ID	Lab ID/ QC batch	Collection Date	Extraction Date	Days HT exceeded	Analytes Affected	Data Qualifier
SWMW-130(S)(8-3-10)	6049762RE/ 10223WAL	08-03-10	08-11-10	1	All SVOCs	J or UJ
SWMW-130(D)(8-3-10)	6049763RE/ 10223WAL	08-03-10	08-11-10	1	All SVOCs	J or UJ
SWMW-131(8-3-10)	6049764RE/ 10223WAL	08-03-10	08-11-10	1	All SVOCs	J or UJ
SWMW-1131(8-3-10)	6049765RE/ 10223WAL	08-03-10	08-11-10	1	All SVOCs	J or UJ
SWMW-132 (S)(8-3-10)	6049770RE/ 10223WAL	08-03-10	08-11-10	1	All SVOCs	J or UJ

LCS/LCSD Precision and Accuracy

LCS/LCD precision (relative percent differences; RPDs) and accuracy (percent recoveries; %Rs) measurements were within QC acceptance limits and considered acceptable, with the exceptions noted below. Non-detect sample results associated with a non-compliant LCS/LCSD result exhibiting high bias (high %R) were not qualified.

SDG/ Sample Group	LCS ID/ QC batch	Analyte	LCS/ LCS %R	QC Limit	Associated Samples	Data Qualifier
CBN83/ 1205994	222WLLCS5/ 10222WAL026	bis(2-Chloroethyl)ether	102/106	69-103	6049762 6049763 6049764 6049764DL 6049765 6049766 6049770 6049771	None, all ND
CBN83/ 1205994	222WLLCS5/ 10222WAL026	n-Nitroso-di-n-propylamine	113/115	69-114	6049762 6049763 6049764 6049764DL 6049765 6049766 6049770 6049771	None, all ND
CBN83/ 1205994	222WLLCS5/ 10222WAL026	Nitrobenzene	106/105	74-100	6049762 6049763 6049764 6049764DL 6049765 6049766 6049770 6049771	None, all ND
CBN83/ 1205994	222WLLCS5/ 10222WAL026	bis(2-Chloroethoxy)methane	106/107	73-105	6049762 6049763 6049764 6049764DL 6049765 6049766 6049770 6049771	None, all ND
CBN83/ 1205994	222WLLCS5/ 10222WAL026	Dimethylphthalate	106/104	73-104	6049762 6049763 6049764 6049764DL 6049765 6049766 6049770 6049771	None, all ND
CBN83/ 1205994	222WLLCS5/ 10222WAL026	2,6-Dinitrotoluene	111/107	73-110	6049762 6049763 6049764 6049764DL 6049765 6049766 6049770 6049771	None, all ND

CBN83/ 1205994	222WLLCS5/ 10222WAL026	3-Nitroaniline	118/114	70-116	6049762 6049763 6049764 6049764DL 6049765 6049766 6049770 6049771	None, all ND
CBN83/ 1205994	222WLLCS5/ 10222WAL026	2,4-Dinitrotoluene	122/118	72-112	6049762 6049763 6049764 6049764DL 6049765 6049766 6049770 6049771	None, all ND
CBN83/ 1205994	222WLLCS5/ 10222WAL026	Diethylphthalate	108/105	69-105	6049762 6049763 6049764 6049764DL 6049765 6049766 6049770 6049771	None, all ND
CBN83/ 1205994	222WLLCS5/ 10222WAL026	Fluorene	110/107	84-100	6049762 6049763 6049764 6049764DL 6049765 6049766 6049770 6049771	None, all ND
CBN83/ 1205994	222WLLCS5/ 10222WAL026	4-Chlorophenyl-phenyl ether	104/103	76-102	6049762 6049763 6049764 6049764DL 6049765 6049766 6049770 6049771	None, all ND
CBN83/ 1205994	222WLLCS5/ 10222WAL026	4-Nitroaniline	101/100	61-98	6049762 6049763 6049764 6049764DL 6049765 6049766 6049770 6049771	None, all ND
CBN83/ 1205994	222WLLCS5/ 10222WAL026	Anthracene	100/105	80-102	6049762 6049763 6049764 6049764DL 6049765 6049766 6049770 6049771	None, all ND

CBN83/ 1205994	222WLLCS5/ 10222WAL026	Di-n-butyl phthalate	100/105	71-103	6049762 6049763 6049764 6049764DL 6049765 6049766 6049770 6049771	None, all ND
CBN83/ 1205994	222WLLCS5/ 10222WAL026	Fluoranthene	103/105	74-101	6049762 6049763 6049764 6049764DL 6049765 6049766 6049770 6049771	None, all ND
CBN83/ 1205994	222WLLCS5/ 10222WAL026	Pyrene	108/109	75-107	6049762 6049763 6049764 6049764DL 6049765 6049766 6049770 6049771	None, all ND
CBN83/ 1205994	222WLLCS5/ 10222WAL026	Butylbenzylphthalate	103/103	71-100	6049762 6049763 6049764 6049764DL 6049765 6049766 6049770 6049771	None, all ND
CBN83/ 1205994	222WLLCS5/ 10222WAL026	Benzo(a)anthracene	102/102	82-96	6049762 6049763 6049764 6049764DL 6049765 6049766 6049770 6049771	None, all ND
CBN83/ 1205994	222WLLCS5/ 10222WAL026	Chrysene	107-109	79-104	6049762 6049763 6049764 6049764DL 6049765 6049766 6049770 6049771	None, all ND
CBN83/ 1205994	216WFLCS5/ 10216WAF026	Phenol	123/na	68-118	6049762RE 6049763RE 6049764RE 6049765RE 6049770RE	J

CBN83/ 1205994	216WFLCS5/ 10216WAF026	bis(2-Chloroethyl)ether	105/na	69-103	6049762RE 6049763RE 6049764RE 6049765RE 6049770RE	None, all ND
CBN83/ 1205994	216WFLCS5/ 10216WAF026	Nitrobenzene	101/na	74-100	6049762RE 6049763RE 6049764RE 6049765RE 6049770RE	None, all ND
CBN83/ 1205994	216WFLCS5/ 10216WAF026	2-Methylnaphthalene	103/na	86-102	6049762RE 6049763RE 6049764RE 6049765RE 6049770RE	None, all ND
CBN83/ 1205994	216WFLCS5/ 10216WAF026	Dimethylphthalate	106/na	73-104	6049762RE 6049763RE 6049764RE 6049765RE 6049770RE	None, all ND
CBN83/ 1205994	216WFLCS5/ 10216WAF026	2,4-Dintrotoluene	115	72-112	6049762RE 6049763RE 6049764RE 6049765RE 6049770RE	None, all ND
CBN83/ 1205994	216WFLCS5/ 10216WAF026	Fluorene	107/na	84-100	6049762RE 6049763RE 6049764RE 6049765RE 6049770RE	None, all ND
CBN83/ 1205994	216WFLCS5/ 10216WAF026	4-Chlorophenyl-phenyl ether	107/na	76-102	6049762RE 6049763RE 6049764RE 6049765RE 6049770RE	None, all ND
CBN83/ 1205994	216WFLCS5/ 10216WAF026	4-Bromophenyl phenyl ether	106/na	75-101	6049762RE 6049763RE 6049764RE 6049765RE 6049770RE	None, all ND
CBN83/ 1205994	216WFLCS5/ 10216WAF026	Hexachlorobenzene	105/na	73-100	6049762RE 6049763RE 6049764RE 6049765RE 6049770RE	None, all ND
CBN83/ 1205994	216WFLCS5/ 10216WAF026	Phenanthrene	105/na	85-103	6049762RE 6049763RE 6049764RE 6049765RE 6049770RE	None, all ND
CBN83/ 1205994	216WFLCS5/ 10216WAF026	Anthracene	106/na	80-102	6049762RE 6049763RE 6049764RE 6049765RE 6049770RE	None, all ND

CBN83/ 1205994	216WFLCS5/ 10216WAF026	Fluoranthene	104/na	74-101	6049762RE 6049763RE 6049764RE 6049765RE 6049770RE	None, all ND
CBN83/ 1205994	216WFLCS5/ 10216WAF026	Pyrene	111/na	75-107	6049762RE 6049763RE 6049764RE 6049765RE 6049770RE	None, all ND
CBN83/ 1205994	216WFLCS5/ 10216WAF026	Butylbenzylphalate	101/na	71-100	6049762RE 6049763RE 6049764RE 6049765RE 6049770RE	None, all ND
CBN83/ 1205994	216WFLCS5/ 10216WAF026	Benzo(a)anthracene	106/na	82-96	6049762RE 6049763RE 6049764RE 6049765RE 6049770RE	None, all ND
CBN83/ 1205994	216WFLCS5/ 10216WAF026	Chrysene	107/na	79-104	6049762RE 6049763RE 6049764RE 6049765RE 6049770RE	None, all ND

MS/MSD Precision and Accuracy

MS/MSD precision (relative percent differences; RPDs) and accuracy (percent recoveries; %Rs) measurements were within QC acceptance limits and considered acceptable, with the exceptions noted below. All groundwater samples were qualified based on a non-compliant MS/MSD results, with the exception that non-detect sample results associated with a non-compliant MS/MSD result exhibiting high bias (high %R) were not qualified.

MS/MSD ID	Analyte	MS/MSD %R	QC Limit	MS/MSD RPD	QC Limit	Affected Samples	Data Qualifier
SWMW-132(D)	Phenol	125/128	10-83			6049762 6049763 6049764 6049765 6049770 6049762RE 6049763RE 6049764RE 6049765RE 6049770RE	J

SWMW-132(D)	bis(2-Chloroethyl)ether	160/110	75-109	37	30	6049762 6049763 6049764 6049765 6049766 6049770 6049762RE 6049763RE 6049764RE 6049765RE 6049770RE	UJ
SWMW-132(D)	4-Chloroaniline			85	30	6049762 6049763 6049764 6049765 6049766 6049770 6049762RE 6049763RE 6049764RE 6049765RE 6049770RE	UJ
SWMW-132(D)	2-Chloronaphthalene	88/128	49-111	38	30	6049762 6049763 6049764 6049765 6049766 6049770 6049762RE 6049763RE 6049764RE 6049765RE 6049770RE	UJ
SWMW-132(D)	Acenaphthene	104/106	81-103			6049762 6049763 6049764 6049765 6049766 6049770 6049762RE 6049763RE 6049764RE 6049765RE 6049770RE	None, all ND
SWMW-132(D)	2,4-Dinitrotoluene	115/116	71-110			6049762 6049763 6049764 6049765 6049766 6049770 6049762RE 6049763RE 6049764RE 6049765RE 6049770RE	None, all ND

SWMW-132(D)	bis(2-Ethylhexyl)phthalate	129/107	72-122			6049762 6049763 6049764 6049765 6049766 6049770 6049762RE 6049763RE 6049764RE 6049765RE 6049770RE	J

Surrogate Compound Recovery

Surrogate compound recoveries were compliant, with the exceptions shown below. Data was not qualified unless two or more of the three surrogate compounds for a given analysis fraction (base-neutral or acid) exhibited non-compliant recovery. Evaluation results are shown below.

SDG/ Sample Group	Lab ID/ lab file ID	Surrogate (%R)	QC limit	Fraction Affected	Analytes Affected	Data Qualifier
CBN83/1205994	6049770	Terphenyl-d14 (36)	48-120	base-neutral	all non-phenols	None
CBN83/1205994	6049770	Terphenyl-d14 (36)	48-120	base-neutral	all non-phenols	None
CBN83/1205994	6049770RE	2-Fluorophenol (38) Phenol-d6 (49)	59-106 60-108	acid	all phenols	J or UJ

Method Blank Contamination

Not all method blanks were free of target analytes at detectable concentrations. Sample concentrations less than ten times (10x) blank amount (times the dilution factor) were qualified as undetected ("U") based on associated method blank contamination. Evaluation results are shown below. Samples 6049762, 6049763, 6049764, 6049765, and 6049770 were re-extracted outside of holding time with both sets of data reported; the original results were selected for project use and data selection decisions are summarized on Table 4.

SDG/ Sample Group	Method Blank ID/ QC batch	Analyte	Blank Conc. (µg/L)	Affected Samples	Sample Conc. (µg/L)	Lab Flag	Data Qualifier
CBN83/11205994	SBLKWF2165	Phenol	12	6049762	9		U
				6049763	11		U
				6049764	12		U
				6049765	3	J	U
				6049770	4	J	U

Equipment Blank Contamination

The equipment blank was not free of target analytes at detectable concentrations. Sample results less than 5x (or 10x for phthalate compounds) (times the dilution factor) the equipment blank concentration were qualified as undetected ("U') and are considered to be potential false-positive results. Evaluation results are shown below.

SDG/ Sample Group	Equipment Blank ID	Analyte	Equipment Blank Conc. (µg/L)	Affected Samples	Sample Conc. (µg/L)	Lab Flag	Data Qualifier
CBN83/ 11205994	EB-1	bis(2-Ethylhexyl)phthalate	2	6049762 6049763 6049764 6049765 6049766 6049770	8 11 110 (5x) 12 52 6		U U None, >10x U None, >10x U

Continuing Calibration Verification (CCV)

CCV compound results (all target analytes) were compliant with a maximum percent difference (%D) of ±20%, with the exceptions shown below. Non-detect sample results associated with a non-compliant CCV exhibiting high bias (high %D) were not qualified.

SDG/Sample Group	CCV File ID	Target Analyte	%D	Samples Affected	Data Qualifier
CBN83/1205994	eh0501.d	2,4-Dinitrophenol	+28	6049764DL 6049770	None, all ND
CBN83/1205994	eh0831.d	Hexachlorobutadiene	-26	6049762RE 6049763RE 6049764RE 6049765RE 6049770RE	UJ
CBN83/1205994	eh0831.d	2,4-Dintrophenol	+34	6049762RE 6049763RE 6049764RE 6049765RE 6049770RE	None, all ND

Sample Result Verification and Identification

Laboratory reported in case narratives and on sample result report forms that 3-Methylphenol and 4-Methylphenol cannot be resolved under the chromatographic conditions used for sample analysis; therefore, the reported 4-Methylphenol value is a combination of results from both compounds. Also laboratory reported that N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine; therefore, the reported result for N-nitrosodiphenylamine represents the combined total of both compounds.

Sample Quantitation (Calibration range exceedance)

Sample results were within the calibration range with the exceptions shown below. Results exceeding the calibration curve were flagged "E" by the laboratory and have been qualified as estimated ("J"); these samples were then analyzed at dilution. Data selection decisions for samples for which multiple results were reported by the laboratory are summarized on Table 4.

SDG/ Sample Group	Lab Sample ID	Sample File ID/ Dilution factor	Analyte	Sample Conc. (µg/L)	Lab Flag	Data Qualifier
CBN83/ 1205994	6049764	eh0478.d/ 1.0	bis(2-Ethylhexyl)phthalate	140	E	J

5.3 Method SW7470A Mercury Analysis Data

The following items were reviewed for compliancy in the Mercury analysis by Lancaster using Method SW7470A:

- Custody documentation;
- Sample preservation;
- Holding times;
- Initial calibration;
- CCV results;
- Initial and continuing calibration blanks;
- Low-level check standard;
- Method (preparation) blanks;
- MS/MSD results;
- Laboratory duplicate sample analyses;
- LCS results;
- Sample result verification;
- Analysis sequence;
- Quantitation limits;
- Equipment blank results;
- Field duplicate results; and,
- Data completeness.

For sample group 1205994, SDG CBN83, these items were considered compliant and acceptable in accordance with the validation protocols. Sample SWMW-132(D)(8-3-10) was used for MS/MSD analyses and for laboratory duplicate analyses. Equipment blank EB-1(8-3-10) was analyzed with this sample group. Field duplicate sample pair SWMW-131(08-03-10)/SWMW-1131(08-03-10) was analyzed with this sample group; results are summarized on Table 4.

5.4 Method SW6010B Metals Analysis

The following items were reviewed for compliancy in the metals analysis by Lancaster using Method SW6010B:

- Custody documentation;
- Sample preservation;
- Holding times;
- Initial calibration;
- CCV results;
- Initial calibration blank (ICB) results;

- Continuing calibration blank (CCB) results;
- Low-level check standard'
- Method (preparation) blanks
- MS/MSD results;
- Laboratory duplicate sample results;
- LCS results;
- Interference check sample (ICS) results;
- Serial dilution results;
- Post-digestion spike results;
- Sample result verification and identification;
- Analysis sequence;
- Quantitation limits;
- Equipment blank results;
- Field duplicate results; and,
- Data completeness.

For sample group 1205994, SDG CBN83, these items were considered compliant and acceptable in accordance with the validation protocols, with the exception of method blank, equipment blank, MS/MSD %R results, and laboratory duplicate results. Sample SWMW-132(D)(8-3-10) was used for MS/MSD analyses and for laboratory duplicate analyses. Equipment blank EB-1(8-3-10) was analyzed with this sample group. Field duplicate sample pair SWMW-131(08-03-10)/SWMW-1131(08-03-10) was analyzed with this sample group; results are summarized on Table 4.

Method Blank Contamination

The equipment blank was not free of target analytes at detectable concentrations. Sample results less than 5x the method blank concentration were qualified as undetected ("U') and are considered to be potential false-positive results. Evaluation results are shown below.

SDG/ Sample Group	Method Blank ID	Analyte	Blank Conc. (mg/L)	Affected Samples	Sample Conc.	Lab Flag	Data Qualifier
CBN83/1205994	P21705BB	Calcium	0.1320	None, all >5x			None
CBN83/1205994	P21705BB	Copper	0.0040	6049762	0.0032	B	U
				6049763	0.0085	B	U
				6049764	0.0079	B	U
				6049765	0.0092	B	U
				6049766	0.0054	B	U
				6049770	0.0020	B	None, =5x
CBN83/1205994	P21705BB	Iron	0.0550	6049672	0.110	B	U
				6049764	0.199	B	U
				6049765	0.196	B	U
				6049766	0.113	B	U

Equipment Blank Contamination

The equipment blank was not free of target analytes at detectable concentrations. Sample results less than 5x the method blank concentration were qualified as undetected ("U') and are considered to be potential false-positive results. Evaluation results are shown below.

SDG/ Sample Group	Equipment Blank ID	Analyte	Blank Conc. (mg/L)	Affected Samples	Sample Conc.	Lab Flag	Data Qualifier
CBN83/1205994	EB-1	Calcium	0.176J	None, all >5x			None
CBN83/1205994	EB-1	Potassium	0.585	None, all >5x			None

MS/MSD Precision and Accuracy

MS/MSD precision (relative percent differences; RPDs) and accuracy (percent recoveries; %Rs) measurements were within QC acceptance limits and considered acceptable, with the exceptions noted below. Sample results were not qualified if MS/MSD %R or RPD was non-compliant but sample concentration was greater than four times (>4x) the spike amount, as was the case for SWMW-132(D) (8-03-10) (calcium).

SDG/ Sample Group	Sample ID	Analyte	MS/MSD %R	QC Limit	MS/MSD RPD	QC Limit	Data Qualifier
CBN83/1205994	SWMW-132(D)	Aluminum	102/292	75-125	91	20	J or UJ
CBN83/1205994	SWMW-132(D)	Calcium	194/554	75-125	29	20	None, >4x
CBN83/1205994	SWMW-132(D)	Iron	111/560	75-125	130	20	J or UJ
CBN83/1205994	SWMW-132(D)	Lead	98/134	75-125	31	20	J or UJ
CBN83/1205994	SWMW-132(D)	Magnesium	103/184	75-125	23	20	J or UJ
CBN83/1205994	SWMW-132(D)	Manganese	97/120	75-125	21	20	J or UJ

Laboratory Duplicate Sample

Laboratory duplicate sample analysis precision (relative percent differences; RPDs) measurements were within QC acceptance limits and considered acceptable, with the exceptions noted below. Sample results were not qualified if results were non-detect. All samples analyzed in same sample group as non-compliant laboratory duplicate analysis are qualified as estimated (J)

SDG/ Sample Group	Lab Sample ID	QC Batch	Analyte	Dup RPD	QC Limit (RPD)	Result >RL?	Affected Samples	Data Qualifier
CBN83/1205994	6049766	P21705B	Nickel	200	20	Yes	All samples	None, all ND
CBN83/1205994	6049766	P21705B	Thallium	200	20	Yes	All samples	None, all ND

5.5 Method E300.0 Anions Analysis Data

The following items were reviewed for compliancy in the analysis by Lancaster using Method EPA 300.0:

- Custody documentation;
- Analytical holding time;
- MS recoveries;
- LCS recoveries;
- Laboratory duplicate results;
- Laboratory method blank contamination;
- Initial calibration results;
- ICB results;
- CCB results;
- ICV results;
- CCV results;
- Sample result verification;
- Quantitation limits;
- Equipment blank results;
- Field duplicate results; and,
- Data completeness.

For sample group 1205994, SDG CBN83, these items were considered compliant and acceptable in accordance with the validation protocols, with the exception of MS %R. Sample SWMW-132(D)(8-3-10) was used for MS analysis and for laboratory duplicate analysis. Equipment blank EB-1(8-3-10) was analyzed with this sample group. Field duplicate sample pair SWMW-131(08-03-10)/SWMW-1131(08-03-10) was analyzed with this sample group; results are summarized on Table 4.

MS Accuracy

MS accuracy (percent recoveries; %Rs) measurements were within QC acceptance limits and considered acceptable, with the exceptions noted below. Non-detect sample results associated with an MS exhibiting high bias (high %R) are not qualified.

SDG/ Sample Group	Sample ID	Analyte	MS %R	QC Limit	Affected Samples	Data Qualifier
CBN83/1205994	SWMW-132(D)	Chloride	126	90-110	All groundwaters	J

TABLE 1 – VALIDATED SAMPLES AND ANALYSES PERFORMED

WESTAGE PROPERTY - BEACON, NY

AUGUST 2010 GROUNDWATER SAMPLING

Lancaster SDG/ Sample Group	Lancaster Sample No.	Parsons Field Sample ID	Sample Date	Matrix/ Sample Type	VOCs (SW8260B)	California Oxygenates (SW8260B)	SVOCs (SW8270C)	Metals (SW6010B)	Mercury (SW7471A)	Anions (EPA 300.0)
CBN83/1205994	6049762	SWMW-130(S)(8-3-10)	08-03-10	GW/N	X	X	X	X	X	X
CBN83/1205994	6049763	SWMW-130(D)(8-3-10)	08-03-10	GW/N	X	X	X	X	X	X
CBN83/1205994	6049764	SWMW-131(8-3-10)	08-03-10	GW/N	X	X	X	X	X	X
CBN83/1205994	6049765	SWMW-1131(8-3-10)	08-03-10	GW/FD	X	X	X	X	X	X
CBN83/1205994	6049766	SWMW-132(D)(8-3-10)	08-03-10	GW/N	X	X	X	X	X	X
CBN83/1205994	6049767	SWMW-132(D)MS(8-3-10)	08-03-10	GW/MS	X	X	X	X	X	X
CBN83/1205994	6049768	SWMW-132(D)MSD(8-3-10)	08-03-10	GW/MSD	X	X	X	X	X	X
CBN83/1205994	6049770	SWMW-132 (S)(8-3-10)	08-03-10	GW/N	X	X	X	X	X	X
CBN83/1205994	6049771	EB-1(8-3-10)	08-03-10	AQ/EB	X	X	X	X	X	X
CBN83/1205994	6049772	Trip Blank	08-03-10	AQ/TB	X	-	-	-	-	-

GW=groundwater. AQ=aqueous. N=normal sample. FD=field duplicate. TB=trip blank. EB=equipment blank. MS=matrix spike. MSD=matrix spike duplicate.

TABLE 2

DATA VALIDATION DATA QUALIFIERS AND DATA FLAG CHANGES

WESTAGE PROPERTY - BEACON, NY

AUGUST 2010 GROUNDWATER SAMPLING

SDG/ Sample Group	Sample ID	Lab ID	QC batch/ lab file ID	Analyte	Result	Units	Old Flag (lab flag)	New Flag (Data Qualifier)	Final Q (summary)	Reason
CBN83/ 1205994	SWMW-130(S)(8-3-10)	6049762	10216WAF/ EH0476.D	2-Chloronaphthalene	ND	µg/L		J	UJ	MS/MSD RPD
CBN83/ 1205994	SWMW-130(S)(8-3-10)	6049762	10216WAF/ EH0476.D	4-Chloroaniline	ND	µg/L		J	UJ	MS/MSD RPD
CBN83/ 1205994	SWMW-130(S)(8-3-10)	6049762		Aluminum	0.100	mg/L	B	J	J	MSD %R, MS/MSD RPD
CBN83/ 1205994	SWMW-130(S)(8-3-10)	6049762	10216WAF/ EH0476.D	bis(2-Chloroethyl)ether	ND	µg/L		J	UJ	MS/MSD RPD
CBN83/ 1205994	SWMW-130(S)(8-3-10)	6049762	10216WAF/ EH0476.D/1	bis(2-Ethylhexyl)phthalate	8	µg/L		U	UJ	Equipment blank
CBN83/ 1205994	SWMW-130(S)(8-3-10)	6049762	10216WAF/ EH0476.D	bis(2-Ethylhexyl)phthalate	8	µg/L		J		MS %R
CBN83/ 1205994	SWMW-130(S)(8-3-10)	6049762		Chloride	1.6	mg/L	J	J	J	MS %R
CBN83/ 1205994	SWMW-130(S)(8-3-10)	6049762		Copper	0.0032	mg/L	B	U	U	Method blank
CBN83/ 1205994	SWMW-130(S)(8-3-10)	6049762		Iron	0.110	mg/L	B	U	UJ	Method blank
CBN83/ 1205994	SWMW-130(S)(8-3-10)	6049762		Iron	0.110	mg/L	B	J		MSD %R, MS/MSD RPD
CBN83/ 1205994	SWMW-130(S)(8-3-10)	6049762		Lead	U	mg/L		J	UJ	MSD %R, MS/MSD RPD
CBN83/ 1205994	SWMW-130(S)(8-3-10)	6049762		Magnesium	3.510	mg/L		J	J	MSD %R, MS/MSD RPD
CBN83/ 1205994	SWMW-130(S)(8-3-10)	6049762		Manganese	0.0244	mg/L		J	J	MS/MSD RPD

SDG/ Sample Group	Sample ID	Lab ID	QC batch/ lab file ID	Analyte	Result	Units	Old Flag (lab flag)	New Flag (Data Qualifier)	Final Q (summary)	Reason
CBN83/ 1205994	SWMW-130(S)(8-3-10)	6049762	10216WAF/ EH0476.D	Phenol	9	µg/L		U	UJ	Method blank
CBN83/ 1205994	SWMW-130(S)(8-3-10)	6049762	10223WAL/ EH0841A.D	Phenol	9	µg/L		J		MS/MSD %R
CBN83/ 1205994	SWMW-130(S)(8-3-10)	6049762RE	10223WAL/ EH0841A.D	2-Chloronaphthalene	ND	µg/L		J	UJ	MS/MSD RPD
CBN83/ 1205994	SWMW-130(S)(8-3-10)	6049762RE	10223WAL/ EH0841A.D	4-Chloroaniline	ND	µg/L		J	UJ	MS/MSD RPD
CBN83/ 1205994	SWMW-130(S)(8-3-10)	6049762RE	10223WAL/ EH0841A.D	All SVOCs		µg/L		J	J or UJ	Holding time exceedance
CBN83/ 1205994	SWMW-130(S)(8-3-10)	6049762RE	10223WAL/ EH0841A.D	bis(2-Chloroethyl)ether	ND	µg/L		J	UJ	MS/MSD RPD
CBN83/ 1205994	SWMW-130(S)(8-3-10)	6049762RE	10223WAL/ EH0841A.D	Hexachlorobutadiene	ND	µg/L		J	UJ	CCV %D
CBN83/ 1205994	SWMW-130(S)(8-3-10)	6049762RE	10223WAL/ EH0841A.D	Phenol		µg/L		J	J	MS/MSD %R, LCS %R
CBN83/ 1205994	SWMW-130(D)(8-3-10)	6049763	10216WAF/ EH0477.D	2-Chloronaphthalene	ND	µg/L		J	UJ	MS/MSD RPD
CBN83/ 1205994	SWMW-130(D)(8-3-10)	6049763	10216WAF/ EH0477.D	4-Chloroaniline	ND	µg/L		J	UJ	MS/MSD RPD
CBN83/ 1205994	SWMW-130(D)(8-3-10)	6049763		Aluminum	0.633	mg/L	B	J	J	MSD %R, MS/MSD RPD
CBN83/ 1205994	SWMW-130(D)(8-3-10)	6049763	10216WAF/ EH0477.D	bis(2-Chloroethyl)ether	ND	µg/L		J	UJ	MS/MSD RPD
CBN83/ 1205994	SWMW-130(D)(8-3-10)	6049763	10216WAF/ EH0477.D	bis(2-Ethylhexyl)phthalate	11	µg/L		U	UJ	Equipment blank
CBN83/ 1205994	SWMW-130(D)(8-3-10)	6049763	10216WAF/ EH0477.D	bis(2-Ethylhexyl)phthalate	11	µg/L		J		MS %R
CBN83/ 1205994	SWMW-130(D)(8-3-10)	6049763		Chloride	1.6	mg/L	J	J	J	MS %R
CBN83/ 1205994	SWMW-130(D)(8-3-10)	6049763		Copper	0.0085	mg/L	B	U	U	Method blank

SDG/ Sample Group	Sample ID	Lab ID	QC batch/ lab file ID	Analyte	Result	Units	Old Flag (lab flag)	New Flag (Data Qualifier)	Final Q (summary)	Reason
CBN83/ 1205994	SWMW-130(D)(8-3-10)	6049763		Iron	0.770	mg/L	B	J	J	MSD %R, MS/MSD RPD
CBN83/ 1205994	SWMW-130(D)(8-3-10)	6049763		Lead	U	mg/L		J	UJ	MSD %R, MS/MSD RPD
CBN83/ 1205994	SWMW-130(D)(8-3-10)	6049763		Magnesium	3.480	mg/L		J	J	MSD %R, MS/MSD RPD
CBN83/ 1205994	SWMW-130(D)(8-3-10)	6049763		Manganese	0.0316	mg/L		J	J	MS/MSD RPD
CBN83/ 1205994	SWMW-130(D)(8-3-10)	6049763	10216WAF/ EH0477.D	Phenol	11	µg/L		U	UJ	Method blank
CBN83/ 1205994	SWMW-130(D)(8-3-10)	6049763	10223WAL/ EH0842A.D	Phenol	11	µg/L		J		MS/MSD %R
CBN83/ 1205994	SWMW-130(D)(8-3-10)	6049763RE	10223WAL/ EH0842A.D	2-Chloronaphthalene	ND	µg/L		J	UJ	MS/MSD RPD
CBN83/ 1205994	SWMW-130(D)(8-3-10)	6049763RE	10223WAL/ EH0842A.D	4-Chloroaniline	ND	µg/L		J	UJ	MS/MSD RPD
CBN83/ 1205994	SWMW-130(D)(8-3-10)	6049763RE	10223WAL/ EH0842A.D	All SVOCs		µg/L		J	J or UJ	Holding time exceedance
CBN83/ 1205994	SWMW-130(D)(8-3-10)	6049763RE	10223WAL/ EH0842A.D	bis(2-Chloroethyl)ether	ND	µg/L		J	UJ	MS/MSD RPD
CBN83/ 1205994	SWMW-130(D)(8-3-10)	6049763RE	10223WAL/ EH0842A.D	bis(2-Ethylhexyl)phthalate	2	µg/L	J	J	J	MS %R
CBN83/ 1205994	SWMW-130(D)(8-3-10)	6049763RE	10223WAL/ EH0842A.D	Hexachlorobutadiene	ND	µg/L		J	UJ	CCV %D
CBN83/ 1205994	SWMW-130(D)(8-3-10)	6049763RE	10223WAL/ EH0842A.D	Phenol		µg/L		J	J	MS/MSD %R, LCS %R
CBN83/ 1205994	SWMW-131(8-3-10)	6049764	10216WAF/ EH0478.D	2-Chloronaphthalene	ND	µg/L		J	UJ	MS/MSD RPD
CBN83/ 1205994	SWMW-131(8-3-10)	6049764	10216WAF/ EH0478.D	4-Chloroaniline	ND	µg/L		J	UJ	MS/MSD RPD
CBN83/ 1205994	SWMW-131(8-3-10)	6049764		All VOCs		µg/L		J	UJ	Surrogate %R

SDG/ Sample Group	Sample ID	Lab ID	QC batch/ lab file ID	Analyte	Result	Units	Old Flag (lab flag)	New Flag (Data Qualifier)	Final Q (summary)	Reason
CBN83/ 1205994	SWMW-131(8-3-10)	6049764		Aluminum	0.261	mg/L	B	J	J	MSD %R, MS/MSD RPD
CBN83/ 1205994	SWMW-131(8-3-10)	6049764	10216WAF/ EH0478.D	bis(2-Chloroethyl)ether	ND	µg/L		J	UJ	MS/MSD RPD
CBN83/ 1205994	SWMW-131(8-3-10)	6049764	10216WAF/ EH0478.D	bis(2-Ethylhexyl)phthalate	140	µg/L		J	J	MS %R,
CBN83/ 1205994	SWMW-131(8-3-10)	6049764	10216WAF/ EH0478.D	bis(2-Ethylhexyl)phthalate	140	µg/L	E	J		Calibration range exceeded
CBN83/ 1205994	SWMW-131(8-3-10)	6049764	10215WAF/ EH0506.D	bis(2-Ethylhexyl)phthalate	110	µg/L		J	J	MS %R
CBN83/ 1205994	SWMW-131(8-3-10)	6049764		Chloride	8.0	mg/L		J	J	MS %R
CBN83/ 1205994	SWMW-131(8-3-10)	6049764		Copper	0.0079	mg/L	B	U	U	Method blank
CBN83/ 1205994	SWMW-131(8-3-10)	6049764		Iron	0.199	mg/L	B	U	UJ	Method blank
CBN83/ 1205994	SWMW-131(8-3-10)	6049764		Iron	0.199	mg/L	B	J		MSD %R, MS/MSD RPD
CBN83/ 1205994	SWMW-131(8-3-10)	6049764		Lead	U	mg/L		J	UJ	MSD %R, MS/MSD RPD
CBN83/ 1205994	SWMW-131(8-3-10)	6049764		Magnesium	0.166	mg/L		J	J	MSD %R, MS/MSD RPD
CBN83/ 1205994	SWMW-131(8-3-10)	6049764		Manganese	0.0018	mg/L	B	J	J	MS/MSD RPD
CBN83/ 1205994	SWMW-131(8-3-10)	6049764	10216WAF/ EH0478.D	Phenol	12	µg/L		U	UJ	Method blank
CBN83/ 1205994	SWMW-131(8-3-10)	6049764	10223WAL/ EH0843.D	Phenol	12	µg/L		J		MS/MSD %R
CBN83/ 1205994	SWMW-131(8-3-10)	6049764RE	10223WAL/ EH0843.D	2-Chloronaphthalene	ND	µg/L		J	UJ	MS/MSD RPD
CBN83/ 1205994	SWMW-131(8-3-10)	6049764RE	10223WAL/ EH0843.D	4-Chloroaniline	ND	µg/L		J	UJ	MS/MSD RPD

SDG/ Sample Group	Sample ID	Lab ID	QC batch/ lab file ID	Analyte	Result	Units	Old Flag (lab flag)	New Flag (Data Qualifier)	Final Q (summary)	Reason
CBN83/ 1205994	SWMW-131(8-3-10)	6049764RE	10223WAL/ EH0843.D	All SVOCs		µg/L		J	J or UJ	Holding time exceedance
CBN83/ 1205994	SWMW-131(8-3-10)	6049764RE		All VOCs		µg/L		J	UJ	Surrogate %R
CBN83/ 1205994	SWMW-131(8-3-10)	6049764RE	10223WAL/ EH0843.D	bis(2-Chloroethyl)ether	ND	µg/L		J	UJ	MS/MSD RPD
CBN83/ 1205994	SWMW-131(8-3-10)	6049764RE	10223WAL/ EH0843.D	bis(2-Ethylhexyl)phthalate	5	µg/L		J	J	MS %R
CBN83/ 1205994	SWMW-131(8-3-10)	6049764RE	10223WAL/ EH0843.D	Hexachlorobutadiene	ND	µg/L		J	UJ	CCV %D
CBN83/ 1205994	SWMW-131(8-3-10)	6049764RE	10223WAL/ EH0843.D	Phenol		µg/L		J	J	MS/MSD %R, LCS %R
CBN83/ 1205994	SWMW-1131(8-3-10)	6049765	10216WAF/ EH0479.D	2-Chloronaphthalene	ND	µg/L		J	UJ	MS/MSD RPD
CBN83/ 1205994	SWMW-1131(8-3-10)	6049765	10216WAF/ EH0479.D	4-Chloroaniline	ND	µg/L		J	UJ	MS/MSD RPD
CBN83/ 1205994	SWMW-1131(8-3-10)	6049765		All VOCs		µg/L		J	UJ	Surrogate %R
CBN83/ 1205994	SWMW-1131(8-3-10)	6049765		Aluminum	0.267	mg/L	B	J	J	MSD %R, MS/MSD RPD
CBN83/ 1205994	SWMW-1131(8-3-10)	6049765	10216WAF/ EH0479.D	bis(2-Chloroethyl)ether	ND	µg/L		J	UJ	MS/MSD RPD
CBN83/ 1205994	SWMW-1131(8-3-10)	6049765	10216WAF/ EH0479.D	bis(2-Ethylhexyl)phthalate	12	µg/L		U	UJ	Equipment blank
CBN83/ 1205994	SWMW-1131(8-3-10)	6049765	10216WAF/ EH0479.D	bis(2-Ethylhexyl)phthalate	12	µg/L		J		MS %R
CBN83/ 1205994	SWMW-1131(8-3-10)	6049765		Chloride	7.3	mg/L		J	J	MS %R
CBN83/ 1205994	SWMW-1131(8-3-10)	6049765		Copper	0.0092	mg/L	B	U	U	Method blank

SDG/ Sample Group	Sample ID	Lab ID	QC batch/ lab file ID	Analyte	Result	Units	Old Flag (lab flag)	New Flag (Data Qualifier)	Final Q (summary)	Reason
CBN83/ 1205994	SWMW-1131(8-3-10)	6049765		Iron	0.196	mg/L	B	U	UJ	Method blank
CBN83/ 1205994	SWMW-1131(8-3-10)	6049765		Iron	0.196	mg/L	B	J		MSD %R, MS/MSD RPD
CBN83/ 1205994	SWMW-1131(8-3-10)	6049765		Lead	U	mg/L		J	UJ	MSD %R, MS/MSD RPD
CBN83/ 1205994	SWMW-1131(8-3-10)	6049765		Magnesium	0.181	mg/L		J	J	MSD %R, MS/MSD RPD
CBN83/ 1205994	SWMW-1131(8-3-10)	6049765		Manganese	0.0220	mg/L		J	J	MS/MSD RPD
CBN83/ 1205994	SWMW-1131(8-3-10)	6049765	10216WAF/ EH0479.D	Phenol	3	µg/L	J	U	UJ	Method blank
CBN83/ 1205994	SWMW-1131(8-3-10)	6049765	10223WAL/ EH0844.D	Phenol	3	µg/L		J		MS/MSD %R
CBN83/ 1205994	SWMW-1131(8-3-10)	6049765RE	10223WAL/ EH0844.D	2-Chloronaphthalene	ND	µg/L		J	UJ	MS/MSD RPD
CBN83/ 1205994	SWMW-1131(8-3-10)	6049765RE	10223WAL/ EH0844.D	4-Chloroaniline	ND	µg/L		J	UJ	MS/MSD RPD
CBN83/ 1205994	SWMW-1131(8-3-10)	6049765RE	10223WAL/ EH0844.D	All SVOCs		µg/L		J	J or UJ	Holding time exceedance
CBN83/ 1205994	SWMW-1131(8-3-10)	6049765RE		All VOCs		µg/L		J	UJ	Surrogate %R
CBN83/ 1205994	SWMW-1131(8-3-10)	6049765RE	10223WAL/ EH0844.D	bis(2-Chloroethyl)ether	ND	µg/L		J	UJ	MS/MSD RPD
CBN83/ 1205994	SWMW-1131(8-3-10)	6049765RE	10223WAL/ EH0844.D	bis(2-Ethylhexyl)phthalate	4	µg/L	J	J	J	MS %R
CBN83/ 1205994	SWMW-1131(8-3-10)	6049765RE	10223WAL/ EH0844.D	Hexachlorobutadiene	ND	µg/L		J	UJ	CCV %D
CBN83/ 1205994	SWMW-1131(8-3-10)	6049765RE	10223WAL/ EH0844.D	Phenol		µg/L		J	J	MS/MSD %R, LCS %R
CBN83/ 1205994	SWMW-132(D)(8-3-10)	6049766	10216WAF/ EH0480.D	2-Chloronaphthalene	ND	µg/L		J	UJ	MS/MSD RPD

SDG/ Sample Group	Sample ID	Lab ID	QC batch/ lab file ID	Analyte	Result	Units	Old Flag (lab flag)	New Flag (Data Qualifier)	Final Q (summary)	Reason
CBN83/ 1205994	SWMW-132(D)(8-3-10)	6049766	10216WAF/ EH0480.D	4-Chloroaniline	ND	µg/L		J	UJ	MS/MSD RPD
CBN83/ 1205994	SWMW-132(D)(8-3-10)	6049766		Aluminum	0.202	mg/L	B	J	J	MSD %R, MS/MSD RPD
CBN83/ 1205994	SWMW-132(D)(8-3-10)	6049766	10216WAF/ EH0480.D	bis(2-Chloroethyl)ether	ND	µg/L		J	UJ	MS/MSD RPD
CBN83/ 1205994	SWMW-132(D)(8-3-10)	6049766	10216WAF/ EH0480.D	bis(2-Ethylhexyl)phthalate	52	µg/L		J	J	MS %R
CBN83/ 1205994	SWMW-132(D)(8-3-10)	6049766		Chloride	5.7	mg/L		J	J	MS %R
CBN83/ 1205994	SWMW-132(D)(8-3-10)	6049766		Copper	0.0054	mg/L	B	U	U	Method blank
CBN83/ 1205994	SWMW-132(D)(8-3-10)	6049766		Iron	0.113	mg/L	B	U	UJ	Method blank
CBN83/ 1205994	SWMW-132(D)(8-3-10)	6049766		Iron	0.113	mg/L	B	J		MSD %R, MS/MSD RPD
CBN83/ 1205994	SWMW-132(D)(8-3-10)	6049766		Lead	U	mg/L		J	UJ	MSD %R, MS/MSD RPD
CBN83/ 1205994	SWMW-132(D)(8-3-10)	6049766		Magnesium	4.179	mg/L		J	J	MSD %R, MS/MSD RPD
CBN83/ 1205994	SWMW-132(D)(8-3-10)	6049766		Manganese	0.0032	mg/L		J	J	MS/MSD RPD
CBN83/ 1205994	SWMW-132 (S)(8-3-10)	6049770	10216WAF/ EH0505.D	2-Chloronaphthalene	ND	µg/L		J	UJ	MS/MSD RPD
CBN83/ 1205994	SWMW-132 (S)(8-3-10)	6049770	10216WAF/ EH0505.D	4-Chloroaniline	ND	µg/L		J	UJ	MS/MSD RPD
CBN83/ 1205994	SWMW-132(8-3-10)	6049770	t102211AA/ tg09s14.d	Acetone	10	µg/L	J	J	J	MS/MSD %R
CBN83/ 1205994	SWMW-132 (S)(8-3-10)	6049770	10216WAF/ EH0505.D	bis(2-Chloroethyl)ether	ND	µg/L		J	UJ	MS/MSD RPD

SDG/ Sample Group	Sample ID	Lab ID	QC batch/ lab file ID	Analyte	Result	Units	Old Flag (lab flag)	New Flag (Data Qualifier)	Final Q (summary)	Reason
CBN83/ 1205994	SWMW-132 (S)(8-3-10)	6049770	10216WAF/ EH0505.D	bis(2-Ethylhexyl)phthalate	6	µg/L		U	UJ	Equipment blank
CBN83/ 1205994	SWMW-132 (S)(8-3-10)	6049770	10216WAF/ EH0505.D	bis(2-Ethylhexyl)phthalate	6	µg/L		J		MS %R
CBN83/ 1205994	SWMW-132 (S)(8-3-10)	6049770	10216WAF/ EH0505.D	Phenol	4	µg/L	J	U	UJ	Method blank
CBN83/ 1205994	SWMW-132 (S)(8-3-10)	6049770	10223WAL/ EH0845.D	Phenol	4	µg/L		J		MS/MSD %R
CBN83/ 1205994	SWMW-132 (S)(8-3-10)	6049770RE	10216WAF/ EH0845.D	2,4,5-Trichlorophenol	ND	µg/L		J	UJ	Surrogate %R
CBN83/ 1205994	SWMW-132 (S)(8-3-10)	6049770RE	10216WAF/ EH0845.D	2,4,6-Trichlorophenol	ND	µg/L		J	UJ	Surrogate %R
CBN83/ 1205994	SWMW-132 (S)(8-3-10)	6049770RE	10216WAF/ EH0845.D	2,4-Dichlorophenol	ND	µg/L		J	UJ	Surrogate %R
CBN83/ 1205994	SWMW-132 (S)(8-3-10)	6049770RE	10216WAF/ EH0845.D	2,4-Dimethylphenol	ND	µg/L		J	UJ	Surrogate %R
CBN83/ 1205994	SWMW-132 (S)(8-3-10)	6049770RE	10216WAF/ EH0845.D	2,4-Dinitrophenol	ND	µg/L		J	UJ	Surrogate %R
CBN83/ 1205994	SWMW-132 (S)(8-3-10)	6049770RE	10223WAL/ EH0845.D	2-Chloronaphthalene	ND	µg/L		J	UJ	MS/MSD RPD
CBN83/ 1205994	SWMW-132 (S)(8-3-10)	6049770RE	10216WAF/ EH0845.D	2-Chlorophenol	ND	µg/L		J	UJ	Surrogate %R
CBN83/ 1205994	SWMW-132 (S)(8-3-10)	6049770RE	10216WAF/ EH0845.D	2-Methylphenol	ND	µg/L		J	UJ	Surrogate %R
CBN83/ 1205994	SWMW-132 (S)(8-3-10)	6049770RE	10216WAF/ EH0845.D	2-Nitrophenol	ND	µg/L		J	UJ	Surrogate %R
CBN83/ 1205994	SWMW-132 (S)(8-3-10)	6049770RE	10216WAF/ EH0845.D	4,6-Dinitro-2-methylphenol	ND	µg/L		J	UJ	Surrogate %R
CBN83/ 1205994	SWMW-132 (S)(8-3-10)	6049770RE	10216WAF/ EH0845.D	4-Chloro-3-methylphenol	ND	µg/L		J	UJ	Surrogate %R
CBN83/ 1205994	SWMW-132 (S)(8-3-10)	6049770RE	10223WAL/ EH0845.D	4-Chloroaniline	ND	µg/L		J	UJ	MS/MSD RPD

SDG/ Sample Group	Sample ID	Lab ID	QC batch/ lab file ID	Analyte	Result	Units	Old Flag (lab flag)	New Flag (Data Qualifier)	Final Q (summary)	Reason
CBN83/ 1205994	SWMW-132 (S)(8-3-10)	6049770RE	10216WAF/ EH0845.D	4-Methylphenol	ND	µg/L		J	UJ	Surrogate %R
CBN83/ 1205994	SWMW-132 (S)(8-3-10)	6049770RE	10216WAF/ EH0845.D	4-Nitrophenol	ND	µg/L		J	UJ	Surrogate %R
CBN83/ 1205994	SWMW-132 (S)(8-3-10)	6049770RE	10223WAL/ EH0845.D	All SVOCs		µg/L		J	J or UJ	Holding time exceedance
CBN83/ 1205994	SWMW-132 (S)(8-3-10)	6049770RE	10223WAL/ EH0845.D	bis(2-Chloroethyl)ether	ND	µg/L		J	UJ	MS/MSD RPD
CBN83/ 1205994	SWMW-132 (S)(8-3-10)	6049770RE	10223WAL/ EH0845.D	Hexachlorobutadiene	ND	µg/L		J	UJ	CCV %D
CBN83/ 1205994	SWMW-132 (S)(8-3-10)	6049770RE	10216WAF/ EH0845.D	Pentachlorophenol	ND	µg/L		J	UJ	Surrogate %R
CBN83/ 1205994	SWMW-132 (S)(8-3-10)	6049770RE	10216WAF/ EH0845.D	Phenol	10	µg/L		J	J	Surrogate %R
CBN83/ 1205994	SWMW-132 (S)(8-3-10)	6049770RE	10223WAL/ EH0845.D	Phenol		µg/L		J		MS/MSD %R, LCS %R

TABLE 3

DATA USE SELECTION DECISIONS

WESTAGE PROPERTY - BEACON, NY

AUGUST 2010 GROUNDWATER SAMPLING

SDG/ Sample Group	Field Sample ID	Lab Sample ID	QC batch/ Lab file/ Dilution	Analyte	Result	Units	Lab Flag	VAL Flag (Data Usability Flag)	Data Selection Decision	Reason
CBN83/ 1205994	SWMW-131(8-3-10)	6049764	t102211AA/ tg09s09.d/ 1	All VOCs	U	µg/L		UJ	Use	
CBN83/ 1205994	SWMW-131(8-3-10)	6049764RE	t102212AA/ tg09s36.d/ 1	All VOCs	U	µg/L		UJ	Don't Use	Surrogate confirmation only
CBN83/ 1205994	SWMW-1131(8-3-10)	6049765	t102211AA/ tg09s10.d/ 1	All VOCs	U	µg/L		UJ	Use	
CBN83/ 1205994	SWMW-1131(8-3-10)	6049765RE	t102212AA/ tg09s37.d/ 1	All VOCs	U	µg/L		UJ	Don't Use	Surrogate confirmation only
CBN83/ 1205994	SWMW-130(S)(8-3-10)	6049762RE	10223WAL/ EH0841A.D/ 1	All SVOCs		µg/L		J or UJ	Don't Use	Holding time exceeded
CBN83/ 1205994	SWMW-130(D)(8-3-10)	6049763RE	10223WAL/ EH0842A.D/ 1	All SVOCs		µg/L		J or UJ	Don't Use	Holding time exceeded
CBN83/ 1205994	SWMW-131(8-3-10)	6049764RE	10223WAL/ EH0843.D/ 1	All SVOCs		µg/L		J or UJ	Don't Use	Holding time exceeded
CBN83/ 1205994	SWMW-1131(8-3-10)	6049765RE	10223WAL/ EH0844.D/ 1	All SVOCs		µg/L		J or UJ	Don't Use	Holding time exceeded

SDG/ Sample Group	Field Sample ID	Lab Sample ID	QC batch/ Lab file/ Dilution	Analyte	Result	Units	Lab Flag	VAL Flag (Data Usability Flag)	Data Selection Decision	Reason
CBN83/ 1205994	SWMW-132 (S)(8-3-10)	6049770RE	10223WAL/ EH0845.D/ 1	All SVOCs		µg/L		J or UJ	Don't Use	Holding time exceeded
CBN83/ 1205994	SWMW-130(S)(8-3-10)	6049762	10216WAF/ EH0476.D/ 1	All SVOCs		µg/L			Use	
CBN83/ 1205994	SWMW-130(D)(8-3-10)	6049763	10216WAF/ EH0477.D/ 1	All SVOCs		µg/L			Use	
CBN83/ 1205994	SWMW-131(8-3-10)	6049764	10216WAF/ EH0478.D/ 1	All SVOCs		µg/L			Use	
CBN83/ 1205994	SWMW-1131(8-3-10)	6049765	10216WAF/ EH0479.D/ 1	All SVOCs		µg/L			Use	
CBN83/ 1205994	SWMW-132 (S)(8-3-10)	6049770	10216WAF/ EH0481.D/ 1	All SVOCs		µg/L			Use	
CBN83/ 1205994	SWMW-131(8-3-10)	6049764	10216WAF/ EH0478.D/ 1	bis(2-Ethylhexyl)phthalate	140	µg/L	E	J	Don't Use	Calibration range exceeded
CBN83/ 1205994	SWMW-131(8-3-10)	6049764DL	10215WAF/ EH0506.D/ 1	bis(2-Ethylhexyl)phthalate	110	µg/L			Use	
CBN83/ 1205994	SWMW-131(8-3-10)	6049764DL	10215WAF/ EH0506.D/ 1	All Other SVOCs		µg/L			Don't Use	

TABLE 4 – FIELD DUPLICATE SAMPLE RESULTS

WESTAGE PROPERTY - BEACON, NY

AUGUST 2010 GROUNDWATER SAMPLING

Analyte	Collection Date	Field Sample ID	Field Sample Value	Units	Replicate Sample ID	Replicate Sample Value	RPD*
VOCs	08-03-10	SWMW-131	All ND		SWMW-1132	All ND	n/a
Phenol	08-03-10	SWMW-131	12	µg/L	SWMW-1132	3J	n/a (method blank contaminaton)
bis(2-Eethylhexyl)phalate	08-03-10	SWMW-131	110	µg/L	SWMW-1132	12	n/a (equipment blank contaminaton)
Mercury	08-03-10	SWMW-131	ND	mg/L	SWMW-1132	ND	n/a
Aluminum	08-03-10	SWMW-131	0.261	mg/L	SWMW-1132	0.267	2.3
Barium	08-03-10	SWMW-131	0.271	mg/L	SWMW-1132	0.262	3.4
Calcium	08-03-10	SWMW-131	21.6	mg/L	SWMW-1132	20.9	3.3
Chromium	08-03-10	SWMW-131	0.0246	mg/L	SWMW-1132	0.0240	2.5
Magnesium	08-03-10	SWMW-131	0.166	mg/L	SWMW-1132	0.181	8.7
Potassium	08-03-10	SWMW-131	382	mg/L	SWMW-1132	366	4.3
Sodium	08-03-10	SWMW-131	229	mg/L	SWMW-1132	217	3.8
Vanadium	08-03-10	SWMW-131	0.0111	mg/L	SWMW-1132	0.0106	4.6

*RPD calculated only if both results are detected and one is >RL.
N/A = not applicable.

APPENDIX F

GEOPHYSICAL REPORT

Final Report
Televiewer, and Geophysical Logging
Three Wells (MWSW-130, MWSW-131, and MWSW-132)
Former Chevron Site
Beacon, NY
MAG Project Number 011031

Prepared For: Parsons
Prepared By: Mid-Atlantic Geosciences
August 25, 2010

1051 Columbia Avenue ● Lancaster, PA 17603 ● 717.396.8922 ● Fax 717.396.8746 ● email@enviroscan.com ● www.enviroscan.com

August 25, 2010

Mr. Edward J. Ashton
Parsons
301 Plainfield Road
Syracuse, NY 13212

RE: Televiewer, and Geophysical Logging
Three Wells (MWSW-130, MWSW-131, and MWSW-132)
Former Chevron Site
Beacon, NY
MAG Project Number 011031

Dear Mr. Ashton:

Pursuant to our proposal dated January 20, 2010, Mid-Atlantic Geosciences (MAG – the borehole logging division of Enviroscan, Inc.) completed the above-referenced survey on July 20 – July 21, 2010. The objective of the survey was to locate and characterize fractures and potential water-bearing zones intersecting the well. To accomplish these objectives, MAG conducted Fluid Temperature, Fluid Conductivity, Natural Gamma, 3-Arm Caliper, Acoustic Televiewer, and Optical Televiewer logging in the wells.

Logging Equipment

Mid-Atlantic Geosciences conducts borehole geophysics, televiewer, and video logging using a Robertson Geologging, Ltd. Videologger 2000. This unit records digital data for on-site log playback, reproduction, and field interpretation, as well as post-processing and report presentation. The system operates in a Windows 98 environment under four data capture and processing programs: RG-Winlogger, RG-Viewlog, HRAT (for ***H***igh-***R***esolution ***A***coustic ***T***eleviewer), and OPTV (for ***OP***tical ***T***ele***V***iewer). The software provides a comprehensive library of programs for field operations including logging data acquisition, log replay, probe control, probe calibration, and logging environment compensation. Video data (if collected) are recorded in real time to the hard drive of a DVD player/recorder, and can be burned in the field to a DVD that is left with the client's on-site representative.

All of the logging instruments are permanently mounted in a dedicated Ford F350 or Dodge RAM2500 enclosed-bed truck, each with a self-contained power supply, and support and decontamination equipment. The downhole probes or sondes are connected to either a Robertson Geologging Smartwinch with approximately 600 feet of 0.375-inch coaxial cable, or a Robertson 2000m winch with approximately 3000 feet of 0.25-inch coaxial cable – depending on the depth of the wells logged.

Logging Parameters and Methodology

Geophysical well logging in general involves lowering sondes in a borehole and recording parameters that are related to the properties of the adjacent soil or rock, the fluids in the borehole or formation, and/or construction details of the well. There are many tools and techniques that have been developed to provide specific information in different environments and constructions of drilled holes. The data collected can define the nature and extent of geologic formations and formation fluids, and can be used to provide correlation between holes.

The sondes used for this survey are described below. Note that before any of these tools are put into service for a particular job, MAG personnel test them for proper function and recalibrate as necessary. This is essential to the proper acquisition of downhole data and the ability to relate the data from one borehole to another.

Fluid Temperature

Fluid temperature logs provide the temperature of the air or fluid in a borehole as a function of depth. Temperature logs can indicate where water is entering or leaving a borehole – and thereby disturbing the normal geothermal gradient. Deviations, offsets, or changes in the slope of the temperature log can be used to locate zones of water movement within the borehole. Temperature logs must be run in wells that have been allowed to fully equilibrate to the local geothermal gradient following any prior drilling, construction, pumping or sampling. During a temperature survey, data accuracy is ensured by maintaining a downward logging speed of approximately 10 feet per minute (fpm). This provides an adequate time buffer to allow sensors to respond to minor temperature changes.

Fluid Conductivity

Fluid conductivity logs provide a continuous measurement of the electrical conductivity of the borehole fluid – i.e. zero in air or hydrocarbons, greater than zero in water. In water, electrical conductivity is mostly a function of electrolytic content. Water with very low dissolved solid concentrations will yield low fluid conductivity, while water containing a high level of dissolved solids will be proportionally more conductive. Fluid conductivity logs often deflect where water-producing features are transmitting water into or out of the well (since the well water may have a differing electrolytic chemistry than the formation water). The fluid conductivity log is usually collected simultaneously with the temperature log – since for both, data from a fully equilibrated water column is required.

Natural Gamma

Gamma logs are one of the most widely used geophysical logs in groundwater applications. They are used primarily to identify changes in lithology – specifically the relative amounts of clay in various sedimentary units.

A gamma log provides a record of the total natural gamma radiation detected within a given energy range. In water-bearing rocks and sediments that are not contaminated by artificial radioisotopes, the most significant naturally-occurring, gamma-emitting radioisotopes are potassium-40 and the daughter products of the uranium and thorium decay series. If gamma-emitting artificial radioisotopes have been introduced by humans into the groundwater system, they will also produce part of the radiation measured.

The amplitude of gamma-log deflections is affected by any borehole condition that alters the density of the material through which gamma photons must pass or the length of the travel path. The bedding of a gamma-emitting formation must be thick to obtain a quantitative value since the detector will be affected by the radiation from the formation as the tool approaches and passes the bed. Although increases in borehole diameter or the presence of steel casing will decrease the recorded gamma count, it is possible to collect usable information in both cased and open portions of the borehole using the gamma sonde. The presence of potassium-rich (and therefore gamma-emitting) bentonite clay commonly used in well construction will generally produce high gamma count peaks on a natural gamma log. MAG has natural gamma detectors on many sondes, and comparison of the multiple gamma logs collected for any given well logging program are used to ensure that the depths of differing logs are not erroneously shifted. Therefore, the gamma log presented for any well may have been collected simultaneously with any of the other logs from the same well.

Caliper

Caliper measurements represent the average diameter of the borehole or well at a given depth. The caliper tool collects and transmits the data from three spring-loaded arms as the tool is lifted upwards through the borehole. The caliper tool is used to locate solution openings or fractures (where the borehole is typically enlarged due either to the presence of natural openings, or to plucking of broken rock by the drill bit), and to determine the length of casing intervals (as evident from small changes in casing diameter, or the small enlargements at threaded junctions, or narrowing due to the bead at welded junctions).

Caliper logs are collected by calibrating the downhole tool with a measuring template, lowering the tool to the base of the well, remotely opening the arms, and then logging the open borehole and casing diameter in an upward direction. Caliper logs are acquired with a logging speed of no more than 12 feet per minute.

Optical Televiewer

The borehole optical televiewer (OPTV) or Optical Borehole Imager (OBI) provides a high-resolution digital optical scan of the interior of a borehole using visible wavelength light. From the accurately-scaled, continuous image it is possible to identify the depth and character of features such as fractures, bedding planes, veins, solution openings, etc. In particular, it is possible to calculate the strike, dip, and aperture of planar features. The OPTV operates by using a high-resolution color downhole camera which views a reflection of the borehole walls in a hyperbolic correction mirror. At successive depth increments of 0.5 mm, rings of pixels corresponding to circular scans of the borehole wall are acquired from the probe and stacked into a continuous image. The image is rectangular – representing the interior of a cylinder that has been sliced open and rolled-out flat. The image is oriented to north based on data from three magnetometers and accelerometers in the sonde. Note that the use of magnetometers for orientation leads to image distortion in steel-cased holes, and within several feet of the base of steel casing in open holes. All OPTV sondes require an open borehole, or one filled with a clear fluid.

Planar features intersecting a cylindrical borehole appear sinusoidal on the flattened cylindrical image. The azimuth of the peak/trough of the sinusoid, and the amplitude of the sinusoid can be measured and used to calculate the strike and dip (see Appendix A) of such features. Based on their visual character, planar features on the optical televiewer (and HRAT – see below) logs have been categorized on the log sheets as various types of geologic interface (fractures, bedding planes, veins, etc.). The features observed on the OPTV log can also be characterized based on the Paillet Ranking System developed by the US Geological Survey, Water Resources Division, Borehole Geophysics Research Project. This system is a semi-subjective evaluation of transmissivity potential. The ranking system assigns a number value between zero and five to observed features. A rank of zero indicates a feature that appears sealed – with no water likely passing through it. Note that the geologic classification of features (e.g. bedding plane, lithologic contact, joint, fracture, foliation, etc.) is not specified in the Paillet System since only water-bearing potential is considered. A rank of five corresponds to a grossly porous zone with large openings (e.g. a major fracture, fault or solution cavity). The ranking system, with examples, is provided in Appendix B.

Tables listing the depth, aperture, strike, dip and type of feature are included in this report, for each well, as Appendix C. Feature apertures are listed in tenths of an inch. An aperture of zero for an open fracture simply means that while it appears to be a continuous open feature, the opening is smaller than the line thickness on the log (~0.015 inches). Note that because of the subjectivity involved in Paillet ranking, MAG has listed fractures in Appendix C only as either open or sealed. Specific Paillet rankings can be assigned by the client, if desired, by comparing the standard pictures in Appendix B to the OPTV log.

Note also that it has been the experience of MAG that the aperture or Paillet rank of a feature is not always a strong indicator of its water-producing potential. Thin, discrete features sometimes produce as much or more water (as evidence by flowmeter logging – see below) than wide, open fractures or fracture zones.

Acoustic Televiewer

The high-resolution acoustic televiewer (HRAT) provides a scan or image of the interior of the borehole that is created not by reflected visible wavelength light, but by reflected ultrasound. Since ultrasonic pulses are used, it is possible to record both the amplitude and travel time of each pulse, and construct two separate images. The amplitude log is analogous to a visual scan, while the travel time data are affected primarily by the local diameter of the borehole (i.e. the larger the bore, the later the arrival of the reflected pulse), and therefore can supplement or replace a caliper log. The main advantage of the HRAT probe is that it can be used in larger boreholes than optical tools, and in holes with turbid or particle-loaded fluids that would be opaque to optical methods.

The HRAT operates by using a fixed acoustic transducer and a rotating acoustic mirror capable of focusing on the borehole wall at any distance from the probe diameter upwards. The acoustic transducer is focused based on the borehole diameter and impedance-matched to the borehole fluid to provide optimum image resolution and reflected amplitude. Mirror rotation speed (i.e. circumferential resolution), sampling rate (i.e. depth resolution), signal gain (i.e. amplitude image contrast), and recording time gate (i.e. travel time image contrast) are all variable and under operator control to provide the best image possible under borehole-specific conditions.

HRAT logs are presented as accurately-scaled and accurately-oriented cylindrical images that are sliced open and laid flat. Therefore, planar dipping features appear as sinusoids from which the strike and dip of the feature can be calculated (see Appendix A). Selected and representative televiewer features are listed in Appendix C and on the log sheet. Based on their visual character, planar features have been categorized as various types of geologic interface (fractures, bedding planes, veins, etc.). Feature apertures are listed in tenths of an inch. An aperture of zero for an open fracture simply means that while it appears to be a continuous open feature, the opening is smaller than the line thickness on the log (~0.015 inches). Note that it has been the experience of MAG that the aperture of a feature is not always a strong indicator of its water-producing potential. Thin, discrete features sometimes produce as much or more water (as evidence by flow meter logging or packer testing) than wide, open fractures or fracture zones.

Logging Results

Wells MWSW-130, MWSW-131, and MWSW-132 were logged on July 20 – July 21, 2010. As specified in the proposal, MAG logged the borehole with the Fluid Temperature, Fluid Conductivity, Natural Gamma, 3-Arm Caliper, Acoustic Televiewer, and Optical Televiewer. The logging results for the well are presented on the enclosed digital logs.

Note that since analysis of borehole geophysical logs can be quite subjective, and the level of detail is dependent upon the specific goals of the geologist, the analysis by MAG below covers the major features of each log, as well as some possibly minor features to serve as examples or guides for further interpretation by geologists familiar with the site, local geology, and/or project goals. In general, logs may display deviations (i.e. "spikes" where the parameter deviates from, and then returns to, "background" level), offsets (changes in background level), or slope changes. Any of these could be considered significant in certain situations, or when compared to correlating features at the same depth on other logs. If there are any questions about the features discussed (or not discussed) below, please do not hesitate to contact MAG.

MWSW-130

Noted Features

- The total depth (TD) of the well is approximately 58' feet below ground surface (BGS).
- The depth to water (DTW) was 27 feet BGS at the time of the survey.
- The diameter of the casing at the surface was measured to be six inches, and the bottom of the casing (BOC) was located at approximately 10 feet BGS.
- The caliper (borehole diameter) log reveals some minor fluctuations throughout the borehole correlating with planar features, with the most notable features located at approximately 34.5, 51, and 53.5 feet BGS.
- The fluid temperature log displays minor deviations located at approximately 33, 38, 39, and 43.5 feet BGS.
- The fluid conductivity log displays a step-like deviation located at approximately 55 feet BGS and is associated with silt accumulation at the bottom of the borehole.

- The natural gamma response shows only minor fluctuations throughout the well, with a notable increase located from 16 to 21 feet BGS.

- Numerous planar features were recognizable on the televiewer log. The depth, strike, dip, aperture, and feature type are listed on the log, as well as on the accompanying table in Appendix C.

MWSW-131

Noted Features

- The total depth (TD) of the well is approximately 172’ feet below ground surface (BGS).
- The depth to water (DTW) was 80.5 feet BGS at the time of the survey.
- The diameter of the casing at the surface was measured to be six inches, and the bottom of the casing (BOC) was located at approximately 10 feet BGS.
- The caliper (borehole diameter) log reveals minor fluctuations throughout the borehole correlating with planar features, with the most notable features located at approximately 66.2, 67.3, 70.8, 79.3, 82.3, 85.7-88.7, 100, 125.2, 140, 150.5, and 165.5 feet BGS.
- The fluid temperature log displays minor deviations located at approximately 86, 94, and 101 feet BGS.
- The fluid conductivity log displays a minor deviation located at approximately 85 feet BGS.
- The natural gamma response shows only minor fluctuations throughout the well, with a few notable deviations located at approximately 132, 138, 156, and 168 feet BGS.
- Numerous planar features were recognizable on the televiewer log. The depth, strike, dip, aperture, and feature type are listed on the log, as well as on the accompanying table in Appendix C.

MWSW-132

Noted Features

- The total depth (TD) of the well is approximately 144’ feet below ground surface (BGS).
- The depth to water (DTW) was 45 feet BGS at the time of the survey.
- The diameter of the casing at the surface was measured to be six inches, and the bottom of the casing (BOC) was located at approximately 11 feet BGS.
- The caliper (borehole diameter) log reveals some minor fluctuations throughout the borehole correlating with planar features, with the most notable features located at approximately 36.8, 71, 76, 95, 107.5, and 109 feet BGS.
- The fluid temperature log displays a change in slope located at approximately 70 feet BGS.
- The fluid conductivity log displays no significant deviations, offsets, or changes in slope.
- The natural gamma response shows only minor fluctuations throughout the well, with a notable increase located at approximately 32 feet BGS.
- Numerous planar features were recognizable on the televiewer log. The depth, strike, dip, aperture, and feature type are listed on the log, as well as on the accompanying table in Appendix C.

Limitations

In making verbal or written interpretation of logs, MAG personnel give the client the benefit of their best professional judgment. However, since all interpretations are based on inference from electrical, magnetic, or other indirect measurements, MAG does not, and cannot, guarantee the accuracy or the correctness of any such interpretations. MAG shall not be liable for any loss, damages, or expenses resulting from reliance on such interpretations. MAG does not warrant the accuracy of log data transmitted by any electronic process and will not be responsible for intentional interpretation of log data by others. MAG makes no warranties – neither explicit nor implied. Under no circumstances shall MAG, its parent company Enviroscan, Inc., or their personnel be liable for consequential damages.

We appreciate this opportunity to have worked with you. If you have any questions, please do not hesitate to contact me.

Sincerely,
Mid-Atlantic Geosciences

Christopher Lash
Project Geophysicist

Technical Review By:
Mid-Atlantic Geosciences

Felicia Kegel Bechtel, M.Sc., P.G.
President

enc.: Well MWSW-130: Televiewer, and Geophysical Logs
Well MWSW-131: Televiewer, and Geophysical Logs
Well MWSW-132: Televiewer, and Geophysical Logs
Appendix A: Planar Feature Orientation Parameters
Appendix B: Paillet Ranking System
Appendix C: Planar Feature Characterizations Tables

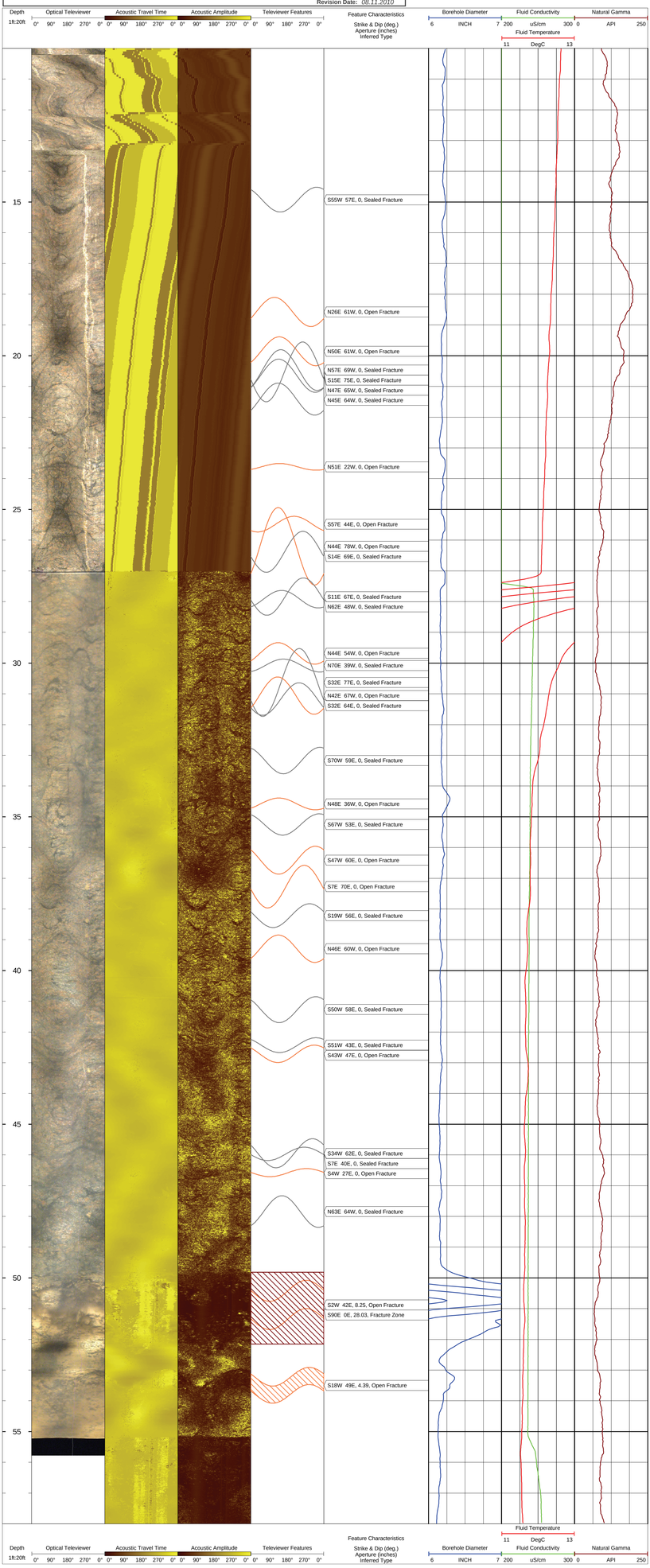
Mid-Atlantic Geosciences

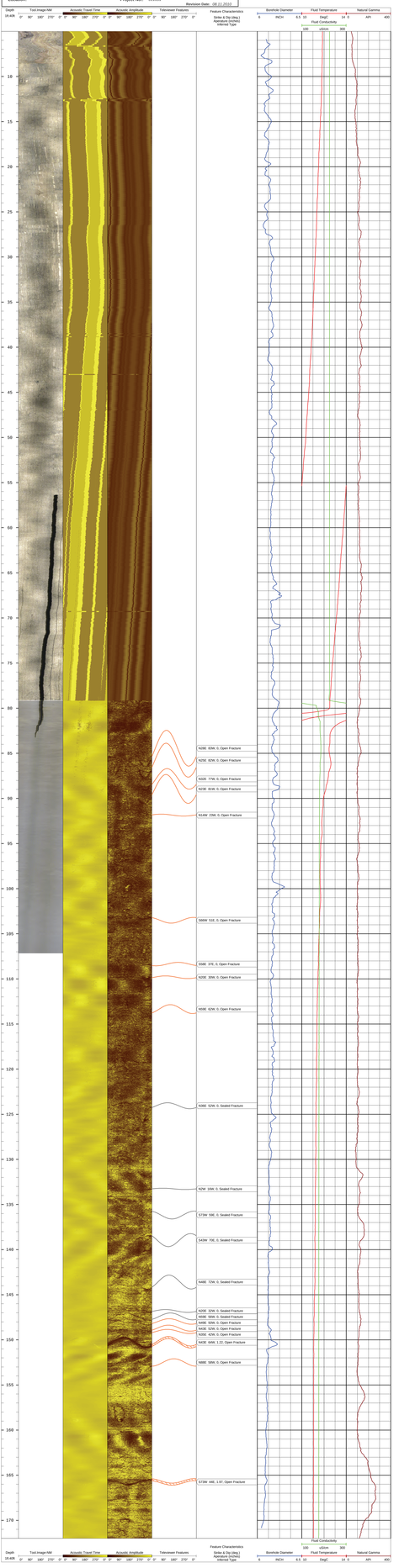
Title: *Televiewer and Geophysical Logs*

WELL ID *MWSW-130*

Logging Date: *7.20.2010*
Logging Datum: *Ground Surface*
BOC: *10'* **DTW:** *27'* **TD:** *58'*

Site Name: *Former Chevron Site*
Location: *Beacon, NY*
Client: *Parsons*
Project No.: *011031*
Revision Date: *08.11.2010*




Mid-Atlantic Geosciences
Title: Televiewer and Geophysical Logs
WELL ID
MWSW-131
Logging Date: 7.20.2010
Logging Datum: Ground Surface
BOC: 10' DTW: 80.5' TD: 172'
Site Name: Former Chevron Site
Location: Beacon, NY
Client: Parsons
Project No.: 011011
Revision Date: 08.11.2010
Depth
Feature Characteristics
Strike & Dip (deg.)
Aperture (inches)
Inferred Type
Borehole Diameter
Fluid Temperature
Natural Gamma
Fluid Conductivity
N26E 80W, S, Open Fracture
N25E 82W, S, Open Fracture
N32E 77W, S, Open Fracture
N23E 81W, S, Open Fracture
N14W 23W, S, Open Fracture
S66W 51E, S, Open Fracture
S58E 37E, S, Open Fracture
N25E 30W, S, Open Fracture
N59E 82W, S, Open Fracture
N26E 32W, S, Sealed Fracture
N29W 189W, S, Sealed Fracture
S73W 59E, S, Sealed Fracture
S43W 70E, S, Sealed Fracture
N46E 72W, S, Sealed Fracture
N25E 32W, S, Sealed Fracture
N35E 58W, S, Sealed Fracture
N49E 50W, S, Open Fracture
N43E 32W, S, Open Fracture
N26E 42W, S, Open Fracture
N43E 84W, 1.22, Open Fracture
N88E 58W, S, Open Fracture
S73W 44E, 1.97, Open Fracture

Mid-Atlantic Geosciences

Title: *Televiewer and Geophysical Logs*

WELL ID *MWSW-132*

Logging Date: *7.21.2010*
Logging Datum: *Ground Surface*
BOC: *11'* DTW: *45'* TD: *144'*

Site Name: *Former Chevron Site*
Location: *Beacon, NY*
Client: *Parsons*
Project No.: *011031*
Revision Date: *08.11.2010*

Depth 1ft:40ft

Optical Televiewer 0° 90° 180° 270° 0°

Acoustic Travel Time 0° 90° 180° 270° 0°

Acoustic Amplitude 0° 90° 180° 270° 0°

Televiewer Features 0° 90° 180° 270° 0°

Feature Characteristics
Strike & Dip (deg.)
Aperture (inches)
Inferred Type

Borehole Diameter 5.5 INCH 6.5

Fluid Conductivity 100 uS/cm 300

Fluid Temperature 5 DegC 9

Natural Gamma 0 API 800

10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100 105 110 115 120 125 130 135 140

N31E 73W, 0, Open Fracture
N41E 82W, 0, Sealed Fracture
S27W 29E, 0, Open Fracture
N34E 69W, 0, Open Fracture
N4E 63W, 0, Sealed Fracture
N10E 69W, 0, Sealed Fracture
S45W 69E, 0, Sealed Fracture
N57E 75W, 0, Open Fracture
N89W 22W, 6.58, Open Fracture
N40E 62W, 0, Sealed Fracture
N56E 51W, 0, Sealed Fracture
N36E 74W, 0, Open Fracture
N40E 74W, 0, Open Fracture
N23E 67W, 0, Sealed Fracture
N23E 74W, 0, Open Fracture
N85W 57W, 0, Open Fracture
N17E 77W, 0, Sealed Fracture
S50E 82E, 0, Sealed Fracture
S22E 80E, 0, Sealed Fracture
N61E 76W, 0, Open Fracture
S46W 22E, 0, Open Fracture
S64W 51E, 3.27, Open Fracture
S86W 38E, 0, Open Fracture
N27E 75W, 0, Open Fracture
N41W 23W, 0, Open Fracture
S57W 55E, 0, Open Fracture
S85E 57E, 0, Open Fracture
S24W 69E, 0, Sealed Fracture
S16E 58E, 0, Open Fracture
S60W 80E, 0, Sealed Fracture
S15W 68E, 0, Open Fracture
N53E 52W, 0, Open Fracture
N51E 47W, 0, Open Fracture
N53E 80W, 0, Sealed Fracture
S71W 21E, 0, Sealed Fracture
N57E 57W, 2.51, Open Fracture
S57W 38E, 0, Open Fracture
S41W 74E, 0, Open Fracture
N90E 17W, 0, Sealed Fracture
S75E 7E, 0, Sealed Fracture
S51W 75E, 1.89, Open Fracture
S83W 58E, 0, Open Fracture
S53W 58E, 0, Open Fracture
S16W 58E, 0, Open Fracture
N17E 73W, 0, Sealed Fracture
N19E 75W, 0, Sealed Fracture
S62W 39E, 17.21, Bed
N39W 44W, 0, Sealed Fracture
N45W 27W, 0, Open Fracture
N58W 36W, 0, Open Fracture
S86E 63E, 0, Open Fracture

Depth 1ft:40ft
Optical Televiewer 0° 90° 180° 270° 0°
Acoustic Travel Time 0° 90° 180° 270° 0°
Acoustic Amplitude 0° 90° 180° 270° 0°
Televiewer Features 0° 90° 180° 270° 0°
Feature Characteristics
Strike & Dip (deg.)
Aperture (inches)
Inferred Type
Fluid Temperature 5 DegC 9
Borehole Diameter 5.5 INCH 6.5
Fluid Conductivity 100 uS/cm 300
Natural Gamma 0 API 800

Appendix A

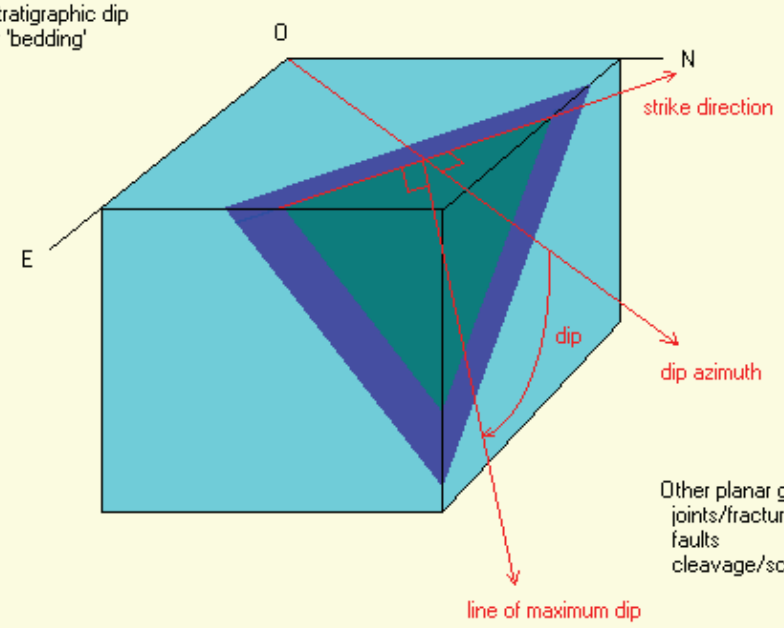
Planar Feature Orientation Parameters

Planar Feature Orientation Parameters

Dip = angle of inclination of the plane, downwards from the horizontal
Dip azimuth = azimuth of the line of maximum dip in the plane, clockwise from North
Strike direction = azimuth of a horizontal line in the plane (= dip azimuth – 90°)

e.g. dip and dip azimuth = 60° N041° or strike and dip = N311° 60°

e.g. Stratigraphic dip
or 'bedding'

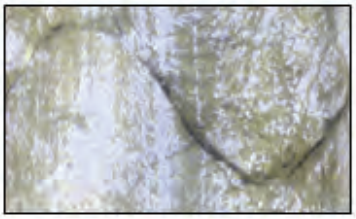
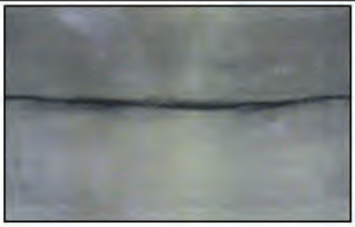
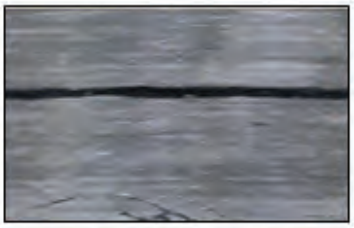


Other planar geologic features include
joints/fractures/veins
faults
cleavage/schistosity

Appendix B

Paillet Ranking System

Paillet Ranking System

Example OPTV Feature	Paillet Rank	Description
	0	Sealed feature – no flow
	1	Partial open fracture
	2	Continuous open fracture
	3	Wide open fracture or fractures
	4	Very wide fracture or multiple interconnected fractures
	5	Major fracture zone or breakout

Appendix C

Planar Feature Characterizations Tables

Mid-Atlantic Geosciences
Planar Feature Characterizations

Well ID:	**MWSW-130**	**Client:**	**Parsons**
Site Name:	**Former Chevron Site**	**Project No.:**	**011031**
Location:	**Beacon, NY**	**Revision Date:**	**08.12.2010**

Depth	Aperture	Dip Azimuth (deg.)	Strike (deg.)	Dip (deg.)	Feature Type
14.9	0.0	145	S55W	57E	Sealed Fracture
18.6	0.0	296	N26E	61W	Open Fracture
19.9	0.0	320	N50E	61W	Open Fracture
20.5	0.0	327	N57E	69W	Sealed Fracture
20.5	0.0	75	S15E	75E	Sealed Fracture
20.7	0.0	317	N47E	65W	Sealed Fracture
21.4	0.0	315	N45E	64W	Sealed Fracture
23.6	0.0	321	N51E	22W	Open Fracture
25.5	0.0	33	S57E	44E	Open Fracture
26.2	0.0	314	N44E	78W	Open Fracture
26.4	0.0	76	S14E	69E	Sealed Fracture
27.8	0.0	79	S11E	67E	Sealed Fracture
27.9	0.0	332	N62E	48W	Sealed Fracture
29.7	0.0	314	N44E	54W	Open Fracture
30.1	0.0	340	N70E	39W	Sealed Fracture
30.6	0.0	58	S32E	77E	Sealed Fracture
31.1	0.0	312	N42E	67W	Open Fracture
31.2	0.0	58	S32E	64E	Sealed Fracture
33.2	0.0	160	S70W	59E	Sealed Fracture
34.6	0.0	318	N48E	36W	Open Fracture
35.3	0.0	157	S67W	53E	Sealed Fracture
36.4	0.0	137	S47W	60E	Open Fracture
37.3	0.0	83	S7E	70E	Open Fracture
38.2	0.0	109	S19W	56E	Sealed Fracture
39.3	0.0	316	N46E	60W	Open Fracture
41.3	0.0	140	S50W	58E	Sealed Fracture
42.4	0.0	141	S51W	43E	Sealed Fracture
42.7	0.0	133	S43W	47E	Open Fracture

46.0	0.0	124	S34W	62E	Sealed Fracture
46.0	0.0	83	S7E	40E	Sealed Fracture
46.6	0.0	94	S4W	27E	Open Fracture
47.8	0.0	333	N63E	64W	Sealed Fracture
50.9	8.3	92	S2W	42E	Open Fracture
51.0	28.0	0	S90E	0E	Fracture Zone
53.5	4.4	108	S18W	49E	Open Fracture

Mid-Atlantic Geosciences
Planar Feature Characterizations

Well ID:	**MWSW-131**	**Client:**	**Parsons**
Site Name:	**Former Chevron Site**	**Project No.:**	**011031**
Location:	**Beacon, NY**	**Revision Date:**	**08.12.2010**

Depth	Aperture	Dip Azimuth (deg.)	Strike (deg.)	Dip (deg.)	Feature Type
84.4	0.0	298	N28E	83W	Open Fracture
85.8	0.0	295	N25E	82W	Open Fracture
87.8	0.0	302	N32E	77W	Open Fracture
89.0	0.0	293	N23E	81W	Open Fracture
91.9	0.0	256	N14W	23W	Open Fracture
103.5	0.0	156	S66W	51E	Open Fracture
108.4	0.0	32	S58E	37E	Open Fracture
109.8	0.0	290	N20E	30W	Open Fracture
113.4	0.0	329	N59E	62W	Open Fracture
124.1	0.0	306	N36E	52W	Sealed Fracture
133.3	0.0	268	N2W	16W	Sealed Fracture
136.2	0.0	163	S73W	59E	Sealed Fracture
139.0	0.0	133	S43W	70E	Sealed Fracture
143.6	0.0	318	N48E	72W	Sealed Fracture
146.8	0.0	290	N20E	32W	Sealed Fracture
147.4	0.0	329	N59E	56W	Sealed Fracture
148.0	0.0	319	N49E	50W	Open Fracture
148.7	0.0	313	N43E	52W	Open Fracture
149.1	0.0	305	N35E	42W	Open Fracture
150.3	1.2	313	N43E	64W	Open Fracture
152.5	0.0	358	N88E	58W	Open Fracture
165.7	2.0	163	S73W	44E	Open Fracture

Mid-Atlantic Geosciences
Planar Feature Characterizations

Well ID:	**MWSW-132**	**Client:**	**Parsons**
Site Name:	**Former Chevron Site**	**Project No.:**	**011031**
Location:	**Beacon, NY**	**Revision Date:**	**08.12.2010**

Depth	Aperture	Dip Azimuth (deg.)	Strike (deg.)	Dip (deg.)	Feature Type
21.8	0.0	301	N31E	73W	Open Fracture
25.9	0.0	311	N41E	82W	Sealed Fracture
26.2	0.0	117	S27W	29E	Open Fracture
26.3	0.0	304	N34E	69W	Open Fracture
27.2	0.0	274	N4E	63W	Sealed Fracture
27.7	0.0	280	N10E	69W	Sealed Fracture
30.1	0.0	135	S45W	69E	Sealed Fracture
35.1	0.0	327	N57E	75W	Open Fracture
37.0	6.6	181	N89W	22W	Open Fracture
46.0	0.0	310	N40E	62W	Sealed Fracture
46.4	0.0	326	N56E	51W	Sealed Fracture
49.1	0.0	306	N36E	74W	Open Fracture
49.5	0.0	310	N40E	74W	Open Fracture
51.9	0.0	293	N23E	67W	Sealed Fracture
58.7	0.0	293	N23E	74W	Open Fracture
64.0	0.0	185	N85W	57W	Open Fracture
64.4	0.0	287	N17E	77W	Sealed Fracture
64.4	0.0	40	S50E	82E	Sealed Fracture
64.7	0.0	68	S22E	80E	Sealed Fracture
66.1	0.0	331	N61E	76W	Open Fracture
68.4	0.0	136	S46W	22E	Open Fracture
71.5	3.3	154	S64W	51E	Open Fracture
72.5	0.0	176	S86W	38E	Open Fracture
74.2	0.0	297	N27E	75W	Open Fracture
75.0	0.0	229	N41W	23W	Open Fracture
76.5	0.0	147	S57W	55E	Open Fracture
78.2	0.0	5	S85E	57E	Open Fracture
78.4	0.0	114	S24W	69E	Sealed Fracture

80.8	0.0	74	S16E	58E	Open Fracture
80.9	0.0	150	S60W	80E	Sealed Fracture
82.1	0.0	105	S15W	68E	Open Fracture
87.9	0.0	323	N53E	52W	Open Fracture
88.2	0.0	321	N51E	47W	Open Fracture
91.0	0.0	323	N53E	80W	Sealed Fracture
91.8	0.0	161	S71W	21E	Sealed Fracture
94.6	2.5	327	N57E	57W	Open Fracture
97.1	0.0	147	S57W	38E	Open Fracture
99.5	0.0	131	S41W	74E	Open Fracture
99.9	0.0	360	N90E	17W	Sealed Fracture
104.0	0.0	15	S75E	7E	Sealed Fracture
108.7	1.9	141	S51W	75E	Open Fracture
108.7	0.0	173	S83W	58E	Open Fracture
114.8	0.0	143	S53W	58E	Open Fracture
115.3	0.0	106	S16W	58E	Open Fracture
121.0	0.0	287	N17E	73W	Sealed Fracture
121.4	0.0	289	N19E	75W	Sealed Fracture
127.5	17.2	152	S62W	39E	Bed
130.1	0.0	231	N39W	44W	Sealed Fracture
134.9	0.0	225	N45W	27W	Open Fracture
135.8	0.0	212	N58W	36W	Open Fracture
138.3	0.0	4	S86E	63E	Open Fracture

APPENDIX G

SLUG TEST DATA SUMMARY

APPENDIX G-1
WESTAGE REALTY PROPERTY
SLUG TEST ANALYSIS SUMMARY
FORMER TEXACO RESEARCH FACILITY
BEACON, NEW YORK

Well ID	Date	TOC Elev (tex dat)	Reference Elev (tex dat)	Static DTW (ft)	Stick up (ft)	Ground Surface to Screen Bot. (ft)	Bore Diam (inch)	Boundary Depth (ft)	Well Diam (inch)	Used Screen Length (ft)	Filter Porosity	Slug Diam (inch)	Slug Length (ft)	Analysis Method	Result (cm/s)
SWMW-130(S) falling	4-Aug-10	209.79	178.04	31.75	3.61	41.00	5.90	41.00	2	15	0.3	1	5.92	Bouwer	1.00E-02
SWMW-130(S) falling (II)	4-Aug-10	209.79	178.04	31.75	3.61	41.00	5.90	41.00	2	15	0.3	1	5.92	Bouwer	9.00E-03
SWMW-130(S) rising	4-Aug-10	209.79	178.04	31.75	3.61	41.00	5.90	41.00	2	15	0.3	1	5.92	Bouwer	2.00E-03
SWMW-130(S) rising (II)	4-Aug-10	209.79	178.04	31.75	3.61	41.00	5.90	41.00	2	15	0.3	1	5.92	Bouwer	2.00E-03
SWMW-130(D) falling	4-Aug-10	209.83	178.12	31.71	3.65	56.00	5.90	56.00	2	10	0.3	1	5.92	Bouwer	1.00E-03
SWMW-130(D) falling (II)	4-Aug-10	209.83	178.12	31.71	3.65	56.00	5.90	56.00	2	10	0.3	1	5.92	Bouwer	7.00E-04
SWMW-130(D) rising	4-Aug-10	209.83	178.12	31.71	3.65	56.00	5.90	56.00	2	10	0.3	1	5.92	Bouwer	1.00E-03
SWMW-130(D) rising (II)	4-Aug-10	209.83	178.12	31.71	3.65	56.00	5.90	56.00	2	10	0.3	1	5.92	Bouwer	1.00E-03
SWMW-131 falling	5-Aug-10	227.13	177.43	49.70	3.33	170.00	5.90	170.00	2	20	0.3	1	5.92	Bouwer	2.00E-04
SWMW-131 falling (II)	5-Aug-10	227.13	177.43	49.70	3.33	170.00	5.90	170.00	2	20	0.3	1	5.92	Bouwer	2.00E-04
SWMW-131 rising	5-Aug-10	227.13	177.43	49.70	3.33	170.00	5.90	170.00	2	20	0.3	1	5.92	Bouwer	3.00E-04
SWMW-131 rising (II)	5-Aug-10	227.13	177.43	49.70	3.33	170.00	5.90	170.00	2	20	0.3	1	5.92	Bouwer	2.00E-04
SWMW-132(S) falling	5-Aug-10	219.80	177.90	41.90	2.93	55.00	5.90	55.00	2	20	0.3	1	5.92	Bouwer	2.00E-03
SWMW-132(S) falling (II)	5-Aug-10	219.80	177.90	41.90	2.93	55.00	5.90	55.00	2	20	0.3	1	5.92	Bouwer	3.00E-03
SWMW-132(S) rising	5-Aug-10	219.80	177.90	41.90	2.93	55.00	5.90	55.00	2	20	0.3	1	5.92	Bouwer	6.00E-04
SWMW-132(S) rising (II)	5-Aug-10	219.80	177.90	41.90	2.93	55.00	5.90	55.00	2	20	0.3	1	5.92	Bouwer	7.00E-04
SWMW-132(D) falling	5-Aug-10	219.67	177.07	42.60	2.80	112.00	5.90	112.00	2	20	0.3	1	5.92	Bouwer	3.00E-04
SWMW-132(D) falling (II)	5-Aug-10	219.67	177.07	42.60	2.80	112.00	5.90	112.00	2	20	0.3	1	5.92	Bouwer	4.00E-04
SWMW-132(D) rising	5-Aug-10	219.67	177.07	42.60	2.80	112.00	5.90	112.00	2	20	0.3	1	5.92	Bouwer	3.00E-04
SWMW-132(D) rising (II)	5-Aug-10	219.67	177.07	42.60	2.80	112.00	5.90	112.00	2	20	0.3	1	5.92	Bouwer	3.00E-04

Client: **Parsons**

Project: **Westage Realty Property Groundwater Investigation**

Project No.: **446074**

Well No.: **SWMW-130 (S)**

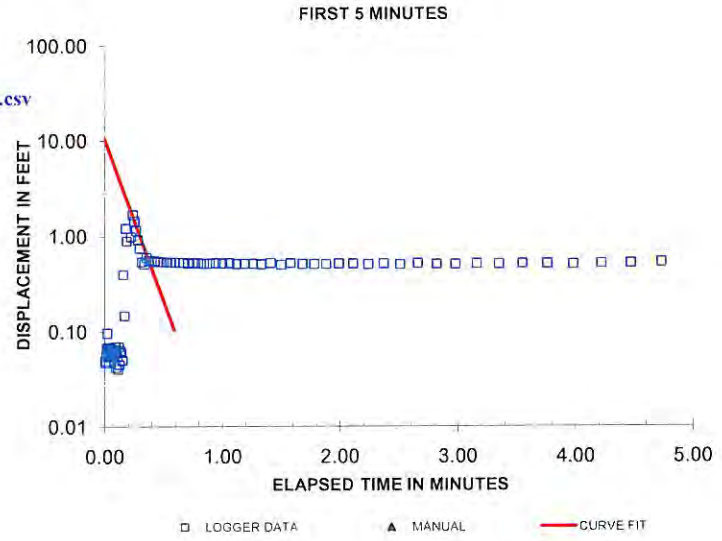
Test Date: **August 4, 2010**

Formation Tested: **Bedrock**

Rising (R) or Falling (F) Head Test: **Falling**

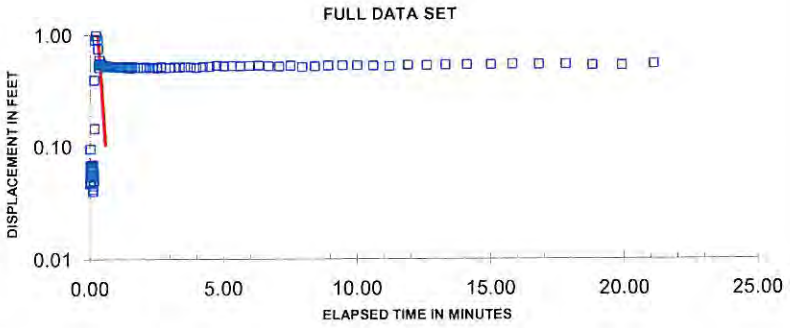
Logger Data File: **SWMW-130 (S) (i).2010-08-09.11-54-18.csv**

Hydraulic conductivity	**1.E-02**	**cm/sec**
	2.E-02	**ft/min**
	31	**ft/day**
Casing stickup	3.61	feet
Static water level (from top of casing)	31.75	feet
Depth to bottom of screen (from ground level)	41.00	feet
Boring diameter	5.90	inches
Casing diameter	2.00	inches
Screen diameter	2.00	inches
(●) Set Rw equal to Boring Diameter (Defa	( ) Set Rw equal to Casing Diameter	
Screen length	15.00	feet
Depth to "impermeable boundary"	41.00	feet
Porosity of filter pack	0.30	
Slug diameter (optional)	1.00	inches
Slug length (optional)	5.92	feet
Theoretical ΔH at time zero (Y_0)	0.00	feet
Actual ΔH at time zero (Y_0)	10.366	feet
Time	0.59	min



Bouwer-Rice Parameters

feet	cm		cm	
28.14	857.71	*SW*		
12.86	391.97	*H*	52.31	*L/Rw*
26	792.48	*Ts*	1.00	*H/D*
0.246	7.49	*Rw*	3.00	*A*
0.152	4.62	*Rc*	0.46	*B*
0.167	5.08	*DS*	2.60	*C*
12.86	391.97	*L*	-4.09	*Ln[(D-H)/Rw]'*
12.8641	392.10	*D*	-4.09	*Ln[(D-H)/Rw]*
10.36553	315.94	Y_o	3.34	equation (4)[1]
0.103655	3.16	Y_t	3.05	equation (5)[1]
	35.40	*t (seconds)*	3.05	*Ln(Re/Rw)*
	0.30	*n*	1.1E-02	equation (3)[1]



REFERENCES:

(1) Bouwer, Herman 1989 "The Bouwer and Rice Slug Test - An Update" Ground Water vol 27, no 3, May-June 1989

(2) 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 vol 12, no 3, June 1976

PARSONS	Former Texaco TRC, Beacon, NY	**BOUWER-RICE SLUG TEST ANALYIS** **WELL SWMW-130 (S)**

Client: **Parsons**

Project: **Westage Realty Property Groundwater Investigation**

Project No.: **446074**

Well No.: **SWMW-130 (S)**

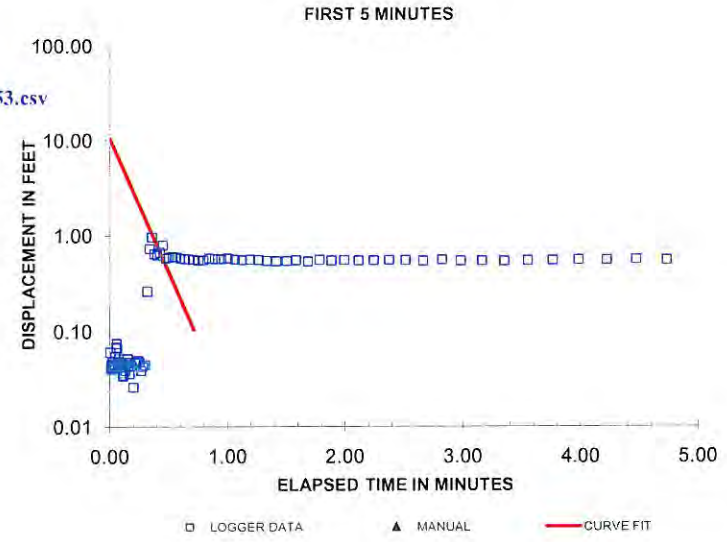
Test Date: **August 4, 2010**

Formation Tested: **Bedrock**

Rising (R) or Falling (F) Head Test: **Falling (II)**

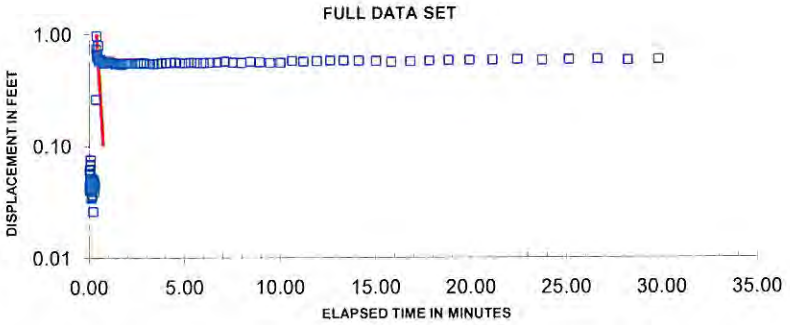
Logger Data File: **SWMW-130 (S) (i2).2010-08-09.11-53-53.csv**

Hydraulic conductivity	**9.E-03**	**cm/sec**
	2.E-02	**ft/min**
	25	**ft/day**
Casing stickup	3.61	feet
Static water level (from top of casing)	31.75	feet
Depth to bottom of screen (from ground level)	41.00	feet
Boring diameter	5.90	inches
Casing diameter	2.00	inches
Screen diameter	2.00	inches
(●) Set Rw equal to Boring Diameter (Defa	( ) Set Rw equal to Casing Diameter	
Screen length	15.00	feet
Depth to "impermeable boundary"	41.00	feet
Porosity of filter pack	0.30	
Slug diameter (optional)	1.00	inches
Slug length (optional)	5.92	feet
Theoretical ΔH at time zero (Y_0)	0.00	feet
Actual ΔH at time zero (Y_0)	10.316	feet
Time	0.72	min



Bouwer-Rice Parameters

feet	cm		cm	
28.14	857.71	*SW*		
12.86	391.97	*H*	52.31	*L/Rw*
26	792.48	*Ts*	1.00	*H/D*
0.246	7.49	*Rw*	3.00	*A*
0.152	4.62	*Rc*	0.46	*B*
0.167	5.08	*DS*	2.60	*C*
12.86	391.97	*L*	-4.09	*Ln[(D-H)/Rw]'*
12.8641	392.10	*D*	-4.09	*Ln[(D-H)/Rw]*
10.31588	314.43	Y_0	3.34	equation (4)[1]
0.103159	3.14	Y_1	3.05	equation (5)[1]
	42.98	*t (seconds)*	3.05	*Ln(Re/Rw)*
	0.30	*n*	8.9E-03	equation (3)[1]



REFERENCES:

(1) Bouwer, Herman 1989 "The Bouwer and Rice Slug Test - An Update" Ground Water vol 27, no 3, May-June 1989

(2) 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 vol 12, no 3, June 1976

PARSONS	Former Texaco TRC, Beacon, NY	**BOUWER-RICE SLUG TEST ANALYIS** **WELL SWMW-130 (S)**

Client: **Parsons**

Project: **Westage Realty Property Groundwater Investigation**

Project No.: **446074**

Well No.: **SWMW-130 (S)**

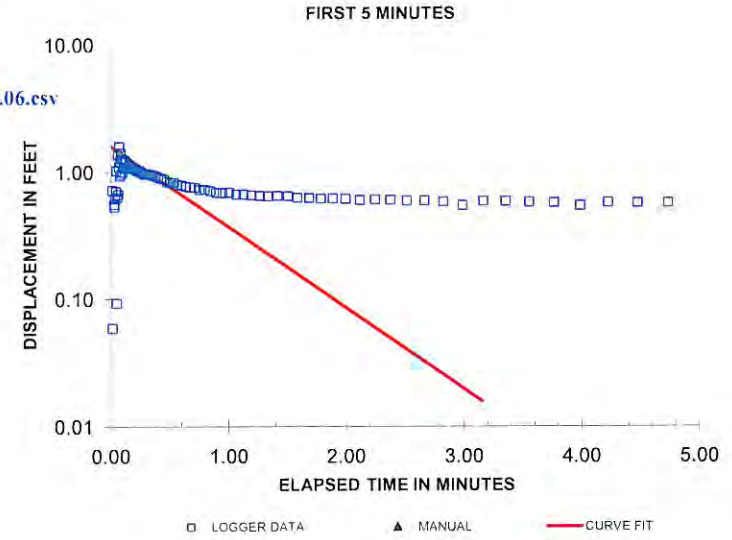
Test Date: **August 4, 2010**

Formation Tested: **Bedrock**

Rising (R) or Falling (F) Head Test: **Rising**

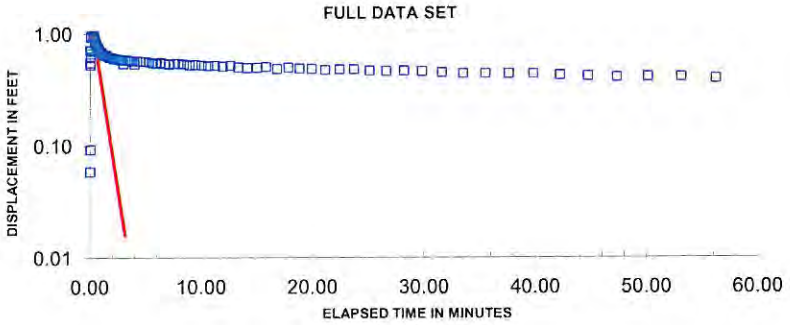
Logger Data File: **SWMW-130 (S) (wd).2010-08-09.11-54.06.csv**

Hydraulic conductivity	**2.E-03**	**cm/sec**
	4.E-03	**ft/min**
	6	**ft/day**
Casing stickup	3.61	feet
Static water level (from top of casing)	31.75	feet
Depth to bottom of screen (from ground level)	41.00	feet
Boring diameter	5.90	inches
Casing diameter	2.00	inches
Screen diameter	2.00	inches
(●) Set Rw equal to Boring Diameter (Defa	( ) Set Rw equal to Casing Diameter	
Screen length	15.00	feet
Depth to "impermeable boundary"	41.00	feet
Porosity of filter pack	0.30	
Slug diameter (optional)	1.00	inches
Slug length (optional)	5.92	feet
Theoretical ΔH at time zero (Y_0)	0.00	feet
Actual ΔH at time zero (Y_0)	1.575	feet
Time	3.15	min



Bouwer-Rice Parameters

feet	cm		cm	
28.14	857.71	*SW*		
12.86	391.97	*H*	52.31	*L/Rw*
26	792.48	*Ts*	1.00	*H/D*
0.246	7.49	*Rw*	3.00	*A*
0.152	4.62	*Rc*	0.46	*B*
0.167	5.08	*DS*	2.60	*C*
12.86	391.97	*L*	-4.09	*Ln[(D-H)/Rw]'*
12.8641	392.10	*D*	-4.09	*Ln[(D-H)/Rw]*
1.575279	48.01	Y_0	3.34	equation (4)[1]
0.015753	0.48	Y_t	3.05	equation (5)[1]
	189.05	*t (seconds)*	3.05	*Ln(Re/Rw)*
	0.30	*n*	2.0E-03	equation (3)[1]



REFERENCES:

(1) Bouwer, Herman 1989 "The Bouwer and Rice Slug Test - An Update" Ground Water vol 27, no 3, May-June 1989

(2) 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 vol 12, no 3, June 1976

PARSONS	Former Texaco TRC, Beacon, NY	**BOUWER-RICE SLUG TEST ANALYIS** **WELL SWMW-130 (S)**

Client: **Parsons**

Project: **Westage Realty Property Groundwater Investigation**

Project No.: **446074**

Well No.: **SWMW-130 (S)**

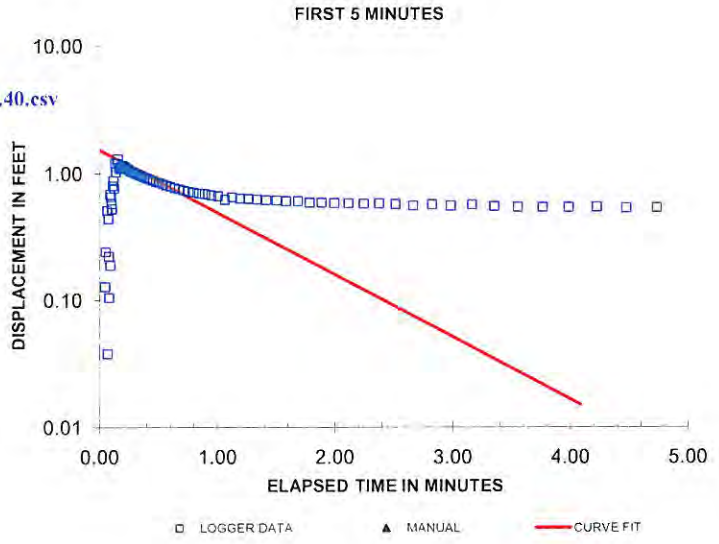
Test Date: **August 4, 2010**

Formation Tested: **Bedrock**

Rising (R) or Falling (F) Head Test: **Rising (II)**

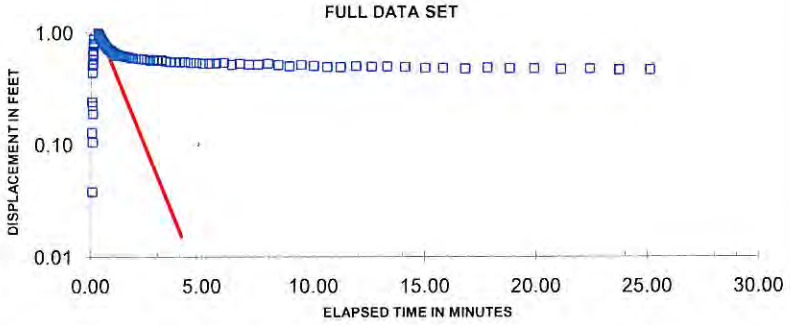
Logger Data File: **SWMW-130 (S) (wd2).2010-08-09.11-53.40.csv**

Hydraulic conductivity	**2.E-03**	**cm/sec**
	3.E-03	**ft/min**
	4	**ft/day**
Casing stickup	3.61	feet
Static water level (from top of casing)	31.75	feet
Depth to bottom of screen (from ground level)	41.00	feet
Boring diameter	5.90	inches
Casing diameter	2.00	inches
Screen diameter	2.00	inches
◉ Set Rw equal to Boring Diameter (Defa	○ Set Rw equal to Casing Diameter	
Screen length	15.00	feet
Depth to "impermeable boundary"	41.00	feet
Porosity of filter pack	0.30	
Slug diameter (optional)	1.00	inches
Slug length (optional)	5.92	feet
Theoretical ΔH at time zero (Y_0)	0.00	feet
Actual ΔH at time zero (Y_0)	1.511	feet
Time	4.08	min



Bouwer-Rice Parameters

feet	cm		cm	
28.14	857.71	*SW*		
12.86	391.97	*H*	52.31	*L/Rw*
26	792.48	*Ts*	1.00	*H/D*
0.246	7.49	*Rw*	3.00	*A*
0.152	4.62	*Rc*	0.46	*B*
0.167	5.08	*DS*	2.60	*C*
12.86	391.97	*L*	-4.09	*Ln[(D-H)/Rw]'*
12.8641	392.10	*D*	-4.09	*Ln[(D-H)/Rw]*
1.511083	46.06	Y_0	3.34	equation (4)[1]
0.015111	0.46	Y_t	3.05	equation (5)[1]
	245.05	*t (seconds)*	3.05	*Ln(Re/Rw)*
	0.30	*n*	1.6E-03	equation (3)[1]



REFERENCES:

(1) Bouwer, Herman 1989 "The Bouwer and Rice Slug Test - An Update" Ground Water vol 27, no 3, May-June 1989

(2) 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 vol 12, no 3, June 1976

PARSONS	Former Texaco TRC, Beacon, NY	BOUWER-RICE SLUG TEST ANALYIS WELL SWMW-130 (S)

Client: **Parsons**

Project: **Westage Realty Property Groundwater Investigation**

Project No.: **446074**

Well No.: **SWMW-130 (D)**

Test Date: **August 4, 2010**

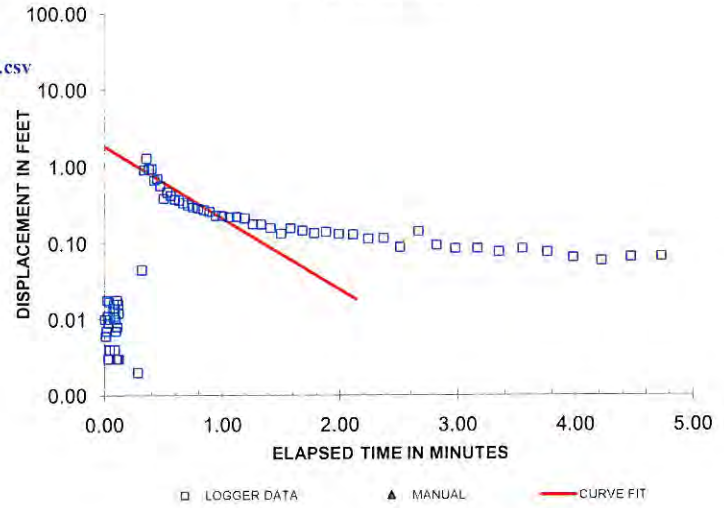
Formation Tested: **Bedrock**

Rising (R) or Falling (F) Head Test: **Falling**

Logger Data File: **SWMW-130 (d) (i).2010-08-09.11-53-26.csv**

Hydraulic conductivity	**1.E-03**	**cm/sec**
	3.E-03	**ft/min**
	4	**ft/day**
Casing stickup	3.65	feet
Static water level (from top of casing)	31.71	feet
Depth to bottom of screen (from ground level)	56.00	feet
Boring diameter	5.90	inches
Casing diameter	2.00	inches
Screen diameter	2.00	inches
◉ Set Rw equal to Boring Diameter (Defa	○ Set Rw equal to Casing Diameter	
Screen length	10.00	feet
Depth to "impermeable boundary"	56.00	feet
Porosity of filter pack	0.30	
Slug diameter (optional)	1.00	inches
Slug length (optional)	5.92	feet
Theoretical ΔH at time zero (Y_0)	0.00	feet
Actual ΔH at time zero (Y_0)	1.823	feet
Time	2.14	min

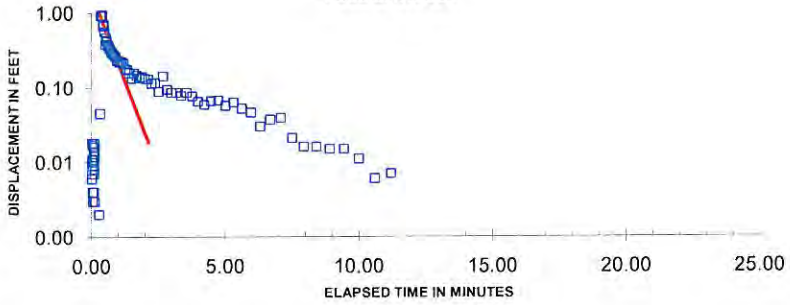
FIRST 5 MINUTES



Bouwer-Rice Parameters

feet	cm		cm	
28.06	855.27	*SW*		
27.94	851.61	*H*	40.68	*L/Rw*
46	1402.08	*Ts*	1.00	*H/D*
0.246	7.49	*Rw*	2.80	*A*
0.083	2.54	*Rc*	0.39	*B*
0.167	5.08	*DS*	2.40	*C*
10.00	304.80	*L*	-3.78	*Ln[(D-H)/Rw]'*
27.9456	851.78	*D*	-3.78	*Ln[(D-H)/Rw]*
1.822579	55.55	Y_o	3.77	equation (4)[1]
0.018226	0.56	Y_t	3.43	equation (5)[1]
	128.25	*t (seconds)*	3.43	*Ln(Re/Rw)*
	0.30	*n*	1.3E-03	equation (3)[1]

FULL DATA SET



REFERENCES:

(1) Bouwer, Herman 1989 "The Bouwer and Rice Slug Test - An Update" Ground Water vol 27, no 3, May-June 1989

(2) 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 vol 12, no 3, June 1976

PARSONS	Former Texaco TRC, Beacon, NY	**BOUWER-RICE SLUG TEST ANALYIS** **WELL SWMW-130 (D)**

Client: **Parsons**

Project: **Westage Realty Property Groundwater Investigation**

Project No.: **446074**

Well No.: **SWMW-130 (D)**

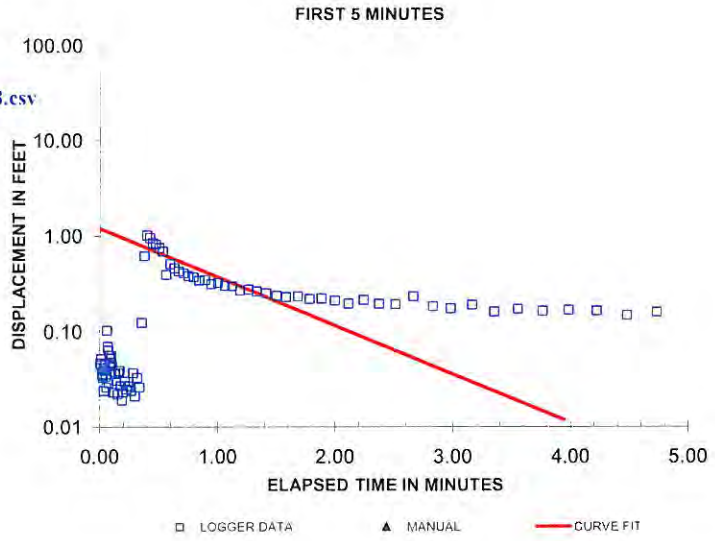
Test Date: **August 4, 2010**

Formation Tested: **Bedrock**

Rising (R) or Falling (F) Head Test: **Falling (I1)**

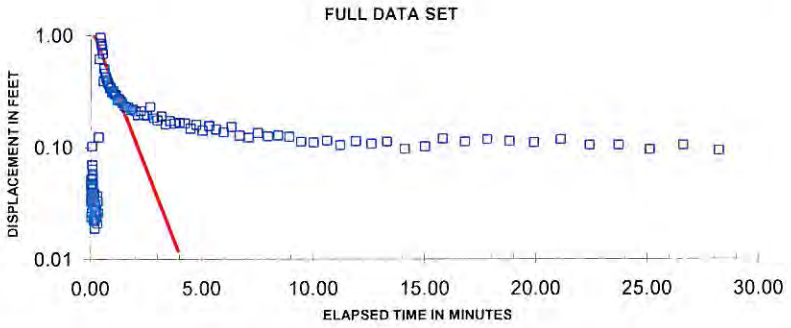
Logger Data File: **SWMW-130 (d) (i2).2010-08-09.11-52.58.csv**

Hydraulic conductivity	**7.E-04**	**cm/sec**
	1.E-03	**ft/min**
	2	**ft/day**
Casing stickup	3.65	feet
Static water level (from top of casing)	31.71	feet
Depth to bottom of screen (from ground level)	56.00	feet
Boring diameter	5.90	inches
Casing diameter	2.00	inches
Screen diameter	2.00	inches
◉ Set Rw equal to Boring Diameter (Defa	○ Set Rw equal to Casing Diameter	
Screen length	10.00	feet
Depth to "impermeable boundary"	56.00	feet
Porosity of filter pack	0.30	
Slug diameter (optional)	1.00	inches
Slug length (optional)	5.92	feet
Theoretical ΔH at time zero (Y_0)	0.00	feet
Actual ΔH at time zero (Y_0)	1.186	feet
Time	3.94	min



Bouwer-Rice Parameters

feet	cm		cm	
28.06	855.27	*SW*		
27.94	851.61	*H*	40.68	*L/Rw*
46	1402.08	*Ts*	1.00	*H/D*
0.246	7.49	*Rw*	2.80	*A*
0.083	2.54	*Rc*	0.39	*B*
0.167	5.08	*DS*	2.40	*C*
10.00	304.80	*L*	-3.78	*Ln[(D-H)/Rw]'*
27.9456	851.78	*D*	-3.78	*Ln[(D-H)/Rw]*
1.186247	36.16	Y_o	3.77	equation (4)[1]
0.011862	0.36	Y_t	3.43	equation (5)[1]
	236.67	*t (seconds)*	3.43	*Ln(Re/Rw)*
	0.30	*n*	7.1E-04	equation (3)[1]



REFERENCES:

(1) Bouwer, Herman 1989 "The Bouwer and Rice Slug Test - An Update" Ground Water vol 27, no 3, May-June 1989

(2) 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 vol 12, no 3, June 1976

PARSONS	Former Texaco TRC, Beacon, NY	**BOUWER-RICE SLUG TEST ANALYIS** **WELL SWMW-130 (D)**

Client: **Parsons**

Project: **Westage Realty Property Groundwater Investigation**

Project No.: **446074**

Well No.: **SWMW-130 (D)**

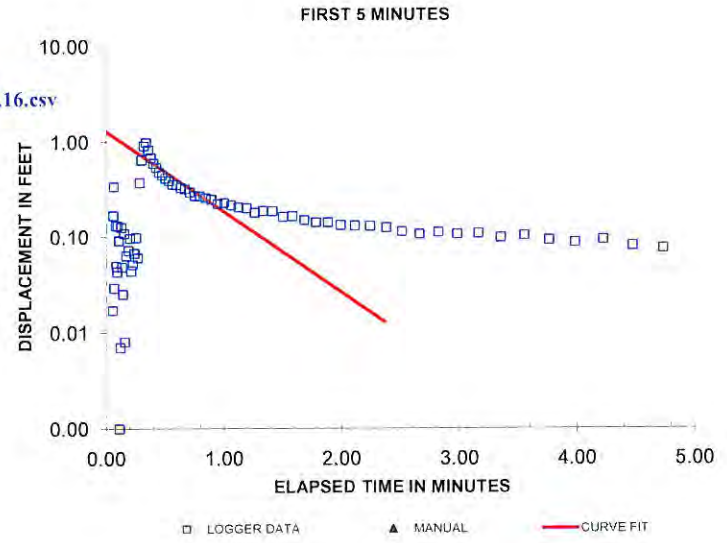
Test Date: **August 4, 2010**

Formation Tested: **Bedrock**

Rising (R) or Falling (F) Head Test: **Rising**

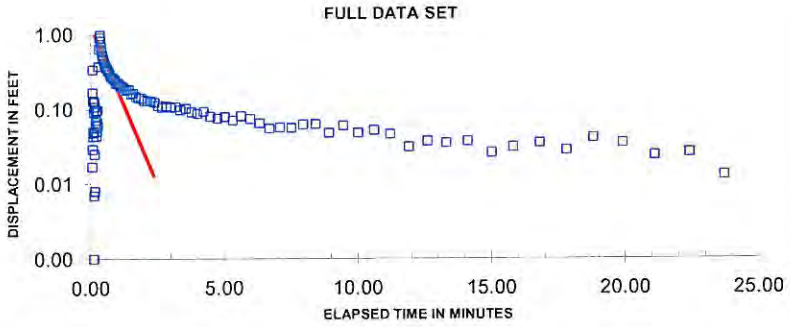
Logger Data File: **SWMW-130 (D) (wd).2010-08-09.11-53.16.csv**

Hydraulic conductivity	**1.E-03**	**cm/sec**
	2.E-03	**ft/min**
	3	**ft/day**
Casing stickup	3.65	feet
Static water level (from top of casing)	31.71	feet
Depth to bottom of screen (from ground level)	56.00	feet
Boring diameter	5.90	inches
Casing diameter	2.00	inches
Screen diameter	2.00	inches
◉ Set Rw equal to Boring Diameter (Defa	○ Set Rw equal to Casing Diameter	
Screen length	10.00	feet
Depth to "impermeable boundary"	56.00	feet
Porosity of filter pack	0.30	
Slug diameter (optional)	1.00	inches
Slug length (optional)	5.92	feet
Theoretical ΔH at time zero (Y_0)	0.00	feet
Actual ΔH at time zero (Y_0)	1.282	feet
Time	2.36	min



Bouwer-Rice Parameters

feet	cm		cm	
28.06	855.27	*SW*		
27.94	851.61	*H*	40.68	*L/Rw*
46	1402.08	*Ts*	1.00	*H/D*
0.246	7.49	*Rw*	2.80	*A*
0.083	2.54	*Rc*	0.39	*B*
0.167	5.08	*DS*	2.40	*C*
10.00	304.80	*L*	-3.78	*Ln[(D-H)/Rw]'*
27.9456	851.78	*D*	-3.78	*Ln[(D-H)/Rw]*
1.282491	39.09	Y_o	3.77	equation (4)[1]
0.012825	0.39	Y_t	3.43	equation (5)[1]
	141.85	*t (seconds)*	3.43	*Ln(Re/Rw)*
	0.30	*n*	1.2E-03	equation (3)[1]



REFERENCES:

(1) Bouwer, Herman. 1989. "The Bouwer and Rice Slug Test - An Update" Ground Water vol. 27, no. 3, May-June 1989.

(2) 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 vol 12, no. 3, June 1976

PARSONS	Former Texaco TRC, Beacon, NY	**BOUWER-RICE SLUG TEST ANALYIS** **WELL SWMW-130 (D)**

Client: **Parsons**

Project: **Westage Realty Property Groundwater Investigation**

Project No.: **446074**

Well No.: **SWMW-130 (D)**

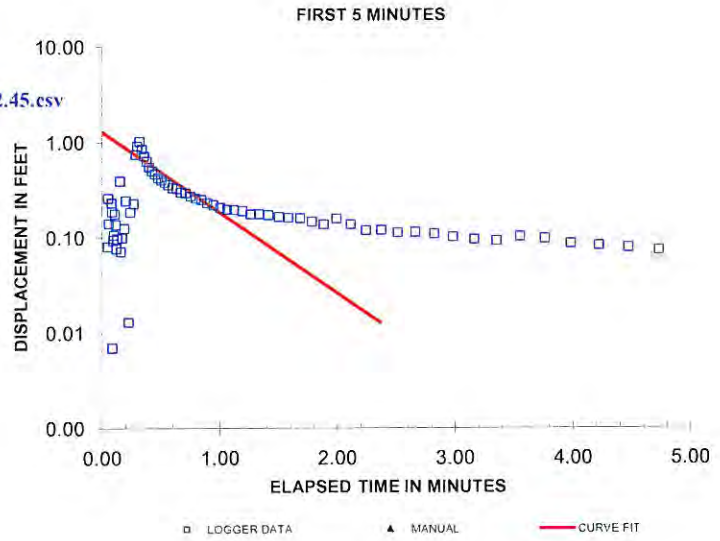
Test Date: **August 4, 2010**

Formation Tested: **Bedrock**

Rising (R) or Falling (F) Head Test: **Rising (II)**

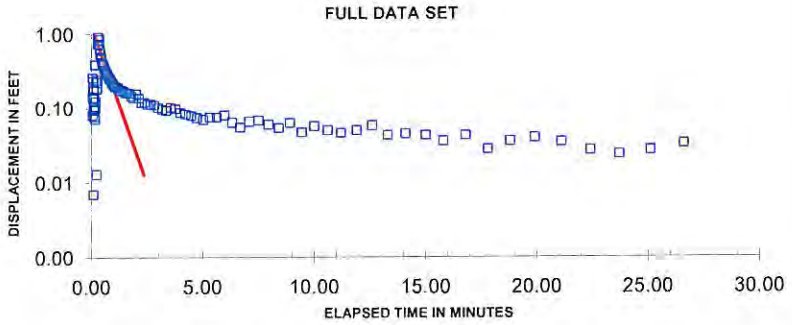
Logger Data File: **SWMW-130 (D) (wd2).2010-08-09.11-52.45.csv**

Hydraulic conductivity	**1.E-03**	**cm/sec**
	2.E-03	**ft/min**
	3	**ft/day**
Casing stickup	3.65	feet
Static water level (from top of casing)	31.71	feet
Depth to bottom of screen (from ground level)	56.00	feet
Boring diameter	5.90	inches
Casing diameter	2.00	inches
Screen diameter	2.00	inches
(●) Set Rw equal to Boring Diameter (Defa	( ) Set Rw equal to Casing Diameter	
Screen length	10.00	feet
Depth to "impermeable boundary"	56.00	feet
Porosity of filter pack	0.30	
Slug diameter (optional)	1.00	inches
Slug length (optional)	5.92	feet
Theoretical ΔH at time zero (Y_0)	0.00	feet
Actual ΔH at time zero (Y_0)	1.282	feet
Time	2.36	min



Bouwer-Rice Parameters

feet	cm		cm	
28.06	855.27	*SW*		
27.94	851.61	*H*	40.68	*L/Rw*
46	1402.08	*Ts*	1.00	*H/D*
0.246	7.49	*Rw*	2.80	*A*
0.083	2.54	*Rc*	0.39	*B*
0.167	5.08	*DS*	2.40	*C*
10.00	304.80	*L*	-3.78	*Ln[(D-H)/Rw]'*
27.9456	851.78	*D*	-3.78	*Ln[(D-H)/Rw]*
1.282491	39.09	Y_0	3.77	equation (4)[1]
0.012825	0.39	Y_t	3.43	equation (5)[1]
	141.85	*t (seconds)*	3.43	*Ln(Re/Rw)*
	0.30	*n*	1.2E-03	equation (3)[1]



REFERENCES:

(1) Bouwer, Herman. 1989. "The Bouwer and Rice Slug Test - An Update" Ground Water vol. 27, no. 3, May-June 1989.

(2) 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 vol 12, no. 3, June 1976.

PARSONS	Former Texaco TRC, Beacon, NY	**BOUWER-RICE SLUG TEST ANALYIS** **WELL SWMW-130 (D)**

Client: **Parsons**

Project: **Westage Realty Property Groundwater Investigation**

Project No.: **446074**

Well No.: **SWMW-131**

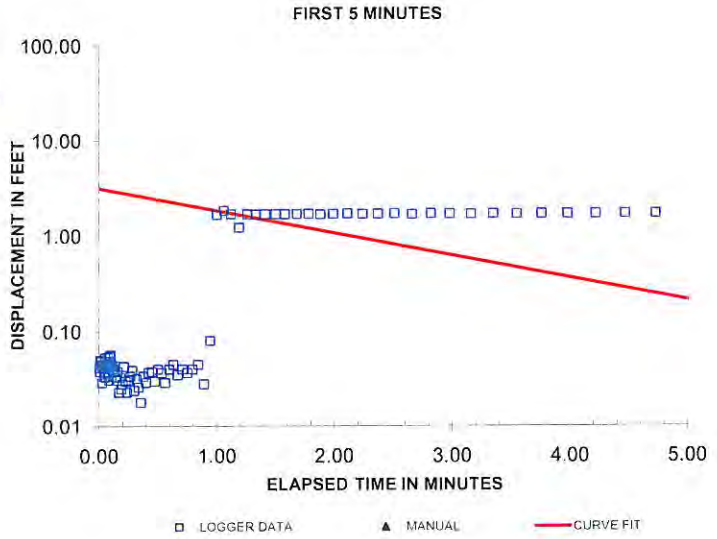
Test Date: **August 5, 2010**

Formation Tested: **Bedrock**

Rising (R) or Falling (F) Head Test: **Falling**

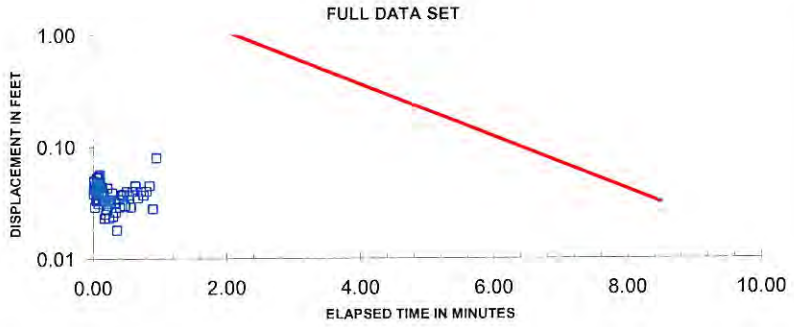
Logger Data File: **SWMW-131 (i).2010-08-09.11-52.32.csv**

Hydraulic conductivity	**2.E-04**	**cm/sec**
	4.E-04	**ft/min**
	1	**ft/day**
Casing stickup	3.33	feet
Static water level (from top of casing)	49.70	feet
Depth to bottom of screen (from ground level)	170.00	feet
Boring diameter	5.90	inches
Casing diameter	2.00	inches
Screen diameter	2.00	inches
(●) Set Rw equal to Boring Diameter (Defa	( ) Set Rw equal to Casing Diameter	
Screen length	20.00	feet
Depth to "impermeable boundary"	170.00	feet
Porosity of filter pack	0.30	
Slug diameter (optional)	1.00	inches
Slug length (optional)	5.92	feet
Theoretical ΔH at time zero (Y_0)	0.00	feet
Actual ΔH at time zero (Y_0)	3.147	feet
Time	8.51	min



Bouwer-Rice Parameters

feet	cm		cm	
46.37	1413.36	*SW*		
123.63	3768.24	*H*	81.36	*L/Rw*
150	4572.00	*Ts*	1.00	*H/D*
0.246	7.49	*Rw*	3.80	*A*
0.083	2.54	*Rc*	0.65	*B*
0.167	5.08	*DS*	3.50	*C*
20.00	609.60	*L*	-2.67	*Ln[(D-H)/Rw]'*
123.647	3768.76	*D*	-2.67	*Ln[(D-H)/Rw]*
3.146606	95.91	Y_0	4.95	equation (4)[1]
0.031466	0.96	Y_t	4.55	equation (5)[1]
	510.48	*t (seconds)*	4.55	*Ln(Re/Rw)*
	0.30	*n*	2.2E-04	equation (3)[1]



REFERENCES:

(1) Bouwer, Herman 1989 "The Bouwer and Rice Slug Test - An Update" Ground Water vol 27, no 3, May-June 1989

(2) 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 vol 12, no 3, June 1976

PARSONS	Former Texaco TRC, Beacon, NY	BOUWER-RICE SLUG TEST ANALYIS WELL SWMW-131

Client: **Parsons**

Project: **Westage Realty Property Groundwater Investigation**

Project No.: **446074**

Well No.: **SWMW-131**

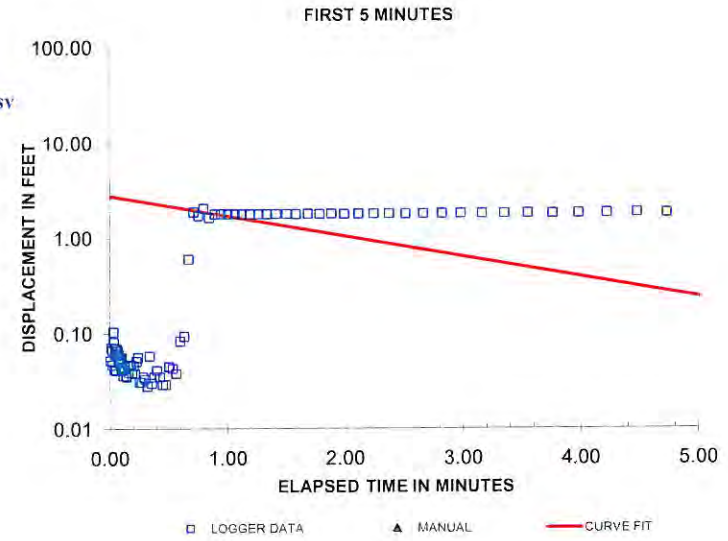
Test Date: **August 5, 2010**

Formation Tested: **Bedrock**

Rising (R) or Falling (F) Head Test: **Falling (II)**

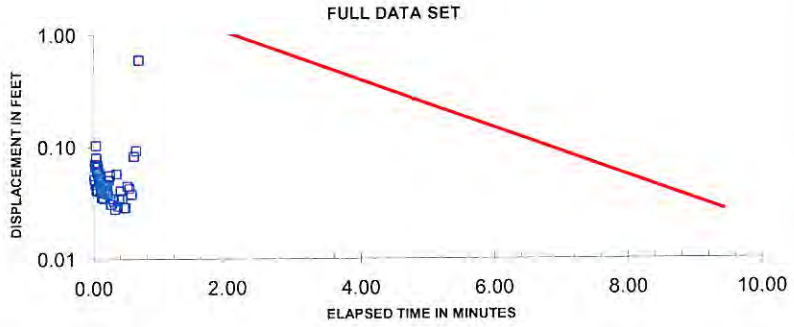
Logger Data File: **SWMW-131 (i2).2010-08-09.11-52.08.csv**

Hydraulic conductivity	**2.E-04**	**cm/sec**
	4.E-04	**ft/min**
	1	**ft/day**
Casing stickup	3.33	feet
Static water level (from top of casing)	49.70	feet
Depth to bottom of screen (from ground level)	170.00	feet
Boring diameter	5.90	inches
Casing diameter	2.00	inches
Screen diameter	2.00	inches
(●) Set Rw equal to Boring Diameter (Defa	( ) Set Rw equal to Casing Diameter	
Screen length	20.00	feet
Depth to "impermeable boundary"	170.00	feet
Porosity of filter pack	0.30	
Slug diameter (optional)	1.00	inches
Slug length (optional)	5.92	feet
Theoretical ΔH at time zero (Y_0)	0.00	feet
Actual ΔH at time zero (Y_0)	2.748	feet
Time	9.43	min



Bouwer-Rice Parameters

feet	cm		cm	
46.37	1413.36	*SW*		
123.63	3768.24	*H*	81.36	*L/Rw*
150	4572.00	*Ts*	1.00	*H/D*
0.246	7.49	*Rw*	3.80	*A*
0.083	2.54	*Rc*	0.65	*B*
0.167	5.08	*DS*	3.50	*C*
20.00	609.60	*L*	-2.67	*Ln[(D-H)/Rw]'*
123.647	3768.76	*D*	-2.67	*Ln[(D-H)/Rw]*
2.747537	83.74	Y_0	4.95	equation (4)[1]
0.027475	0.84	Y_t	4.55	equation (5)[1]
	565.99	*t (seconds)*	4.55	*Ln(Re/Rw)*
	0.30	*n*	2.0E-04	equation (3)[1]



REFERENCES:

(1) Bouwer, Herman. 1989. "The Bouwer and Rice Slug Test - An Update" Ground Water vol. 27, no. 3, May-June 1989.

(2) 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 vol 12, no. 3, June 1976.

PARSONS	Former Texaco TRC, Beacon, NY	**BOUWER-RICE SLUG TEST ANALYIS** **WELL SWMW-131**

Client: **Parsons**

Project: **Westage Realty Property Groundwater Investigation**

Project No.: **446074**

Well No.: **SWMW-131**

Test Date: **August 5, 2010**

Formation Tested: **Bedrock**

Rising (R) or Falling (F) Head Test: **Rising**

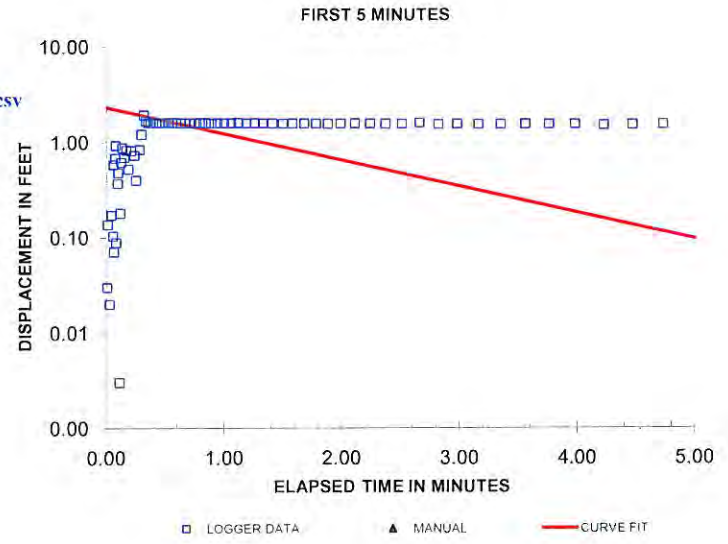
Logger Data File: **SWMW-131 (wd).2010-08-09.11-52.19.csv**

Hydraulic conductivity	**3.E-04**	**cm/sec**
	5.E-04	**ft/min**
	1	**ft/day**

Casing slickup	3.33	feet
Static water level (from top of casing)	49.70	feet
Depth to bottom of screen (from ground level)	170.00	feet
Boring diameter	5.90	inches
Casing diameter	2.00	inches
Screen diameter	2.00	inches

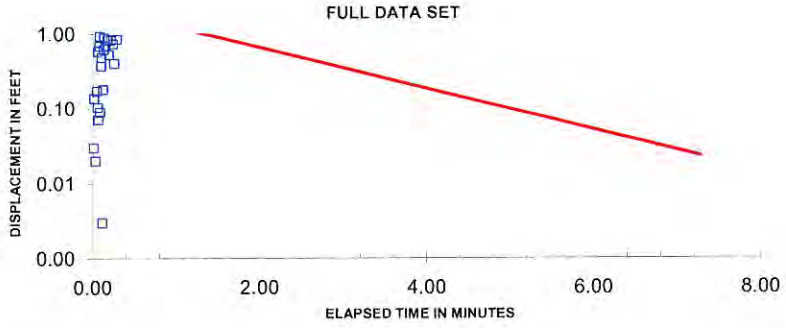
◉ Set Rw equal to Boring Diameter (Defa ○ Set Rw equal to Casing Diameter

Screen length	20.00	feet
Depth to "impermeable boundary"	170.00	feet
Porosity of filter pack	0.30	
Slug diameter (optional)	1.00	inches
Slug length (optional)	5.92	feet
Theoretical ΔH at time zero (Y_0)	0.00	feet
Actual ΔH at time zero (Y_0)	2.304	feet
Time	7.27	min



Bouwer-Rice Parameters

feet	cm		cm	
46.37	1413.36	*SW*		
123.63	3768.24	*H*	81.36	*L/Rw*
150	4572.00	*Ts*	1.00	*H/D*
0.246	7.49	*Rw*	3.80	*A*
0.083	2.54	*Rc*	0.65	*B*
0.167	5.08	*DS*	3.50	*C*
20.00	609.60	*L*	-2.67	*Ln[(D-H)/Rw]'*
123.647	3768.76	*D*	-2.67	*Ln[(D-H)/Rw]*
2.304077	70.23	Y_o	4.95	equation (4)[1]
0.023041	0.70	Y_t	4.55	equation (5)[1]
	436.48	*t (seconds)*	4.55	*Ln(Re/Rw)*
	0.30	*n*	2.5E-04	equation (3)[1]



REFERENCES:

(1) Bouwer, Herman 1989 "The Bouwer and Rice Slug Test - An Update" Ground Water vol 27, no 3, May-June 1989

(2) 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 vol 12, no 3, June 1976

PARSONS	Former Texaco TRC, Beacon, NY	**BOUWER-RICE SLUG TEST ANALYIS** **WELL SWMW-131**

Client: **Parsons**

Project: **Westage Realty Property Groundwater Investigation**

Project No.: **446074**

Well No.: **SWMW-131**

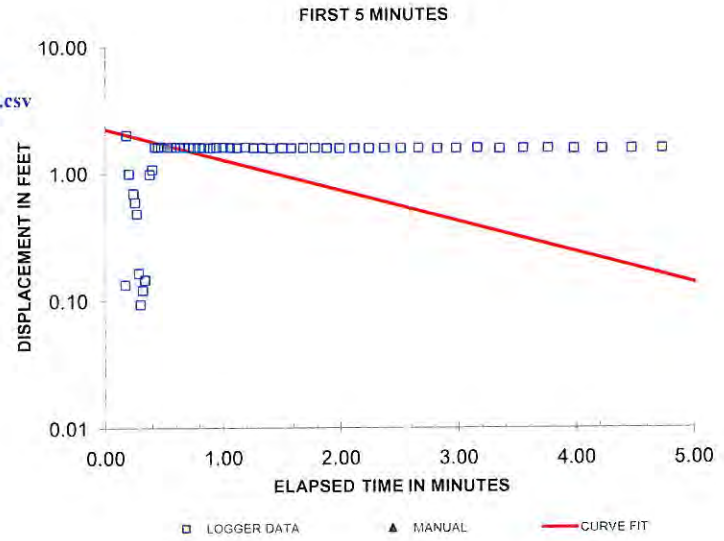
Test Date: **August 5, 2010**

Formation Tested: **Bedrock**

Rising (R) or Falling (F) Head Test: **Rising (II)**

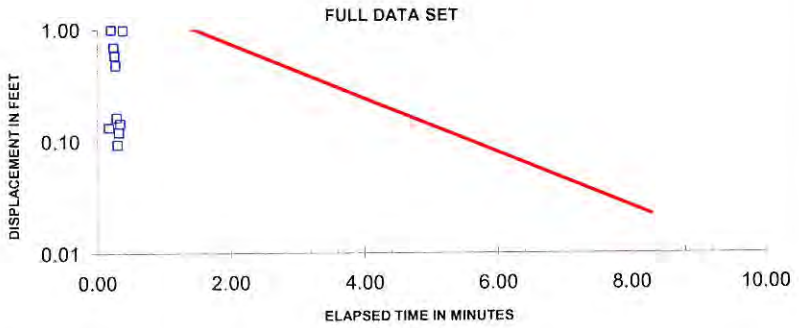
Logger Data File: **SWMW-131 (wd2).2010-08-09.11-50.31.csv**

Hydraulic conductivity	**2.E-04**	**cm/sec**
	4.E-04	**ft/min**
	1	**ft/day**
Casing stickup	3.33	feet
Static water level (from top of casing)	49.70	feet
Depth to bottom of screen (from ground level)	170.00	feet
Boring diameter	5.90	inches
Casing diameter	2.00	inches
Screen diameter	2.00	inches
(●) Set Rw equal to Boring Diameter (Defa	( ) Set Rw equal to Casing Diameter	
Screen length	20.00	feet
Depth to "impermeable boundary"	170.00	feet
Porosity of filter pack	0.30	
Slug diameter (optional)	1.00	inches
Slug length (optional)	5.92	feet
Theoretical ΔH at time zero (Y_0)	0.00	feet
Actual ΔH at time zero (Y_0)	2.220	feet
Time	8.29	min



Bouwer-Rice Parameters

feet	cm		cm	
46.37	1413.36	*SW*		
123.63	3768.24	*H*	81.36	*L/Rw*
150	4572.00	*Ts*	1.00	*H/D*
0.246	7.49	*Rw*	3.80	*A*
0.083	2.54	*Rc*	0.65	*B*
0.167	5.08	*DS*	3.50	*C*
20.00	609.60	*L*	-2.67	*Ln[(D-H)/Rw]'*
123.647	3768.76	*D*	-2.67	*Ln[(D-H)/Rw]*
2.220371	67.68	Y_0	4.95	equation (4)[1]
0.022204	0.68	Y_t	4.55	equation (5)[1]
	497.28	*t (seconds)*	4.55	*Ln(Re/Rw)*
	0.30	*n*	2.2E-04	equation (3)[1]



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(1) Bouwer, Herman 1989. "The Bouwer and Rice Slug Test - An Update" Ground Water vol. 27, no. 3, May-June 1989.

(2) 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 vol 12, no. 3, June 1976.

PARSONS	Former Texaco TRC, Beacon, NY	BOUWER-RICE SLUG TEST ANALYIS WELL SWMW-131

Client: **Parsons**

Project: **Westage Realty Property Groundwater Investigation**

Project No.: **446074**

Well No.: **SWMW-132 (S)**

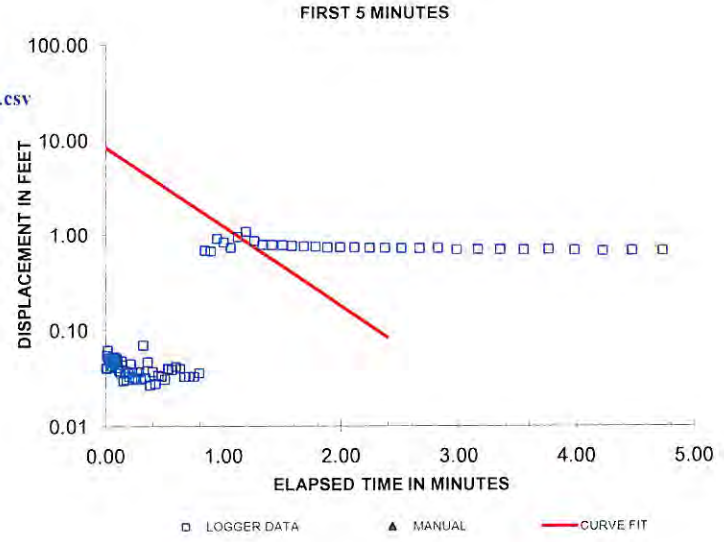
Test Date: **August 5, 2010**

Formation Tested: **Bedrock**

Rising (R) or Falling (F) Head Test: **Falling**

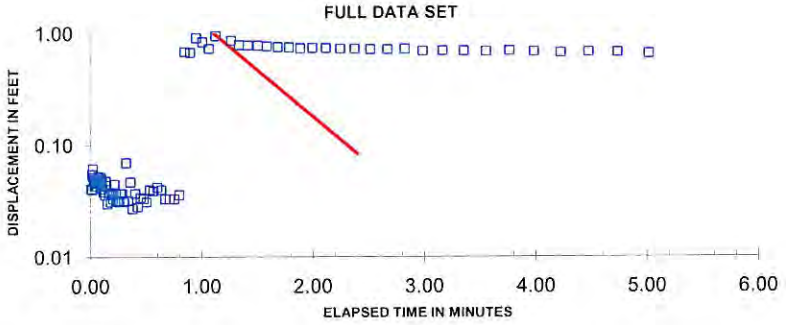
Logger Data File: **SWMW-132 (S) (i).2010-08-09.11-49.07.csv**

Hydraulic conductivity	**2.E-03**	**cm/sec**
	4.E-03	**ft/min**
	6	**ft/day**
Casing stickup	2.93	feet
Static water level (from top of casing)	41.90	feet
Depth to bottom of screen (from ground level)	55.00	feet
Boring diameter	5.90	inches
Casing diameter	2.00	inches
Screen diameter	2.00	inches
(●) Set Rw equal to Boring Diameter (Defa	( ) Set Rw equal to Casing Diameter	
Screen length	20.00	feet
Depth to "impermeable boundary"	55.00	feet
Porosity of filter pack	0.30	
Slug diameter (optional)	1.00	inches
Slug length (optional)	5.92	feet
Theoretical ΔH at time zero (Y_0)	0.00	feet
Actual ΔH at time zero (Y_0)	8.348	feet
Time	2.39	min



Bouwer-Rice Parameters

feet	cm		cm	
38.97	1187.81	*SW*		
16.03	488.59	*H*	65.21	*L/Rw*
35	1066.80	*Ts*	1.00	*H/D*
0.246	7.49	*Rw*	3.45	*A*
0.152	4.62	*Rc*	0.50	*B*
0.167	5.08	*DS*	3.10	*C*
16.03	488.59	*L*	-3.80	*Ln[(D-H)/Rw]'*
16.0355	488.76	*D*	-3.80	*Ln[(D-H)/Rw]*
8.348279	254.46	Y_0	3.48	equation (4)[1]
0.083483	2.54	Y_t	3.22	equation (5)[1]
	143.65	*t (seconds)*	3.22	*Ln(Re/Rw)*
	0.30	*n*	2.3E-03	equation (3)[1]



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(1) Bouwer, Herman 1989. "The Bouwer and Rice Slug Test - An Update" Ground Water vol. 27, no. 3, May-June 1989.

(2) 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 vol 12, no. 3, June 1976

PARSONS	Former Texaco TRC, Beacon, NY	**BOUWER-RICE SLUG TEST ANALYIS** **WELL SWMW-132 (S)**

Client: **Parsons**

Project: **Westage Realty Property Groundwater Investigation**

Project No.: **446074**

Well No.: **SWMW-132 (S)**

Test Date: **August 5, 2010**

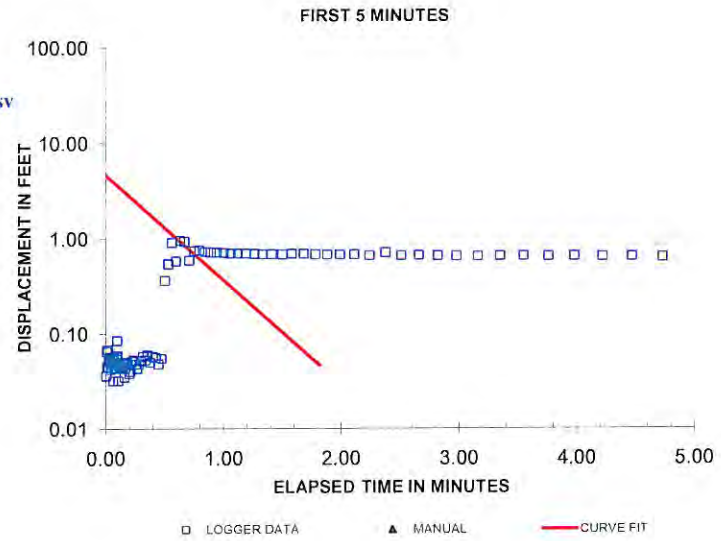
Formation Tested: **Bedrock**

Rising (R) or Falling (F) Head Test: **Falling (II)**

Logger Data File: **SWMW-132 (S) (i2).2010-08-11.48.09.csv**

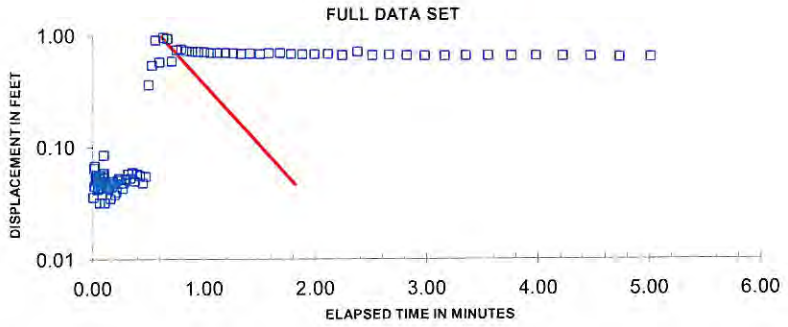
Hydraulic conductivity	**3.E-03**	**cm/sec**
	6.E-03	**ft/min**
	8	**ft/day**

Casing stickup	2.93	feet
Static water level (from top of casing)	41.90	feet
Depth to bottom of screen (from ground level)	55.00	feet
Boring diameter	5.90	inches
Casing diameter	2.00	inches
Screen diameter	2.00	inches
◉ Set Rw equal to Boring Diameter (Defa	○ Set Rw equal to Casing Diameter	
Screen length	20.00	feet
Depth to "impermeable boundary"	55.00	feet
Porosity of filter pack	0.30	
Slug diameter (optional)	1.00	inches
Slug length (optional)	5.92	feet
Theoretical ΔH at time zero (Y_0)	0.00	feet
Actual ΔH at time zero (Y_0)	4.615	feet
Time	1.82	min



Bouwer-Rice Parameters

feet	cm		cm	
38.97	1187.81	*SW*		
16.03	488.59	*H*	65.21	*L/Rw*
35	1066.80	*Ts*	1.00	*H/D*
0.246	7.49	*Rw*	3.45	*A*
0.152	4.62	*Rc*	0.50	*B*
0.167	5.08	*DS*	3.10	*C*
16.03	488.59	*L*	-3.80	*Ln[(D-H)/Rw]'*
16.0355	488.76	*D*	-3.80	*Ln[(D-H)/Rw]*
4.615295	140.67	Y_0	3.48	equation (4)[1]
0.046153	1.41	Y_t	3.22	equation (5)[1]
	108.98	*t (seconds)*	3.22	*Ln(Re/Rw)*
	0.30	*n*	3.0E-03	equation (3)[1]



REFERENCES:

(1) Bouwer, Herman. 1989. "The Bouwer and Rice Slug Test - An Update" Ground Water vol. 27, no. 3, May-June 1989.

(2) 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 vol 12, no. 3, June 1976

PARSONS	Former Texaco TRC, Beacon, NY	**BOUWER-RICE SLUG TEST ANALYIS** **WELL SWMW-132 (S)**

Client: **Parsons**

Project: **Westage Realty Property Groundwater Investigation**

Project No.: **446074**

Well No.: **SWMW-132 (S)**

Test Date: **August 5, 2010**

Formation Tested: **Bedrock**

Rising (R) or Falling (F) Head Test: **Rising**

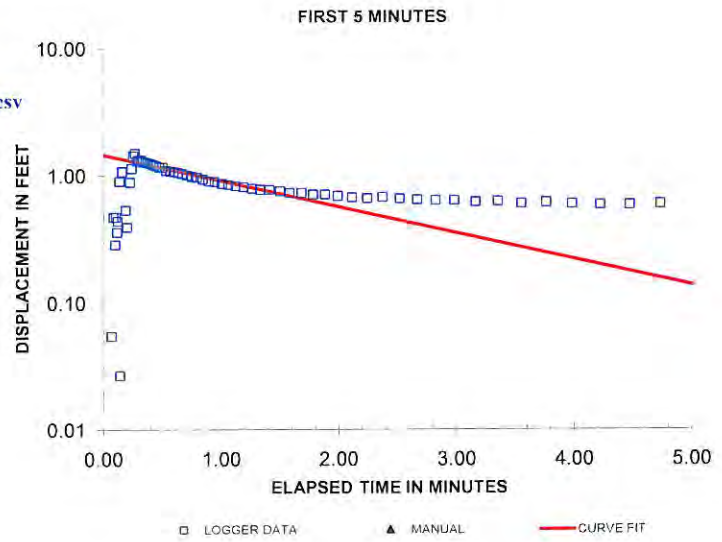
Logger Data File: **SWMW-132 (S) (wd).2010-08-11.48.25.csv**

Hydraulic conductivity	**6.E-04**	**cm/sec**
	1.E-03	**ft/min**
	2	**ft/day**

Casing stickup	2.93	feet
Static water level (from top of casing)	41.90	feet
Depth to bottom of screen (from ground level)	55.00	feet
Boring diameter	5.90	inches
Casing diameter	2.00	inches
Screen diameter	2.00	inches

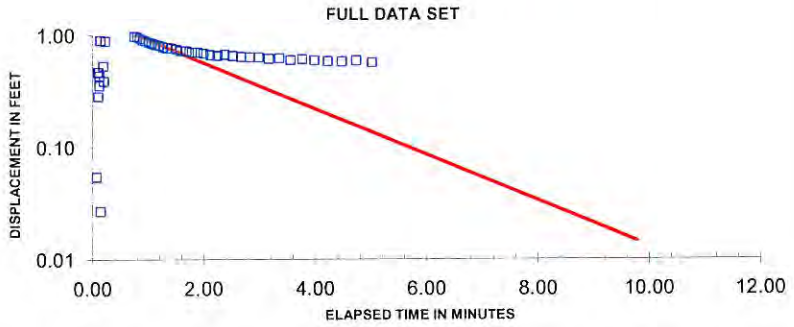
◉ Set Rw equal to Boring Diameter (Defa ○ Set Rw equal to Casing Diameter

Screen length	20.00	feet
Depth to "impermeable boundary"	55.00	feet
Porosity of filter pack	0.30	
Slug diameter (optional)	1.00	inches
Slug length (optional)	5.92	feet
Theoretical ΔH at time zero (Y_0)	0.00	feet
Actual ΔH at time zero (Y_0)	1.449	feet
Time	9.78	min



Bouwer-Rice Parameters

feet	cm		cm	
38.97	1187.81	*SW*		
16.03	488.59	*H*	65.21	*L/Rw*
35	1066.80	*Ts*	1.00	*H/D*
0.246	7.49	*Rw*	3.45	*A*
0.152	4.62	*Rc*	0.50	*B*
0.167	5.08	*DS*	3.10	*C*
16.03	488.59	*L*	-3.80	*Ln[(D-H)/Rw]'*
16.0355	488.76	*D*	-3.80	*Ln[(D-H)/Rw]*
1.448632	44.15	Y_0	3.48	equation (4)[1]
0.014486	0.44	Y_t	3.22	equation (5)[1]
	586.62	*t (seconds)*	3.22	*Ln(Re/Rw)*
	0.30	*n*	5.5E-04	equation (3)[1]



REFERENCES:

(1) Bouwer, Herman 1989 "The Bouwer and Rice Slug Test – An Update" Ground Water vol 27, no 3, May-June 1989

(2) 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 vol 12, no 3, June 1976

PARSONS	Former Texaco TRC, Beacon, NY	**BOUWER-RICE SLUG TEST ANALYIS** **WELL SWMW-132 (S)**

Client: **Parsons**

Project: **Westage Realty Property Groundwater Investigation**

Project No.: **446074**

Well No.: **SWMW-132 (S)**

Test Date: **August 5, 2010**

Formation Tested: **Bedrock**

Rising (R) or Falling (F) Head Test: **Rising (II)**

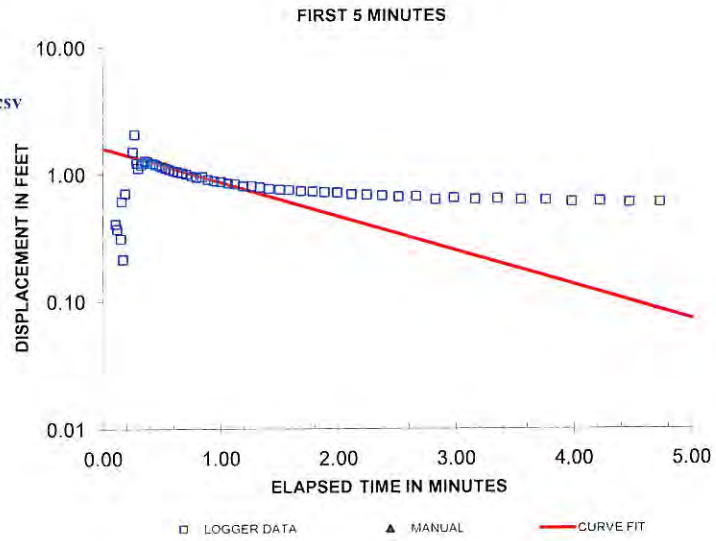
Logger Data File: **SWMW-132 (S) (wd).2010-08-11.43.01.csv**

Hydraulic conductivity	**7.E-04**	**cm/sec**
	1.E-03	**ft/min**
	2	**ft/day**

Casing stickup	2.93	feet
Static water level (from top of casing)	41.90	feet
Depth to bottom of screen (from ground level)	55.00	feet
Boring diameter	5.90	inches
Casing diameter	2.00	inches
Screen diameter	2.00	inches

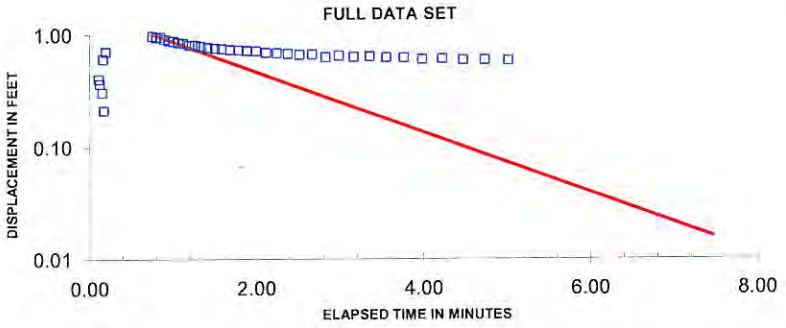
◉ Set Rw equal to Boring Diameter (Defa ○ Set Rw equal to Casing Diameter

Screen length	20.00	feet
Depth to "impermeable boundary"	55.00	feet
Porosity of filter pack	0.30	
Slug diameter (optional)	1.00	inches
Slug length (optional)	5.92	feet
Theoretical ΔH at time zero (Y_0)	0.00	feet
Actual ΔH at time zero (Y_0)	1.598	feet
Time	7.46	min



Bouwer-Rice Parameters

feet	cm		cm	
38.97	1187.81	*SW*		
16.03	488.59	*H*	65.21	*L/Rw*
35	1066.80	*Ts*	1.00	*H/D*
0.246	7.49	*Rw*	3.45	*A*
0.152	4.62	*Rc*	0.50	*B*
0.167	5.08	*DS*	3.10	*C*
16.03	488.59	*L*	-3.80	*Ln[(D-H)/Rw]'*
16.0355	488.76	*D*	-3.80	*Ln[(D-H)/Rw]*
1.598128	48.71	Y_o	3.48	equation (4)[1]
0.015981	0.49	Y_i	3.22	equation (5)[1]
	447.53	*t (seconds)*	3.22	*Ln(Re/Rw)*
	0.30	*n*	7.2E-04	equation (3)[1]



REFERENCES:

(1) Bouwer, Herman 1989 "The Bouwer and Rice Slug Test - An Update" Ground Water vol. 27, no. 3, May-June 1989

(2) 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 vol 12, no. 3, June 1976

PARSONS	Former Texaco TRC, Beacon, NY	**BOUWER-RICE SLUG TEST ANALYIS WELL SWMW-132 (S)**

Client: **Parsons**

Project: **Westage Realty Property Groundwater Investigation**

Project No.: **446074**

Well No.: **SWMW-132 (D)**

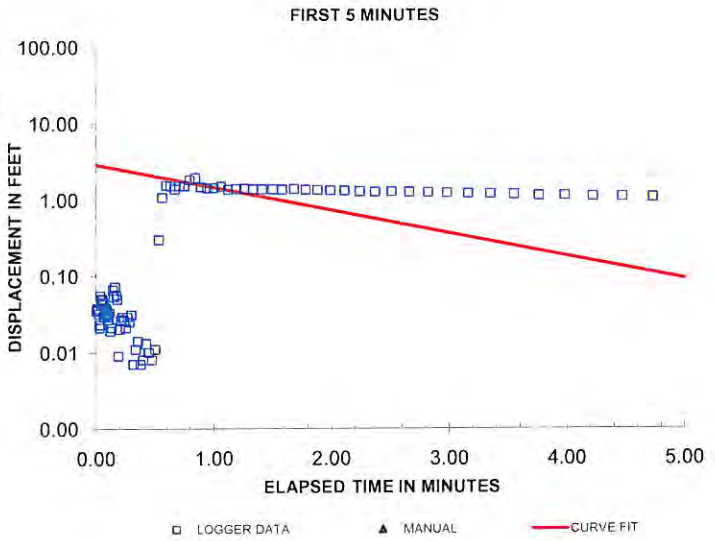
Test Date: **August 5, 2010**

Formation Tested: **Bedrock**

Rising (R) or Falling (F) Head Test: **Falling**

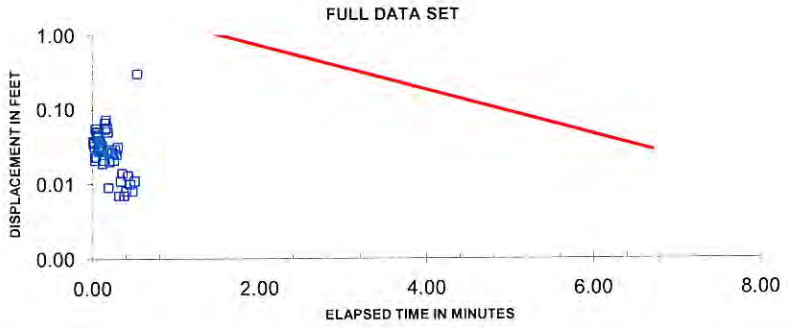
Logger Data File: **SWMW-132 (D) (i).2010-08-11.50.16.csv**

Hydraulic conductivity	**3.E-04**	**cm/sec**
	5.E-04	**ft/min**
	1	**ft/day**
Casing stickup	2.80	feet
Static water level (from top of casing)	42.60	feet
Depth to bottom of screen (from ground level)	112.00	feet
Boring diameter	5.90	inches
Casing diameter	2.00	inches
Screen diameter	2.00	inches
(●) Set Rw equal to Boring Diameter (Defa	( ) Set Rw equal to Casing Diameter	
Screen length	20.00	feet
Depth to "impermeable boundary"	112.00	feet
Porosity of filter pack	0.30	
Slug diameter (optional)	1.00	inches
Slug length (optional)	5.92	feet
Theoretical ΔH at time zero (Y_0)	0.00	feet
Actual ΔH at time zero (Y_0)	2.839	feet
Time	6.70	min



Bouwer-Rice Parameters

feet	cm		cm	
39.8	1213.10	*SW*		
72.2	2200.66	*H*	81.36	*L/Rw*
92	2804.16	*Ts*	1.00	*H/D*
0.246	7.49	*Rw*	3.80	*A*
0.083	2.54	*Rc*	0.65	*B*
0.167	5.08	*DS*	3.50	*C*
20.00	609.60	*L*	-3.09	*Ln[(D-H)/Rw]'*
72.2112	2201.00	*D*	-3.09	*Ln[(D-H)/Rw]*
2.839162	86.54	Y_0	4.64	equation (4)[1]
0.028392	0.87	Y_t	4.23	equation (5)[1]
	402.03	*t (seconds)*	4.23	*Ln(Re/Rw)*
	0.30	*n*	2.6E-04	equation (3)[1]



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(1) Bouwer, Herman. 1989. "The Bouwer and Rice Slug Test - An Update" Ground Water vol. 27, no. 3, May-June 1989.

(2) 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 vol 12, no. 3, June 1976.

PARSONS	Former Texaco TRC, Beacon, NY	**BOUWER-RICE SLUG TEST ANALYIS** **WELL SWMW-132 (D)**

Client: **Parsons**

Project: **Westage Realty Property Groundwater Investigation**

Project No.: **446074**

Well No.: **SWMW-132 (D)**

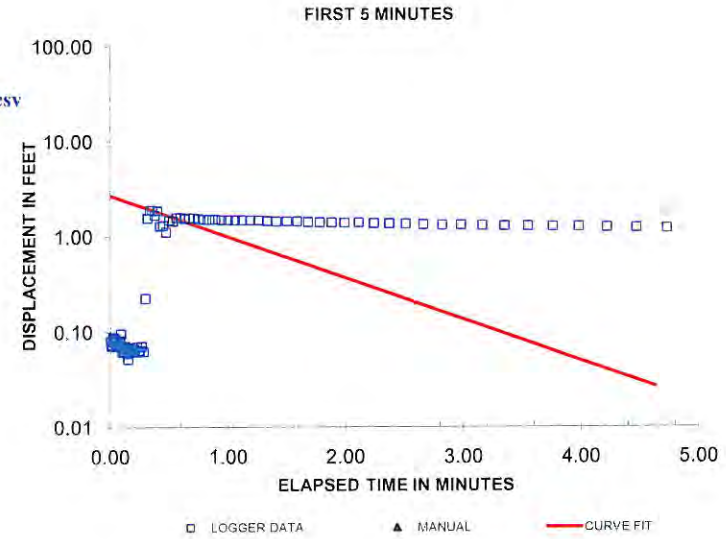
Test Date: **August 5, 2010**

Formation Tested: **Bedrock**

Rising (R) or Falling (F) Head Test: **Falling (II)**

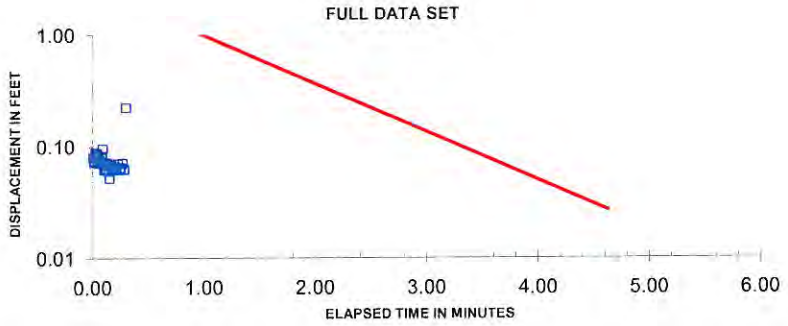
Logger Data File: **SWMW-132 (D) (i2).2010-08-11.49.50.csv**

Hydraulic conductivity	**4.E-04**	**cm/sec**
	7.E-04	**ft/min**
	1	**ft/day**
Casing stickup	2.80	feet
Static water level (from top of casing)	42.60	feet
Depth to bottom of screen (from ground level)	112.00	feet
Boring diameter	5.90	inches
Casing diameter	2.00	inches
Screen diameter	2.00	inches
(●) Set Rw equal to Boring Diameter (Defa	( ) Set Rw equal to Casing Diameter	
Screen length	20.00	feet
Depth to "impermeable boundary"	112.00	feet
Porosity of filter pack	0.30	
Slug diameter (optional)	1.00	inches
Slug length (optional)	5.92	feet
Theoretical ΔH at time zero (Y_0)	0.00	feet
Actual ΔH at time zero (Y_0)	2.660	feet
Time	4.63	min



Bouwer-Rice Parameters

feet	cm		cm	
39.8	1213.10	*SW*		
72.2	2200.66	*H*	81.36	*L/Rw*
92	2804.16	*Ts*	1.00	*H/D*
0.246	7.49	*Rw*	3.80	*A*
0.083	2.54	*Rc*	0.65	*B*
0.167	5.08	*DS*	3.50	*C*
20.00	609.60	*L*	-3.09	*Ln[(D-H)/Rw]'*
72.2112	2201.00	*D*	-3.09	*Ln[(D-H)/Rw]*
2.660463	81.09	Y_o	4.64	equation (4)[1]
0.026605	0.81	Y_t	4.23	equation (5)[1]
	277.68	*t (seconds)*	4.23	*Ln(Re/Rw)*
	0.30	*n*	3.7E-04	equation (3)[1]



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(1) Bouwer, Herman 1989 "The Bouwer and Rice Slug Test - An Update" Ground Water vol 27, no 3, May-June 1989

(2) 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 vol 12, no 3, June 1976

PARSONS	Former Texaco TRC, Beacon, NY	BOUWER-RICE SLUG TEST ANALYIS WELL SWMW-132 (D)

Client: **Parsons**

Project: **Westage Realty Property Groundwater Investigation**

Project No.: **446074**

Well No.: **SWMW-132 (D)**

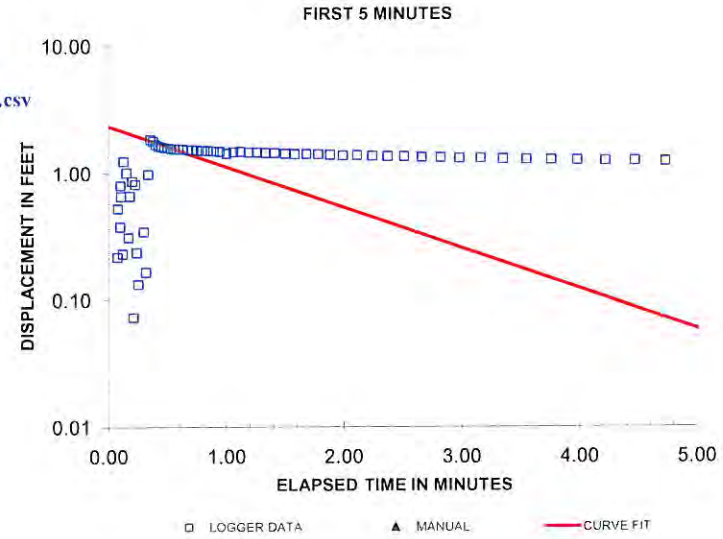
Test Date: **August 5, 2010**

Formation Tested: **Bedrock**

Rising (R) or Falling (F) Head Test: **Rising**

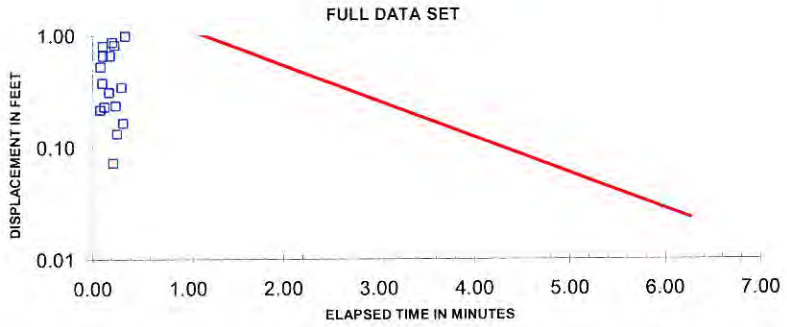
Logger Data File: **SWMW-132 (D) (wd).2010-08-11.50.04.csv**

Hydraulic conductivity	**3.E-04**	**cm/sec**
	5.E-04	**ft/min**
	1	**ft/day**
Casing stickup	2.80	feet
Static water level (from top of casing)	42.60	feet
Depth to bottom of screen (from ground level)	112.00	feet
Boring diameter	5.90	inches
Casing diameter	2.00	inches
Screen diameter	2.00	inches
◉ Set Rw equal to Boring Diameter (Defa	○ Set Rw equal to Casing Diameter	
Screen length	20.00	feet
Depth to "impermeable boundary"	112.00	feet
Porosity of filter pack	0.30	
Slug diameter (optional)	1.00	inches
Slug length (optional)	5.92	feet
Theoretical ΔH at time zero (Y_0)	0.00	feet
Actual ΔH at time zero (Y_0)	2.334	feet
Time	6.26	min



Bouwer-Rice Parameters

feet	cm		cm	
39.8	1213.10	*SW*		
72.2	2200.66	*H*	81.36	*L/Rw*
92	2804.16	*Ts*	1.00	*H/D*
0.246	7.49	*Rw*	3.80	*A*
0.083	2.54	*Rc*	0.65	*B*
0.167	5.08	*DS*	3.50	*C*
20.00	609.60	*L*	-3.09	*Ln[(D-H)/Rw]'*
72.2112	2201.00	*D*	-3.09	*Ln[(D-H)/Rw]*
2.33423	71.15	Y_0	4.64	equation (4)[1]
0.023342	0.71	Y_t	4.23	equation (5)[1]
	375.67	*t (seconds)*	4.23	*Ln(Re/Rw)*
	0.30	*n*	2.7E-04	equation (3)[1]



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(2) 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 vol 12, no 3, June 1976

PARSONS	Former Texaco TRC, Beacon, NY	BOUWER-RICE SLUG TEST ANALYIS WELL SWMW-132 (D)

Client: **Parsons**

Project: **Westage Realty Property Groundwater Investigation**

Project No.: **446074**

Well No.: **SWMW-132 (D)**

Test Date: **August 5, 2010**

Formation Tested: **Bedrock**

Rising (R) or Falling (F) Head Test: **Rising (II)**

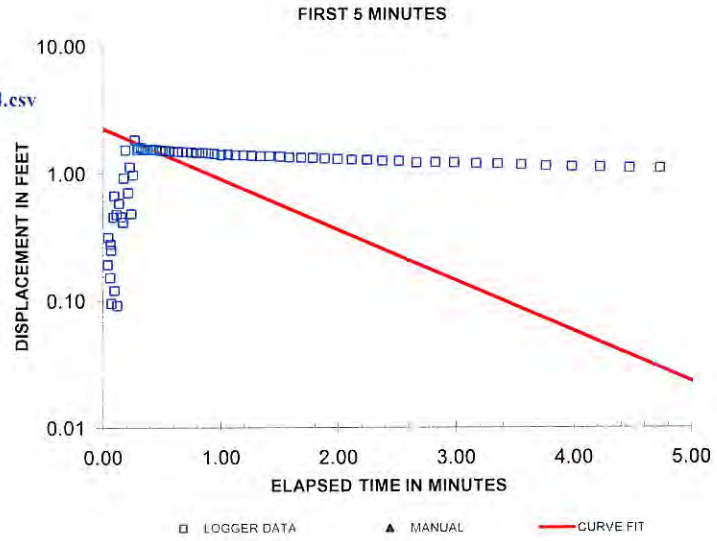
Logger Data File: **SWMW-132 (D) (wd2).2010-08-11.49.34.csv**

Hydraulic conductivity	**3.E-04**	**cm/sec**
	7.E-04	**ft/min**
	1	**ft/day**

Casing stickup	2.80	feet
Static water level (from top of casing)	42.60	feet
Depth to bottom of screen (from ground level)	112.00	feet
Boring diameter	5.90	inches
Casing diameter	2.00	inches
Screen diameter	2.00	inches

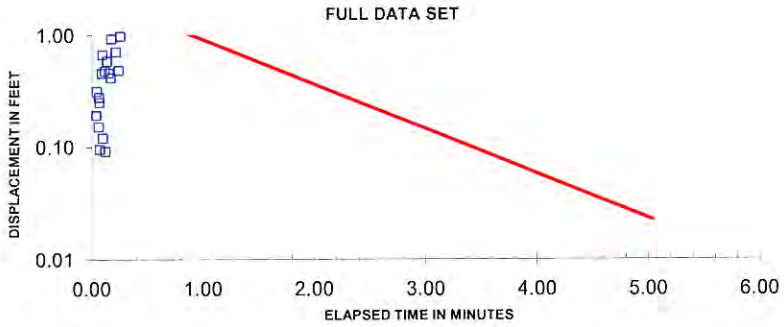
◉ Set Rw equal to Boring Diameter (Defa ○ Set Rw equal to Casing Diameter

Screen length	20.00	feet
Depth to "impermeable boundary"	112.00	feet
Porosity of filter pack	0.30	
Slug diameter (optional)	1.00	inches
Slug length (optional)	5.92	feet
Theoretical ΔH at time zero (Y_0)	0.00	feet
Actual ΔH at time zero (Y_0)	2.246	feet
Time	5.04	min



Bouwer-Rice Parameters

feet	cm		cm	
39.8	1213.10	*SW*		
72.2	2200.66	*H*	81.36	*L/Rw*
92	2804.16	*Ts*	1.00	*H/D*
0.246	7.49	*Rw*	3.80	*A*
0.083	2.54	*Rc*	0.65	*B*
0.167	5.08	*DS*	3.50	*C*
20.00	609.60	*L*	-3.09	*Ln[(D-H)/Rw]'*
72.2112	2201.00	*D*	-3.09	*Ln[(D-H)/Rw]*
2.246284	68.47	Y_o	4.64	equation (4)[1]
0.022463	0.68	Y_t	4.23	equation (5)[1]
	302.26	*t (seconds)*	4.23	*Ln(Re/Rw)*
	0.30	*n*	3.4E-04	equation (3)[1]



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(2) 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 vol 12, no 3, June 1976

PARSONS	Former Texaco TRC, Beacon, NY	**BOUWER-RICE SLUG TEST ANALYIS WELL SWMW-132 (D)**

APPENDIX H

PHOTOGRAPHIC LOG

PHOTOGRAPHIC LOG
PARSONS

PROJECT: Westage Realty Property Groundwater Investigation
PROJECT #: 446074

LOCATION: Westage Realty Property, Former TRCB, Beacon, New York
CLIENT: Chevron EMC

Status as of: July, 2010
Description: View of drillers clearing a path on Westage Property with bobcat so drilling activities could be performed.
Photo by: E. Ashton

Status as of: July 2010
Description: View of drillers drilling at well location SWMW-130 with air-hammer drill bit.
Photo by: E. Ashton

PROJECT: Westage Realty Property Groundwater Investigation
PROJECT #: 446074

LOCATION: Westage Realty Property, Former TRCB, Beacon, New York
CLIENT: Chevron EMC

Status as of: July 2010
Description: View of drillers installing bedrock monitoring well SMW-131.
Photo by: E. Ashton

Status as of: July 2010
Description: View of bedrock monitoring well SWMW-131 installed and stickup protective casing attached.
Photo by: E. Ashton

PHOTOGRAPHIC LOG
PARSONS

PROJECT: Westage Realty Property Groundwater Investigation
PROJECT #: 446074

LOCATION: Westage Realty Property, Former TRCB, Beacon, New York
CLIENT: Chevron EMC

Status as of: July 2010
Description: View of geophysical subcontractor preparing and calibrating probes prior to logging borehole at well location SWMW-130.
Photo by: E. Ashton

Status as of: July 2010
Description: View of borehole for SWMW-130 being logged by geophysical subcontractor under supervision of a Parsons field person.
Photo by: E. Ashton