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Draft Preliminary Site Characterization Report Operable Unit 1

Quanta Resources Site Edgewater, N. J.

Prepared for

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Executive Summary

This draft Preliminary Site Characterization Report (PSCR) for the Quanta Resources Site* (the "Site") Operable Unit 1 (OU1) has been prepared in accordance with the requirements of the Administrative Order on Consent (AOC) II-CERCLA-2003-2012 for the Uplands Area, Operable Unit (OU) 1, entered into by Honeywell International, Inc. (Honeywell), and the Edgewater Site Administrative Group (ESAG Group) on November 4, 2003. Surface water and sediment in the Hudson River adjacent to the OU1 comprise OU2 and are being investigated separately.

Consistent with the AOC for OU1, the site characterization and remedial evaluation and selection process is being conducted pursuant to the U.S. Environmental Protection Agency (USEPA) National Contingency Plan (40 CFR 300).

The PSCR presents the data and information related to the work prescribed in the OU1 Remedial Investigation/Feasibility Study (RI/FS) Work Plan (Parsons, 2005) and associated appendixes (i.e., Field Sampling Plan, Health and Safety Plan, and Quality Assurance Project Plan [QAPP]). The OU1 RI/FS Work Plan was designed as a data gap investigation to be used in conjunction with available data from previous investigations. The Work Plan and appendixes were approved by the USEPA on May 2, 2005 (USEPA, 2005). The Health and Safety Plan and QAPP were revised by CH2M HILL in May 2005 and October 2005, respectively. The revised QAPP was approved on January 11, 2006 (USEPA, 2006).

Field activities pursuant to the RI/FS Work Plan were conducted following methods and procedures contained in the revised QAPP (CH2M HILL, 2005). All field activities were conducted pursuant to the Site Health and Safety Plan (CH2M HILL, 2005). All RI field activities have been completed to date except the installation and sampling of six monitoring wells (MW-114A, MW-114B, MW-121A, MW-121B, MW-115A, and MW-115B), sampling of monitoring wells on the Edgewater Enterprises property, delineation of the 100-year and 500-year flood plains, and completion of the three additional quarterly groundwater sampling events.

The RI well installations were not completed prior to the end of 2005; therefore the analytical results from these locations were not available in time to incorporate them into this Draft PSCR. The flood plain evaluation will be completed in time for consideration during the selection of remedial alternatives such that the effects of flooding events on the distribution of Site constituents and the potential design considerations with respect to subsequently proposed remedial measure can be evaluated and discussed as part of the remedy selection process. The remaining quarterly groundwater sampling events will be completed as per the schedule included in the RI/FS Work Plan. All data from additional

* As defined in the Administrative Order on Consent (AOC) II-CERCLA-2003-2012, the Quanta Resources Superfund Site includes the former Quanta Resources property, located on River Road in Edgewater, New Jersey, and any areas where contamination from the property has come to be located. The current extent of the Quanta Resources property (referred to herein as the "Quanta Resources property") refers to Block 95, Lot 1 as defined on the Borough of Edgewater, New Jersey tax map.

RI activities will be presented to USEPA separately as an addendum to the Final PSCR and evaluated in the context of historic and RI data in the RI report.

The PSCR summarizes historical and recently collected data for OU1 and is intended to support the preparation of risk evaluations and the RI report. Constituents of interest (COIs) were developed by screening the analytical data against USEPA Region 9 Preliminary Remediation Goals (PRGs), New Jersey Soil Cleanup Criteria, and New Jersey Groundwater Quality Standards. These COIs were also used to confirm previous investigation results and to characterize the extent of Site-related constituents.

The PSCR also provides a basis for the development and screening of remedial alternatives and identification and refinement of Applicable or Relevant and Appropriate Requirements. The PSCR documents the location and characteristics of subsurface features and contamination, including the affected medium, location, physical state, concentrations of constituents, and the extent of those constituents in the relevant environmental media. As presented in the approved schedule, a final PSCR will be prepared for USEPA submittal 30-days following receipt of USEPA comments to this draft PSCR.

As discussed in the PSCR, certain data gaps remain, including the delineation of certain COIs and NAPL at the Site. A work plan will be submitted to the USEPA and the New Jersey Department of Environmental Protection (NJDEP) to finalize delineation of these constituents.

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Abbreviations

AOC	Administrative Order on Consent
ASTM	American Society of Testing and Materials
bgs	below ground surface
BTEX	benzene, toluene, ethylbenzene, and xylene
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980, commonly known as Superfund
COC	constituent of concern
COI	constituent of interest
cSt	centistokes
DCE	dichloroethylene or dichloroethene
DNAPL	dense non-aqueous phase liquid
EDD	electronic data deliverable
EWMA	Environmental Waste Management Associates, LLC
FS	feasibility study
GWQC	groundwater quality criterion
HSA	hollow-stem auger
ID	inner diameter
IDW	investigation-derived waste
LNAPL	light non-aqueous phase liquid
MS/MSD	matrix spike and matrix spike duplicate
NAPL	non-aqueous phase liquid
NJAC	New Jersey Administrative Code
NJDEP	New Jersey Department of Environmental Protection
NJSCC	New Jersey Residential and Non-Residential Soil Cleanup Criteria
OU	Operable Unit
PAH	polycyclic aromatic hydrocarbon
PCBs	polychlorinated biphenyls
PCE	tetrachloroethylene, tetrachloroethene, or perchloroethene
PRG	Preliminary Remediation Goals
PSCR	Preliminary Site Characterization Report
PS&S	Paulus, Sokolowski & Sartor, LLC
PVC	polyvinyl chloride
QAPP	Quality Assurance Project Plan

RDCSCC	Residential Direct Contact Soil Cleanup Criteria
RI	Remedial Investigation
ROST™	Rapid Optical Screening Tool
RSI	Removal Site Investigation
SVOC	semivolatile organic compound
TCE	trichloroethylene or trichloroethene
TCLP	toxicity contaminant leaching procedure
TPH	total petroleum hydrocarbons
USDA	United States Department of Agriculture
UST	underground storage tank
VOC	volatile organic compound

Section 1

SECTION 1

Introduction and Background

This draft Preliminary Site Characterization Report (PSCR) for the Quanta Resources Site* (the "Site") Operable Unit 1 (OU1) has been prepared in accordance with the requirements of the USEPA Administrative Order on Consent (AOC) II-CERCLA-2003-2012 for the Uplands Area, Operable Unit (OU) 1, entered into by Honeywell International, Inc. (Honeywell), and the Edgewater Site Administrative Group (ESAG Group) on November 4, 2003. The Site was listed on the National Priorities List on September 9, 2002. Consistent with the AOC, the site characterization and remedial evaluation and selection process is being conducted pursuant to the U.S. Environmental Protection Agency (USEPA) National Contingency Plan (40 CFR 300). The PSCR presents the data and information related to the work prescribed in the OU1 Remedial Investigation/Feasibility Study (RI/FS) Work Plan (Parsons, 2005) and associated appendixes (i.e., Field Sampling Plan, Health and Safety Plan, and Quality Assurance Project Plan [QAPP]). The Work Plan and appendixes were approved by the USEPA on May 2, 2005 (USEPA, 2005). The Health and Safety Plan and QAPP were revised by CH2M HILL in May 2005 and October 2005, respectively. The revised QAPP was approved on January 11, 2006 (USEPA, 2006). Surface water and sediment in the Hudson River adjacent to OU1 comprise OU2 and are being investigated separately pursuant to an USEPA AOC entered into by Honeywell.

The OU1 RI/FS Work Plan was designed to fill historic data gaps from a large body of previous investigations and data, relative to the understanding of OU1 conditions. It is important to note that chemical constituents identified in this PSCR as Constituents of Interest (COIs) are located across multiple properties, and may be derived from activities that occurred on those properties for many years, independent of the former operations on the Quanta Resources property. Consequently, many of the findings go beyond the areal extent of the Site, as defined in the AOC, and subsequent data gap sampling, risk evaluations and remedial action objectives (RAOs) may better define the extent of the "Site" and sources of contamination.

Understanding the data gap and OU1 site approach, the RI/FS Work Plan for OU1 was developed in concert with the USEPA and the NJDEP through a series of discussions and events comprising the following:

- Submittal of a draft Work Plan (Parsons, 2004)
- Receipt of USEPA (2004) comment letter
- Responses to comments (Parsons, various dates)
- A Parsons–USEPA regulatory meeting on October 28, 2004
- Parsons–USEPA conference calls on November 4, 2004, and April 8, 2005
- Technical memoranda (Parsons, various dates) addressing USEPA comments

* As defined in the Administrative Order on Consent (AOC) II-CERCLA-2003-2012, the Quanta Resources Superfund Site includes the Quanta Resources property, located on River Road in Edgewater, New Jersey, and any areas where contamination from the property has come to be located. The current extent of the Quanta Resources property (referred to herein as the "Quanta Resources property") refers to Block 95, Lot 1 as defined on the Borough of Edgewater, New Jersey tax map.

A list of 26 items and internal submittals for outstanding issues developed for OU1 and OU2 on the basis of the October 28, 2004, meeting and November 4, 2004, conference call was developed and submitted to USEPA on December 7, 2004. Eighteen outstanding items pertained to OU1 were addressed in detailed responses submitted to USEPA in a series of technical memoranda (Parsons, various dates). In response, USEPA (2005) issued a letter conditionally approving the Work Plan pending submittal of a final RI/FS Work Plan. The final Work Plan, which met the conditions of the approval letter, was submitted to USEPA on May 18, 2005.

Field activities pursuant to the RI/FS Work Plan were conducted following methods and procedures contained in the revised QAPP (CH2M HILL, 2005). All field activities were conducted pursuant to the Site Health and Safety Plan (CH2M HILL, 2005). All RI field activities have been completed to date except the installation and sampling of six monitoring wells (MW-114A, MW-114B, MW-121A, MW-121B, MW-115A, and MW-115B) and sampling of monitoring wells on the Edgewater Enterprises property. These well installations were not completed prior to the end of 2005; therefore the analytical results from these locations were not available in time to incorporate them into this draft PSCR. The flood plain evaluation will be completed in time for consideration during the selection of remedial alternatives such that the effects of flooding events on the distribution of Site constituents and the potential design considerations with respect to subsequently proposed remedial measure can be evaluated and discussed as part of the remedy selection process. The remaining quarterly sampling events will be conducted as set forth in the RI/FS Work Plan. All data from additional RI activities will be presented to USEPA separately as an addendum to the Final PSCR and evaluated in the context of historic and RI data in the RI report.

As presented in the approved schedule, the final PSCR will be submitted to USEPA 30 days after Honeywell receives USEPA comments on this draft PSCR.

1.1 Purpose

The specific objectives of the RI for OU1 as stated in the RI/FS Work Plan (Parsons, 2005, pp. 1-1 and 4-2) are to do the following:

- Characterize potential soil and groundwater impacts that may exist that are associated with the former operations of the Site
- Define the nature and extent of constituents and delineate those impacts caused by the release or threatened release of constituents at or from the Upland Area of the Quanta Resources property, including groundwater and soil
- Evaluate the potential for human health and ecological impacts associated with the former operations at the Site
- Develop supplemental data sufficient to address data gaps within the investigations conducted to date to determine the need for and to allow a screening of appropriate remedial alternatives, recommendation of the most appropriate remedial alternative, and development of a refined conceptual site model after a public comment process; USEPA will be responsible for the selection of the final remedial alternative

In particular, the RI/FS Work Plan identified the following OU1 data needs on the basis of the Data Quality Objectives (Parsons, 2005, p. 4-2):

- Light and dense non-aqueous phase liquid (LNAPL and DNAPL) in Upland Area (OU1)
- Contaminants in surface and subsurface soils
- Dissolved contaminants in groundwater zones (including the lower sand unit below the confining unit)
- Indoor air (through a phased tier approach as defined by USEPA guidance)
- Artificial conduits (underground pipes, sewer lines, etc.) on the Quanta Resources property and on the 115 River Road, LLC and Lever Brothers properties
- Metals contamination and migration from the General Chemical Company metals-plating facility
- Polychlorinated biphenyls (PCBs) potentially associated with historic oil storage facilities at the former Quanta Resources property

To meet the objectives of the RI/FS and the specific data gaps identified from the historic data, the following OU1 RI/FS Work Plan scope of work was developed:

- Installation of soil borings and soil sampling
- Installation of permanent groundwater monitoring wells
- NAPL and groundwater monitoring
- Groundwater sampling
- NAPL sampling
- In situ hydraulic conductivity testing
- Tidal study for mean hydraulic gradient
- Building survey for potential impacts to air quality
- Floodplain assessment
- Subsurface utility field survey
- Instrument survey
- Data validation report
- Preliminary Site Characterization Report
- Fate and Transport Model Memorandum
- Candidate Technologies Memorandum
- Human Health Risk Assessment
- Ecological Risk Assessment
- RI Report
- FS Report

The PSCR summarizes historical and recently collected data for OU1 and is intended to support the preparation of the Human Health Risk Assessment, Ecological Risk Assessment, and the RI and FS reports for OU1. The PSCR also provides a basis for developing and screening remedial alternatives and identifying and refining Applicable or Relevant and

Appropriate Requirements (ARARs). The PSCR documents the location and characteristics of subsurface features and contamination, including the affected medium, location, physical state, concentrations of constituents, and the extent to which the relevant environmental media are contaminated.

This PSCR is an interim deliverable required by the AOC. Future documents for which the PSCR data will be used include the Candidate Technologies Memorandum, RI report, and the FS report. These documents will be transmitted to USEPA pursuant to the agreed-upon schedule.

1.2 Organization of the PSCR Document

This PSCR includes descriptions of investigation activities and presents a preliminary evaluation of historical and recently collected RI data for OU1. Section 1 of the report presents a brief history of the Site and a description of the surrounding properties and geology and hydrology of the area. Section 2 includes descriptions of the field activities conducted recently in accordance with the OU1 RI/FS Work Plan (Parsons, 2005). Section 3 presents an evaluation of the usability of the data collected, and Section 4 presents the preliminary findings for the Site, including constituents of interest and the nature and extent of contamination for soil, groundwater, and NAPL. Section 5 summarizes the findings of the PSCR and evaluation of data gaps, and Section 6 lists the references used during the preparation of the report. Eight appendixes (A through H) present the analytical data and field information used to develop the evaluation presented in Section 4. Laboratory analytical data reports are presented as an attachment to this PSCR.

1.3 Site Description and History

1.3.1 Site Description

The Quanta Resources property is located adjacent to the Hudson River, directly west of Manhattan (Figure 1-1). The property covers approximately 15 acres and was bisected in 1995 and 1996 by the realignment of River Road, which now runs north-south through the western portion of OU1. Surface water and sediment in the Hudson River adjacent to the Site make up OU2 and are being investigated and addressed separately.

The Quanta Resources property is vacant. There are exposed tank and building foundations at several locations at OU1. The property also includes the remains of a former oil-water separator, a wooden bulkhead along the edge of the Hudson River, and the remains of wooden docks. A chain-link fence is maintained around the portion of OU1 east of River Road, except for the boundary with the Hudson River. Warning signs are posted at locations around OU1. The property is inspected monthly to verify the integrity of these land-use controls and to make any necessary repairs. Oil-absorbent booms are maintained in the Hudson River to contain oil migrating to surface water from soil, groundwater, or sediment. The booms are inspected periodically, and oil-saturated booms are removed and containerized for offsite disposal.

A portion of the Site is located between Old River Road and River Road (Block 93, Lot 3). According to the 2004 Preliminary Assessment report (O'Brien & Gere, 2004) for this area,

Block 93, Lot 3 is part of the Site and consists of a grassy area with portions of a concrete wall at the southern end. Historical documents indicate that there were two 1,000-gallon underground storage tanks (USTs) in the center of Lot 3 that may still exist. One aboveground storage tank associated with operations at the Site was in Lot 3 and was reported to have contained waste oil. A subsurface structure with a manhole is in the southern portion of Lot 3 and may be a former wastewater discharge point or separator (O'Brien & Gere, 2004).

1.3.2 Surrounding Property Descriptions

Edgewater Enterprises and Lustrelon

The properties immediately surrounding the Site are zoned for mixed industrial, commercial, and residential uses. The Quanta Resources property is bordered on the north by the Edgewater Enterprises and Lustrelon properties (Figure 1-2). Both are undergoing redevelopment with commercial and residential structures. The Quanta Resources property is bordered to the north by the Promenade at City Place development on the Edgewater Enterprises property (the former Celotex Industrial Park). The Promenade at City Place complex contains a mixture of residential and commercial properties with several retailers at ground level, residential units (both owner occupied and rentals) above, and a 122-room hotel. Construction is underway for a mid-rise apartment building and a series of townhouses.

115 River Road, LLC and Lever Brothers

Bordering the Quanta Resources property to the south is the 115 River Road, LLC office complex. The property currently includes parking, offices, a bank, and a day-care center. South of the 115 River Road, LLC property is the Lever Brothers property, formerly occupied by Unilever Research. The Lever Brothers property is bordered on the east by the Hudson River and on the west by Old River Road (Figure 1-2).

Block 93, Lots 1, 2, and 3

Three lots on Block 93 (Lots 1, 2, and 3) are located between Old River Road and River Road, although only Lot 3 is believed to have been part of the former Quanta Resources operations The Three Y, LLC property consists of Lots 1 and 2. Lot 2 is a former railroad right-of-way that is partially paved. There is a solid waste dumpster, old vehicles, portions of a chain-link fence, and remnants of railroad track on Lot 2. A partially paved parking area and two-story restaurant are located in the southwest corner of Lot 1. Remnants of a building foundation, construction vehicles, and old vehicles are located near the southeast corner of the lot. The remainder of the lot consists of a grassy area with an old food concession (O'Brien & Gere, 2004).

1.3.3 Geologic and Hydrologic Setting

The Site is located in the Piedmont Physiographic province of New Jersey. This region, also called the Triassic Lowlands, is marked by low, north–south–trending hills. Elevations in this province range from near sea level at the Site to 771 ft farther west. The Triassic lowlands are underlain by rocks of the late Triassic Newark Group, which is made up of both sedimentary and igneous rocks. The bedrock at the Site is composed of a

fluvial/alluvial deposit of arkose (feldspathic arenite), mudstone, and conglomerate known as the Stockton Formation, which is part of the Newark Group and is a narrow area of rock between the Palisades Diabase to the west and Hudson River Deposits to the east (USDA, 1994). The Stockton Formation is overlain by 30 to 60 ft of unconsolidated deposits consisting of 20 to 40 ft of estuarine and salt marsh deposits overlain by 10 to 20 ft of non-native fill.

The native estuarine and salt marsh deposits overlying bedrock at the Site consist of 5 to 10 ft of fine to medium well-sorted sand followed by 10 to 20 ft of soft silt and clay that contains traces of roots and shell fragments; this is overlain by 5 to 10 ft of medium to coarse, poorly sorted sand. There is a discontinuous peat layer observed in the western portion of the Site east of River Road. The marsh deposits pinch out to the west near River Road. The non-native fill consists of a mixture of gravel, sand, and silt with cinder/slag material, brick, wood, and concrete fragments overlying the native soils (CH2M HILL, 2005). The U.S. Department of Agriculture (USDA) classifies the soils at the Site as Urban Lands (USDA, 1994). A wooden bulkhead separates the upland OU1 portion of the Site from the Hudson River (OU2) portion of the Site.

A tidally influenced mud flat/marsh associated with the Hudson River borders OU1 to the east. These river sediments consist of silt to clayey silt approximately 45 ft thick immediately east of the bulkhead; these sediments thicken eastward to approximately 250 ft thick beneath the main channel of the river (Parsons, 2005). These mud flats are exposed to approximately 500 ft from shore during low tide and are flooded under approximately 6.5 ft of river water during high tide.

1.3.4 Site Hydrogeology

Three distinct hydrostratigraphic units exist at the Site above the bedrock surface. The shallowest unit consists of an unconfined, surficial water-bearing zone extending from the water table (about 9 ft below ground surface [bgs]) to approximately 15 to 20 ft bgs (unconfined shallow groundwater). This unit is underlain by a silty clay aquitard approximately 10 to 20 ft thick. Last, a confined water-bearing "deep sand" unit exists between the aquitard (confining unit) and the bedrock surface. This deep sand unit is 5 to 10 ft thick, and extends to the bedrock surface, which is located at 30 to 60 ft bgs. In some places at OU1, the potentiometric surface of this water-bearing zone is approximately 1 to 3 ft higher than the unconfined water table unit (e.g., upward vertical hydraulic gradients).

1.4 Site History and Past Investigations

1.4.1 Site History

The Quanta Resources property is at 163 River Road in Bergen County, Edgewater, New Jersey (Figure 1-1). From approximately 1876 to 1967 the Site was used to manufacture coal tar, paving, and roofing materials. Sanborn fire insurance maps from 1900 to 1944 identify the property as the "Barrett Company's Shadyside Plant, Manufacturers of Tar Products." Allied Chemical Corporation Asphalt Division (now Honeywell) took over operations of the coal tar distillation plant in the early 1930s. The tar-processing plant was on the Quanta Resources property and the southern portion of the Edgewater Enterprises property. The

plant operated until 1974, when the property was sold to the estate of James Frola and Albert Von Dohln. In 1977 the property was leased to E.R.P. Corporation for the storage and recycling of oil. The lease was assigned to Edgewater Terminals, Inc., and then transferred to Quanta Resources Corporation in July 1980. The property contained 61 aboveground storage tanks, at least 10 USTs, septic tanks, and underground piping. The tanks' total storage capacity was over 9 million gallons.

The NJDEP ceased facility operations at the Site in 1981 after it was discovered that large quantities of oil were present in storage tanks at the facility, including some with concentrations of PCBs. On October 6, 1981, Quanta Resources Corporation filed for bankruptcy, after which the property was no longer in use. Periodic flooding of the Hudson River, equipment failures, freezing and thawing of pipes and tanks, rusted values valves and seams, and the lack of containment structures, and the migration of NAPL resulted in releases. NJDEP requested that USEPA address Site contamination pursuant to Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

Several removal actions were conducted by Honeywell at the Site from 1984 to 1988 under USEPA oversight. Approximately 1.35 million gallons of oil were removed for offsite treatment. Over 1.5 million gallons of coal tar and petroleum/oily wastes were removed from storage tanks and recycled. In addition to storage tanks, some shallow soil and underground piping was removed. The removal actions were assessed by USEPA in 1992 through the collection and analysis of soil, sediment, and groundwater samples from the Site. Additional investigations conducted prior to and subsequent to the removal actions are described in Section 1.4.3.

After intermittent sheens became visible at the waterfront in 1997, USEPA issued an order to Honeywell mandating that it build an interception trench to prevent oil from continuing to seep to the Hudson River. Prior to submission of the final trench design, USEPA changed the approach as a result of the discovery that oil seeps may be present on properties adjacent to the Site in addition to Site itself. Honeywell entered into an AOC with USEPA in 1998 to conduct a Removal Site Investigation (RSI) and prepare an engineering evaluation/cost estimate to characterize Site conditions and to develop a solution to the seeps. The engineering evaluation/cost estimate was submitted in 1999 and recommended the construction of two trenches to collect light and heavy oil fractions prior to their migration and release into the Hudson River (GeoSyntec, 2001).

In February 2000, USEPA rejected the engineering evaluation/cost estimate recommendation because USEPA did not believe that the trench as designed would be effective. The letter recommended that additional, more-effective alternatives or technologies be evaluated, and that an ecological evaluation be conducted for the tidal mud flats of the Hudson River.

On September 9, 2002, USEPA placed the Site on the National Priorities List. In 2004, Honeywell and USEPA agreed that an RI/FS would be conducted to fill data gaps in previous investigations and provide a basis for a complete evaluation of alternatives. In May 2005, an RI/FS Work Plan (Parsons, 2005) was submitted to, and approved by, USEPA for OU1.

1.4.2 Adjacent Property History

Edgewater Enterprises

The Edgewater Enterprises property (former Celotex Industrial Park) is just north of the Quanta Resources property (Figure 1-2). This Edgewater Enterprises property has been the site of a chemical plant, gypsum company, vacuum truck company, and metal reclaiming/refinishing plant. The chemical plant, General Chemical Company, operated on the southern portion of the property from at least 1900 to 1957. The chemical plant was used to produce acids, alums, sodium compounds, and sulfuric acid using a lead chamber process (Parsons, 2005). A gypsum company and a vacuum truck company have also occupied the Edgewater Enterprises property, and after 1974 a metal-reclaiming and refinishing plant was operated on the southern portion of the property. Stained areas and indicators representative of a discharge to the Hudson River were identified in historical aerial photographs and may have been associated with the plant. Former operations at these areas of the Edgewater Enterprises property may have contributed to the presence of constituents similar to those detected at the Site. Since 1988, approximately 4 to 16 ft of fill material appears to have been placed on the Edgewater Enterprises property (Environ, 2005). Additional fill material (more than 8 feet) was recently placed on the southeastern side of the Edgewater Enterprises Property adjacent to the Quanta Resources property, and this area has been developed as a parking lot. Redevelopment of this property is ongoing and attempts are currently being made to further define the northern extent of coal tar as part of this process.

Lustrelon, 115 River Road, LLC, and Lever Brothers

Detailed site history information was not available for these neighboring properties. Available information indicates that the former Lustrelon property (just north of the Edgewater Enterprises property) was the site of a lacquer spray paint and parts-cleaning operation and a raw materials warehouse. The 2000 RSI indicated that linseed oil was manufactured at the 115 River Road, LLC property (former Spencer-Kellogg facility). Sanborn maps and other historical data will be reviewed and additional information included in the RI report for OU1.

Block 93, Lot 1 (Three Y, LLC property)

The current building on the Three Y, LLC Block 93, Lot 1 property was reportedly used as a quality control laboratory by AlliedSignal until 1974. The building remained vacant for approximately 10 years, after which it was used for miscellaneous purposes (as an office, for storage, and as a musical rehearsal studio) and then converted to a restaurant in the early 1990s. The restaurant is now closed.

Block 93, Lot 2 (Three Y, LLC property)

This Block 93, Lot 2 historically included railroad tracks used by AlliedSignal and Faesy & Besthoff for chemical shipping and receiving. This portion of the property was owned by the New York, Susquehanna and Western Railway Corporation. The tracks were removed, reportedly in 1988, and the lot was subdivided. The northern portion of the lot was acquired by James Frola in 1988, who sold the property to Thomas Heagney in 1999. The southern

portion of Lot 2 was purchased from the railway by Anthony Besthoff in 2003 (O'Brien & Gere, 2004).

1.4.3 Previous Investigations

Products stored at the former Quanta Resources property included coal tar, waste oils (some containing PCBs), asphalt. As a result of historical site operations, precipitation, and flooding, soil and groundwater at the Site has been impacted by various chemical constituents. Summaries of some past investigations conducted at the Site to identify or delineate contamination are provided below.

1990 Soil Investigation (PS&S, 2002)

A 1990 soil investigation conducted by PS&S included the collection of 11 soil samples from eight soil borings throughout the Site. Samples were collected from the 0.0-to-0.5-ft interval from all borings, and from the 4-to-6-ft interval in three of the borings. All samples were analyzed for USEPA priority pollutants (40-peak library search) and total petroleum hydrocarbons (TPH). Arsenic, lead, mercury, thallium, and zinc were detected above 2002 NJDEP Residential Direct Contact Soil Cleanup Criteria (RDCSCC). Benzene was the only volatile organic compound (VOC) detected above RDCSCC, although both benzene and total xylenes exceeded the Impact to Groundwater Soil Cleanup Criteria in at least one location. Detected base neutral organic compounds, predominantly polycyclic aromatic hydrocarbons (PAHs), generally exceeded RDCSCC. TPH was detected at concentrations up to 38,000 mg/kg. Pesticides were detected in six samples, one of which exceeded RDCSCC. PCBs were not detected during this investigation.

1992 and 1995 USEPA Site Assessments (Parsons, 1999)

The 1999 Summary Report indicates that USEPA assessments in 1992 and 1995 documented contamination of surface and subsurface soil, Hudson River sediments, and Site groundwater. Contaminants included arsenic, asbestos, benzene, metals, PAHs, TPH, and other VOCs.

1997 Pre-Design Investigation (Parsons, 1997)

A pre-design investigation was conducted in March 1997 at the Site to fill certain data gaps. Five soil samples were collected in the vicinity of a former hot spot and analyzed for PCBs, TPH, and the toxicity characteristic leaching procedure (TCLP). In addition, insulation material in two boilers in the onsite building was sampled for asbestos, a magnetometer survey was conducted to identify two potential USTs, and a property and topographic survey was conducted. PCBs were detected in all soil samples at concentrations from 0.38 to 3.65 mg/kg. TPH was detected in all five samples, with diesel range concentrations up to 8,600 mg/kg. TCLP volatiles were not detected in any sample, and lead was detected below the regulatory limit of 5 mg/L (Parsons, 1997). Asbestos was detected in the insulation material from both boilers. The magnetometer survey failed to locate the two suspected USTs because of interference from reinforced concrete. The report recommended no action on the basis of PCB, TPH, or TCLP results. Removal of asbestos material from the boilers and excavation of the test pit to locate the suspected USTs were recommended.

1998 Pre-Design Investigation (Parsons, 1998)

Additional pre-design investigations were conducted in July, August, and September 1997 to obtain information pertaining to the suspected USTs and underground piping referenced in the 1997 predesign investigation report and to gather information concerning any shallow low-permeability units near the proposed location of the planned recovery trench. Eleven test pits were completed and 14 soil borings were advanced in the eastern portion of the Quanta Resources property. One groundwater sample was collected from a test pit and analyzed for VOCs, semi-volatile organic compounds (SVOCs), and TCLP. Results of these analyses were not provided in the data report. No USTs were located during test pit activities, although several steel pipes were encountered. The clayey silt layer in the vicinity of the proposed recovery trench was encountered between 10 to 12 ft bgs. Sanborn fire insurance maps for the Site were obtained as part of this investigation but were not discussed in the report.

2000 Soil Investigation (PS&S, 2002)

The June 2000 Soil Investigation included the collection of 18 soil samples from 10 borings in the northwest corner of the Quanta Resources property near its border with the Edgewater Enterprises property. Samples were typically collected from 0.5 and 3.5 ft below grade. All samples were analyzed for arsenic, and five samples were also analyzed for other metals, VOCs, SVOCs, PCBs, and pesticides. The 2002 Supplemental Data Submission document indicated that elevated concentrations of arsenic relative to general Site conditions were reported in several borings, particularly in the subsurface samples from those borings. Several other metals were detected above RDCSCC in one or more samples. PAH data were consistent with other Site data, and no VOCs, PCBs, or pesticides exceeded NJDEP screening criteria (PS&S, 2002).

2000 Removal Site Investigation (GeoSyntec, 2000)

The RSI was conducted to

> *... (i) identify possible conduits for the transport of coal tar product from sources areas to the Hudson River; (ii) delineate source areas which continue to impact soil, river sediment, and groundwater; (iii) characterize the nature and extent of soil, river sediment, and groundwater contamination; and (iv) provide data on the geotechnical properties of the [Site] soils in support of evaluation of engineered site remedies.*

The scope of work included test trenching and a geophysical survey, soil boring advancement, cone penetrometer testing, sediment sampling, monitoring well installation and groundwater sampling, and a geotechnical engineering evaluation. Field activities were conducted in 1998 and 1999, including completion of 17 test trenches, 14 soil borings, 10 monitoring wells, and 23 cone penetrometer test/Rapid Optical Screening Tool (ROST™) locations. Nine surface soil samples, 26 sediment cores, and 10 deeper Vibracore sediment samples were collected. Ten penetrometer test/ROST™ locations were completed in sediment. Twenty existing groundwater monitoring wells and eight of the 10 new monitoring wells were sampled during the RSI. Surveying and tidal fluctuation monitoring was also conducted.

The report concluded the following with respect to OU1:

Soil: Soil samples supplemented previous collected data to delineate the extent of COIs (PAHs, arsenic, chromium, and lead) in soil. Arsenic, chromium, and lead were detected at scattered locations across the Site, which indicted that metals contamination is limited to releases in localized areas and is not widespread. PCB detections were limited to soils in the former transformer locations. PAHs were detected throughout soil at the Site, but elevated concentrations were limited to source areas. A significant amount of soil data from the Edgewater Enterprises and Lustrelon properties were obtained during previous investigations. These properties were being managed by NJDEP and the report suggested that soils from these areas might have already been remediated.

Groundwater: Arsenic, chromium, and lead were present in a localized area and transport of these constituents downgradient of this area is limited by geochemical conditions at the Site. PCBs were not detected in groundwater. SVOCs were detected in groundwater at the majority of sampling locations at the Site, but results indicated that two separate areas of VOCs exist. The first area contains benzene, toluene, and xylene at the Site. The second area comprises chlorinated ethane constituents and is limited to the Lustrelon property north of the study area. SVOCs were detected in groundwater at the Site. The highest SVOC concentrations were detected in source areas associated with coal tar.

Extent of NAPL: The NAPL extent is limited vertically at OU1 by the presence of the confining unit. The NAPL varies in viscosity from solid non-mobile product to thick, oil-like product. Oil-like product has collected in monitoring wells at the Site and is adjacent to the bulkhead. Sheens observed in the Hudson River appear to develop from both the upland source area and the sediment source area. The RSI report concluded that NAPL in the fill adjacent to the bulkhead is able to flow and exists at a higher elevation than the river sediments. The NAPL has the potential to flow to the river through the fill material that has higher permeabilities due to the abundance of debris and poor compaction.

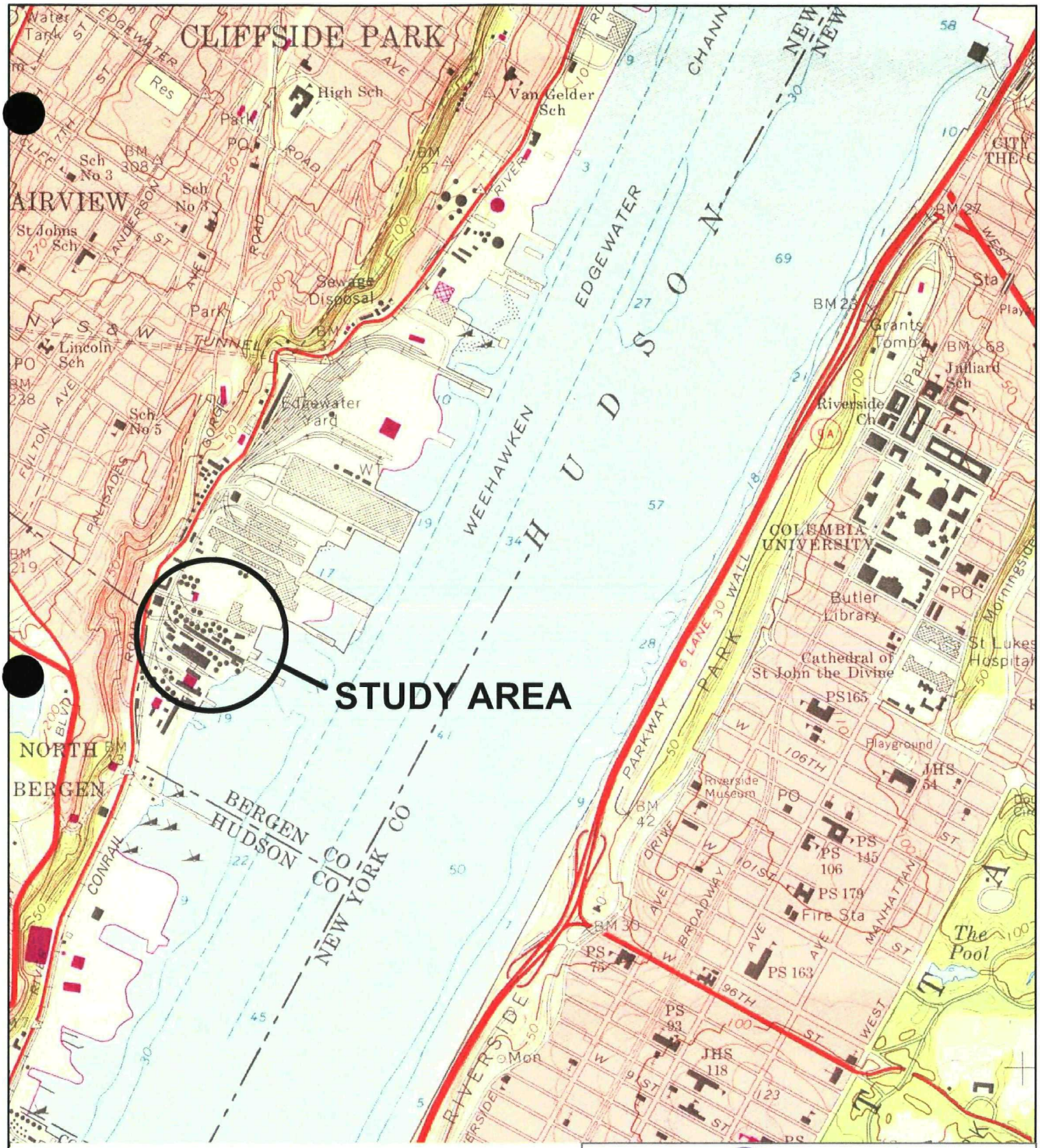
Public Health Assessment (NJDOHSS, 2002)

The New Jersey Department of Health and Senior Services (NJDOHSS), the Agency for Toxic Substances and Disease Registry (ATSDR), NJDEP, and USEPA visited the Site on January 19, 2001, and NJDOHSS conducted a public health assessment of the Site. For each of the potential pathways evaluated (i.e., surface soil and dust, ambient air, sediment), there is presently no route of exposure element to complete the human exposure pathway at the Site. According to the Assessment, this is due to the fact that the Site is currently closed to entry, portions of the Site are covered with asphalt, and no work activity is occurring at the site at the present time. During both Site visits, however, there were indications of trespassers at the Site (e.g., footprints, evidence of individuals walking their dogs). The potential for exposure to these individuals on a routine basis is unlikely and does not justify a completed exposure pathway designation. Based upon available information and observation at the Site, potential human exposure routes may include dermal contact with and/or incidental ingestion of contaminated on-site soils and river sediments. Although site-specific air data were not available for review by NJDOHSS for the Public Health Assessment, general concerns regarding odors at the Site may suggest a localized potential air pathway, especially during any future remediation and/or construction activities which disturb on-site soils. Additionally, these activities may produce fugitive dust exposures for the nearby community. There are no data currently available that establish a completed

exposure pathway to nearby human populations. Although data was limited, results of air and soil sample data from the Palisades Child Care Center do not indicate a health concern.

2004 Preliminary Assessment, Heagney and Frola Properties (O'Brien & Gere, 2004)

The Preliminary Assessment report addresses Block 93, Lots 1, 2, and 3, the 2.63-acre area between Old River Road and River Road. The assessment included site visits, a review of historical documents and property deeds, interviews with property owners, a review of regulatory agency documents, and an evaluation of other information obtained during the assessment process. The Preliminary Assessment summarized previous investigations and historical information, concluding that the properties three lots have been confirmed to or could contain contaminants in the fill layer above the New Jersey Residential and Non-Residential Soil Cleanup Criteria (NJSCC). In addition, a 10,000-gallon ammonia aboveground storage tank is suspected to have been located on Lot 1, and the removal of two 1,000-gallon USTs on Lot 3 could not be confirmed. No environmental samples were collected as part of the Preliminary Assessment. The property immediately upgradient of these properties (Solar Color and Chemical facility) was reported as having an open leaking UST case as a result of the release of an unknown quantity of xylene.



Map Source:
Central Park, NY-NJ,
U.S.G.S.
7.5' Min. Quad

N

CH2MHILL

Figure 1-1
Study Area Location Map

Quanta Resources Site
Edgewater, New Jersey

February 7, 2006 | Fig1-01.mxd

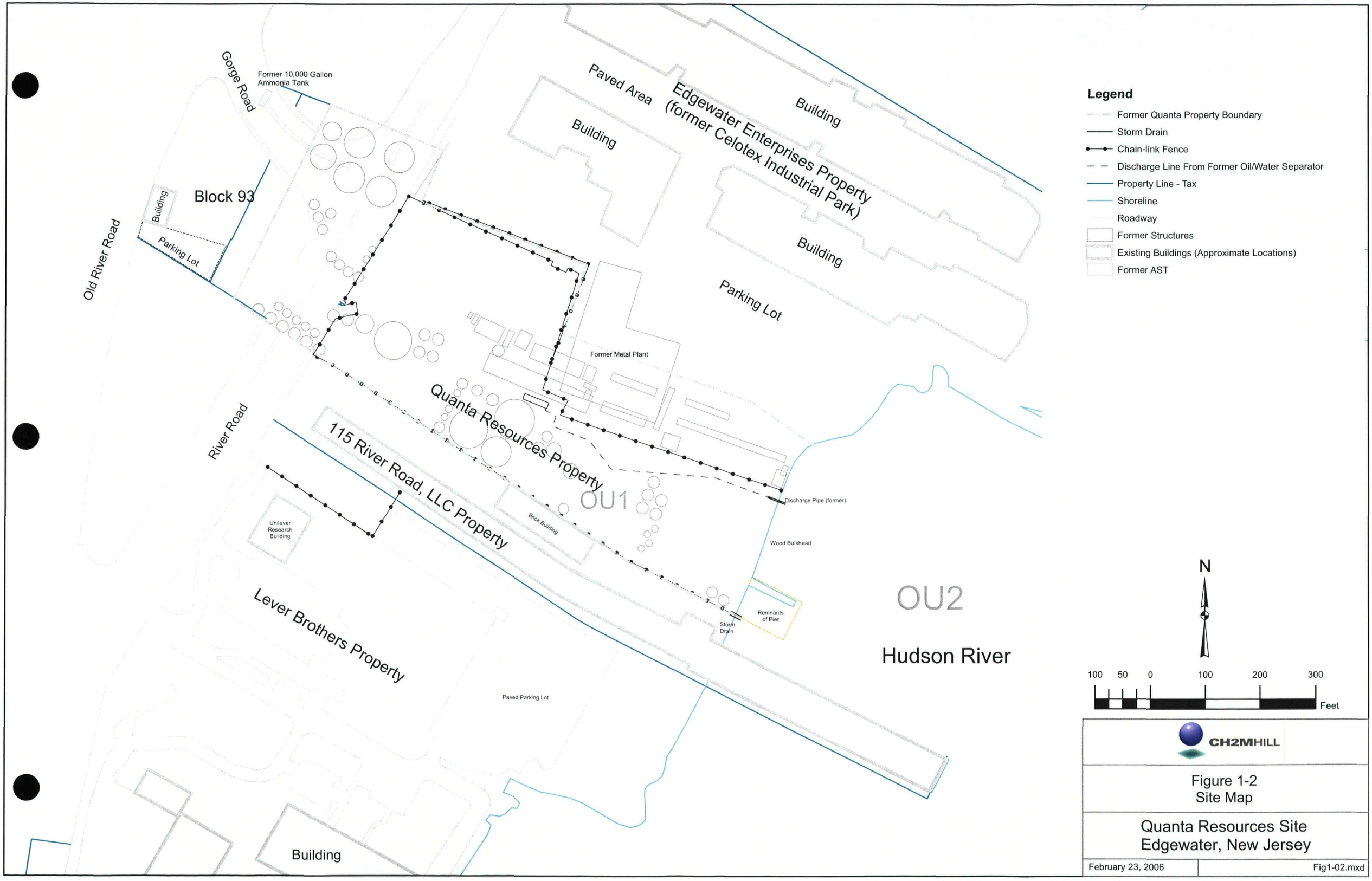


Figure 1-2
Site Map

Quanta Resources Site
Edgewater, New Jersey

February 23, 2006 | Fig1-02.mxd

Section 2

SECTION 2

Field Investigation Activities

Field investigation activities implemented during the RI were conducted pursuant to the USEPA-approved RI/FS Work Plan, Field Sampling Plan, QAPP, and Health and Safety Plan (Parsons, 2005, as revised by CH2M HILL, 2005). All RI field activities have been completed to date except the installation and/or sampling of six monitoring wells (MW-114A, MW-114B, MW-121A, MW-121B, MW-115A, and MW-115B) and groundwater sampling of the Edgewater Enterprises property monitoring wells. The well installations were not completed prior to the end of 2005, therefore the analytical results from these locations was not available in time to incorporate into this PSCR. These additional data will be presented to USEPA separately as an addendum to the Final PSCR, and evaluated in the context of historic and RI data in the RI report.

2.1 Subsurface Utility Survey

The New Jersey One Call utility mark out service was called prior to the commencement of subsurface investigation activities. In addition, a private geophysical survey was performed in select areas to augment the New Jersey One Call mark out. The purpose of the utility mark out was to assess if subsurface obstructions were located where intrusive RI/FS field activities would take place.

The private geophysical survey was performed by Summit Drilling of Bridgewater, New Jersey. The survey was conducted in the vicinity of soil borings SB-12, SB-14, and SB-15 in River and Gorge Roads and in the vicinity of each of the monitoring wells and soil borings on the Lever Brothers and 115 River Road, LLC properties. The subsurface geophysical survey used a Utilivac VE75 ground-penetrating radar and a RD4000DF Receiver Pipe and Cable Locator. In the event a subsurface anomaly was detected, the location was moved to an area where the anomaly was not observed (generally within 5 to 10 ft of the proposed location). Results of this survey are presented in Section 4.3.

2.2 Subsurface Soil Sampling

2.2.1 Boring Advancement

Soil borings were performed during RI activities to collect representative soil samples, characterize the subsurface geological conditions, and evaluate the nature and extent of contamination. Forty-eight soil borings were advanced during RI activities, of which 30 were subsequently completed as monitoring wells. The locations of the soil borings are shown on Figure 2-1. Borings that were installed as part of RI/FS activities in January 2006 in addition to those where access still remains an issue are also shown on Figure 2-1. A summary for the soil borings where monitoring wells were not installed is included as Table 2-1. A summary of the borings completed for the purpose of installing monitoring wells is included in Table 2-2.

Prior to drilling activities, the proposed soil boring locations were located by Vargo and Associates, a New Jersey licensed surveyor. Summit Drilling and SGS Environmental Services, Inc., of West Creek, New Jersey, performed the soil borings and monitoring well installations. Three drilling methods—hollow-stem auger (HSA), air/mud rotary, and Geoprobe™ (direct-push)—were used to advance soil borings. Borings were advanced from the ground surface to either auger refusal or to a depth specified in the Work Plan. When drilling conditions permitted, soil samples were collected continuously at 2-ft intervals from the ground surface to the desired depth using either a clean, 2-ft-long stainless-steel split spoon or a Geoprobe macrosampler with a disposable acetate liner (direct-push rig). Soil samples were classified by the onsite CH2M HILL geologist in general accordance with the Unified Soil Classification System using the procedures described in American Society of Testing and Materials (ASTM) D2488-69 "Description of Soils (Visual-Manual Procedure)."

Soil samples were screened for ionizable compounds and the presence of NAPL using a photoionization detector and visual observations. Throughout the RI field program, Sudan IV hydrophobic dye and ultra-violet fluorescence testing were determined to be unnecessary as the presence of NAPL in soil could more readily be confirmed through visual identification when PID screening results were elevated. Soil logs containing information about lithology, visual evidence of impacts, photoionization detector (PID) readings, and general drilling conditions were maintained for each soil boring and are presented in Appendix A.

Subsurface obstructions were encountered while using the HSA rig to advance soil borings SB-2, SB-3, SB-7, SB-9, SB-16, and SB-18. Soil borings SB-2 and SB-3 are located in an area that had remnant concrete aboveground storage tank pads with steel reinforced structural support. Soil borings SB-7 and SB-9 are located on the north-central and northwestern portions of the Quanta Resources property, respectively, and encountered subsurface obstructions from about 2.5 to 8.0 ft bgs. Similar obstructions were also encountered while attempting to advance soil borings SB-16 and SB-18 on the Lever Brothers property. In each of these instances, several attempts were made to auger through the obstructions but were unsuccessful, and as a result an air rotary drill rig was used in place of HSA drilling. The air rotary drill rig was used to advance pilot holes past the obstructions at SB-2, SB-3, SB-7, SB-9, SB-16, and SB-18. Continuous soil sampling was not possible during air rotary drilling. Once the obstruction was cleared, the hollow stem auger (HSA) drilling method was used to complete the soil borings to the respective depths specified in the RI/FS Work Plan.

Soil borings SB-1, SB-4, SB-12, SB-14, SB-15, and SB-17 were advanced using a Model 6600 truck-mounted Geoprobe rig. A subsurface utility survey was performed in the vicinity of soil borings SB-12, SB-14, and SB-15 to augment the New Jersey One Call Service. Subsurface anomalies were identified during this survey (Section 2.8), and as a result, the locations were cleared with a pressurized air knife to a depth of about 5 ft bgs prior to advancing these borings.

Upon boring completion, soil borings not to be converted into monitoring wells were backfilled with hydrated bentonite chips. The top 6 in. of each abandoned boring was completed with material similar to the surrounding surface (e.g., asphalt, concrete).

2.2.2 Soil Sampling for Laboratory Analysis

When field conditions permitted (i.e., when a sampler could be advanced or recovery was sufficient), soil samples were collected for laboratory analysis from the sample intervals specified in the Work Plan. In addition to being collected from the intervals specified, samples were collected from intervals of either elevated photoionization detector readings or visual evidence of contamination. The soil samples collected to date as part of the RI are summarized Table 2-3.

A total of 107 soil samples were collected for laboratory analysis and were shipped by overnight courier to Lancaster Laboratories in Lancaster, Pennsylvania, under executed chain-of-custody forms. Table 2-3 summarizes the parameters for which samples were analyzed and, when applicable, the field conditions that prevented collection of the planned soil samples. A discussion of the results from these analyses is provided in Section 4 of this report. Copies of the laboratory analytical reports for these data are included in the Lab Reports attachment to this report.

Shelby tube soil samples were also collected from soil borings SB-101DS and SB-103DS, at depths of 32 to 34 ft bgs and 22 to 24 ft bgs, respectively. The Shelby tube samples were analyzed by SJB Services, Inc., of Balston Spa, New York, for permeability by ASTM Method D5084. The lithology of both of these intervals consisted of silty clay. A copy of the laboratory report for these analyses is included in the Lab Reports attachment to this report.

2.3 Permanent Monitoring Well Installation

Thirty monitoring wells (including one replacement well for MW-104) installed in 2005 and an additional six wells planned for installation in 2006 as part of the RI activities were intended to augment the 10 preexisting monitoring wells installed during the RSI. The locations of the 30 newly installed and planned monitoring wells are shown in Figure 2-1. The purpose of the monitoring well installation program was to evaluate hydrogeologic conditions and the distribution of constituents of interest (COIs) in groundwater at the Quanta Resources property and neighboring properties. The specific well-installation locations were selected on the basis of the need to attain an adequate distribution of long-term-monitoring points, the likelihood of intercepting NAPL within different hydrostratigraphic units, and the need to obtain water quality data and assess flow characteristics and tidal influences.

To achieve these objectives, monitoring wells were installed in both the shallow and deep overburden groundwater zones. Two types of monitoring wells were installed in the shallow overburden groundwater zone: those screened across the water table ("A" wells) and those screened at the base of the shallow overburden groundwater zone ("B" wells) just above the upper confining unit. Shallow monitoring wells screened across the water table are intended to capture LNAPL, whereas shallow monitoring wells installed at the base of the shallow sand/fill unit are intended to capture DNAPL in the shallow sand/fill unit (B wells are constructed with a 2-ft sump below the well screen). In addition, four deep sand unit monitoring wells were installed beneath the confining unit. Deep monitoring wells were double-cased in order to seal off the shallow groundwater zone and are labeled "DS" wells. Well construction information for all monitoring wells that have been installed at the

Site to date is summarized in Table 2-2. Detailed monitoring well construction diagrams for the newly installed wells are included as Appendix B.

2.3.1 Shallow Monitoring Wells

Sixteen shallow groundwater "A" wells (including the replacement monitoring well, MW-104R) were converted from soil borings that were initially drilled using a nominal 6-in. inner-diameter (ID) HSA to a depth that would allow for the construction of a well screen spanning the water table. These monitoring wells are constructed with a 4-in. diameter, Schedule 40 PVC riser, and 10 ft of 0.020-in. Schedule 40 PVC screen. Nine shallow groundwater "B" wells installed at the base of the shallow overburden groundwater zone were constructed in the same manner as above, with the addition of a 2-ft sump of threaded flush-jointed PVC riser pipe attached to the bottom of the screen. The 2-ft-long sump was added for the purpose of capturing and evaluating NAPL in the shallow overburden groundwater zone.

2.3.2 Deep Monitoring Wells

Four deep groundwater-monitoring wells were drilled by advancing a nominal 8-in.-ID HSA to a depth of about 5 ft into the shallow confining unit. A 6-in.-ID carbon steel isolation casing was then installed through the augers into the borehole and grouted in place using a cement-bentonite grout. After the grout had been allowed to cure overnight, mud rotary drilling using a nominal 4-in.-diameter borehole was advanced from the bottom of the isolation casing to the top of the underlying bedrock. Mud rotary drilling was used in place of HSA drilling to prevent the borehole from collapsing. Once the final depth was encountered, the drilling contractor pumped water into the borehole to remove excess drilling mud from the bottom of the boring. Deep monitoring wells were constructed with 2-in.-ID, Schedule 40 PVC riser pipe, with 10 ft of 0.020-in. Schedule 40 wire-wrapped PVC screen.

2.3.3 Monitoring Well Development

Development of shallow and deep monitoring wells was performed using surge and purge methodology in accordance with USEPA (1992) procedure. During development, water quality parameters (turbidity, temperature, dissolved oxygen, pH, and conductivity) were measured using a Horiba U-22 water quality meter. The water level in the monitoring well was continually measured with a water level indicator. Development continued until the water quality parameters stabilized or until the monitoring well was pumped dry three times over a 3-day period. Well development logs are included as Appendix C. Development water was contained in 55-gallon drums and was staged onsite for future disposal.

2.4 Synoptic Water Level and NAPL Measurements

Synoptic groundwater elevation and NAPL thickness measurements were conducted at the Site on December 30, 2005. In addition, measurements were recorded prior to monitoring well development and sampling. Each survey was conducted by measuring water levels with an electronic oil-water interface probe. NAPL was also surveyed by dedicated bottom-loading bailers; however, NAPL smearing the outside of the bailers made obtaining accurate

NAPL measurements difficult. In general, depth to water and NAPL measurements were taken from the top of the inner PVC well riser or inner casing. No measurable thicknesses of LNAPL were observed in wells monitored during the RI/FS field activities.

In general, measurements of NAPL thickness were conducted using one of two methods. The first was performed by slowly lowering the oil–water interface probe into the monitoring well until either the probe indicated the presence of DNAPL or the bottom of the monitoring well was encountered. If the probe indicated the presence of DNAPL, the initial depth at which the probe indicated a change from water to DNAPL was measured from the top of the inner casing. The initial interface depth at which the DNAPL was encountered was recorded, and was subtracted from the total well depth to obtain the thickness of the DNAPL.

The second method was performed by visually observing the NAPL coating present on the measuring tape and interface probe. Because of the viscosity of the DNAPL at some locations and its immiscibility with water, the thickness of NAPL coating the interface probe and measuring tape was the preferred method of observing DNAPL thickness in the monitoring wells.

NAPLs observed to have accumulated in monitoring wells are the result of the monitoring wells serving as "sumps" and do not reflect the actual in-situ thickness of NAPL in soils. An historical and recent summary of NAPL observations for monitoring wells at the Site is provided in Table 2-4.

2.5 Groundwater Sampling

Eight existing monitoring wells and 29 newly installed monitoring wells were sampled during RI/FS activities. Sampling of two existing wells (MW-104 and MW-110) and one newly installed well (replacement well MW-104R) was not called for in the RI/FS Work Plan. Groundwater samples were collected according to USEPA (1998) procedure. Sampling was performed using a clean 2-in.-diameter stainless steel Grundfos submersible, RediFlo2™ pump, and dedicated 3/8-in.-ID Teflon-lined polyethylene tubing. The pumping rate during purging was maintained at a range of 300 to 600 mL/min. Water quality parameters and depth-to-water readings were measured continually throughout the purging of each well. Field water quality parameters included pH, specific conductance, dissolved oxygen, oxidation reduction potential, temperature, and turbidity. With the exception of turbidity, field chemistry parameters were measured using a Horiba U-22 water quality meter. Turbidity was measured using a Lamotte 2020 turbidity meter. Other observations such as odor, appearance, and presence of NAPL were also recorded during groundwater sampling.

Upon the stabilization of the water quality parameters, the purge rate was reduced to 200 mL/min and a sample was collected and immediately placed in a cooler with ice. Samples were transported by overnight courier to Lancaster Laboratories under standard chain-of-custody protocol and were analyzed for the constituents indicated in Table 2-5.

Analytical results reports from Lancaster Laboratory can be found in the Lab Reports attachment to this report. A summary of the water quality field parameters for each location is provided in Table 2-6.

Investigation-derived waste (IDW) generated during groundwater sampling (purge water) was contained in 55-gallon steel drums and staged onsite for future disposal in accordance with state and federal regulations.

2.6 NAPL Sampling

NAPL samples were collected from below the water table from five monitoring wells (MW-102A, MW-105, MW-116B, MW-107, and MW-112B). These five monitoring wells were selected on the basis of the differing physical characteristics (e.g., viscosity, color) of the NAPL present observed in each of these wells.

The NAPL samples were collected using dedicated weighted Teflon bailers, and were transported via overnight courier to META Environmental, Inc., of Watertown, Massachusetts, under executed chain-of-custody for the analysis of the following:

- Qualitative hydrocarbon fingerprints and total hydrocarbons by USEPA Method 8100 modified
- Aliphatic fractions for petroleum hydrocarbon biomarker compounds by USEPA Method 8270 modified
- VOCs by USEPA Method 8260 modified
- SVOCs and extended PAHs profiles by USEPA Method 8270 modified
- PCBs by USEPA Method 8082 modified (after sample cleanup by USEPA Methods 3665 and 3660)
- Metals by USEPA SW-846 Method 6010B (except for mercury, which was analyzed by USEPA SW-846 Method 7471A)
- Physical property analysis consisting of viscosity by ASTM Methods D-445 and D-2161, interfacial tension by ASTM Method D-971, American Petroleum Institute gravity by ASTM Method D-4052, density by ASTM Method D-4052, and specific gravity by ASTM D-4052

Prior to chemical analyses, all samples were prepared by waste dilutions (USEPA 3580) using dichloromethane. LNAPL samples were not collected, as measurable thicknesses of LNAPL were not observed in the monitoring wells during RI activities.

2.7 In-Situ Hydraulic Conductivity Testing

In situ hydraulic conductivity testing was performed on monitoring wells MW-102A, MW-102B, MW-103, MW-103A, MW-103DS, MW-107, MW-107A, MW-107DS, MW-113A, MW-113B, MW-113C, MW-116A, MW-116B, and MW-116DS. Both rising and falling head tests were performed using a weighted slug, which consisted of solid PVC cylinder. Prior to initiating the test, a static water level was measured and recorded, and a pressure transducer was placed near the bottom of the monitoring well. The pressure transducer was programmed to record water level measurements to a data logger at a logarithmic frequency beginning with measurements every second. The weighted slug was then

inserted into the well, and the displacement and subsequent fall in hydraulic head were recorded (falling head test). Once the water level returned to static conditions, the data logger was reset, the slug was removed, and the resulting increase in hydraulic head was recorded (rising head test). The data collected during these tests are discussed in Section 4 and presented in Appendix D.

2.8 Potential Preferential Pathway Survey

A field survey to located subsurface utilities and potential preferential pathways was conducted as part of the RI. The field survey consisted of observations of aboveground evidence of subsurface utilities such as manhole covers, exposed pipes, and fire hydrants. A boat was used to observe the area below the concrete pier along the bulkhead on the eastern extent of the Quanta Resources property along the Hudson River. Hand digging was also conducted to confirm the location of one subsurface pipeline. Approximate locations of potential subsurface utilities were determined prior to the field survey by researching historical maps of the Site. The findings of the field survey based on currently available information are discussed in Section 4. Results from requests made to the Town of Edgewater Engineer and adjacent Site property owners regarding the presence of subsurface utilities (specifically, storm and sewer drains) at and in the vicinity of the Site was not obtained in time for this report. The information presented in this report will be updated as received and will be reported in the Final PSCR and the RI report.

2.9 Flood Plain Assessment

Delineation of the 100-year and 500-year flood plains relative to the Site has not been conducted at this time. This evaluation will be completed in advance of remedial alternative selection such that the effects of flooding events on the distribution of Site constituents and the potential design considerations with respect to subsequently proposed remedial measures can be evaluated and discussed as part of the remedy selection process.

2.10 Seasonal Standing Water Sampling

In order to be able to address any potential ecological risks associated with the presence of large areas of seasonal standing water at the Site, USEPA requested the collection of a sample from each of four locations where puddling is a common occurrence during wetter times of the year (SW-A, SW-B, SW-C, and SW-D). Locations of these samples are illustrated on Figure 2-1. These samples were collected using a clean stainless sampling device and were analyzed for those constituents indicated in Table 2-5. The results of this sampling are not discussed in this report but will be included in future ecological risk evaluations for the OU1.

2.11 Tidal Study

A tidal study was conducted at monitoring wells MW-101DS, MW-103A, MW-103DS, MW-107A, MW-107DS, MW-109A, MW-111A, MW-111B, MW-112A, MW-116A, MW-116DS, MW-117A, MW-117B, MW-119A, and MW-120A. Tidal study monitoring was also

performed at location TGS-1, a staff gauge to monitoring water level changes in the Hudson River (Figure 2-1).

TGS-1 was installed near the southeastern corner of the pier extending from the parking garage of the office building on the 115 River Road property. A housing to protect the In-Situ MiniTroll™ at TGS-1 was constructed of 2-in.-ID Schedule 40 PVC pipe with a 0.020-in. slotted PVC screen at the base to allow water to interact with the MiniTroll™ transducer. The screen was installed in the water to allow the probe to extend below the maximum low-tide or low-water mark. The sensor array and transducer intake were located at least 1 ft below the anticipated maximum low-tide or low-water mark to ensure they would remain submersed in water during the entire logging period.

Manual depth-to-water measurements were collected from all tidal study monitoring wells and TGS-1 prior to and subsequent to deploying the data loggers to baseline and validate the pressure transducer data. After depth-to-water measurements were recorded, CH2M HILL field personnel used a measuring tape to mark the deployment depth on each transducer cable at each of the tidal study monitoring wells and TGS-1. The MiniTroll transducer was subsequently deployed, secured, and checked to ensure that it was operating as programmed (i.e., depth reading corresponded to the amount of water above the transducer intake).

From November 23 to November 28, 2005, continuous water level measurements were obtained for each of the tidal study monitoring wells and tidal gauging station TGS-1 by an In-Situ MiniTroll Pro (combined water level and temperature instrument recorder).

An In-Situ BaroTroll™ (barometric recorder) was affixed to a tree approximately 10 ft west of MW-104R to measure the barometric pressure and air temperature during the entire duration of the field project. The BaroTroll was programmed to the same interval as the MiniTroll Pros. The BaroTroll remained in place and continued to log data until the entire field event was completed. A housing to protect the BaroTroll was installed; it was constructed of 2-in.-ID Schedule 40 PVC pipe with a 0.020-in. slotted PVC screen at the base to allow ambient air to interact with the BaroTroll.

Each of the data recorders was set to record data over a similar interval every 15 minutes. Digital data were downloaded from the continuous recorders and the data plotted on hydrographs and conductivity time series graphics.

2.12 Site Survey

Surveying tasks were completed by a New Jersey–licensed surveying subcontractor, Vargo and Associates, of Franklinville, New Jersey (Vargo). The purpose of the survey activities was to document in a standardized and reproducible manner the lateral locations and elevations of soil borings, monitoring wells, and related RI/FS activities within the OU1 study area. Vargo also completed monitoring well surveying documentation as required by NJDEP.

2.13 Decontamination

Decontamination was performed to remove potential contaminants, prevent transfer of harmful materials, and prevent cross-contamination during the course of field activities. Drill rigs were steam cleaned before and after use at each monitoring well and boring location at a decontamination pad near the center of the Site. A pump was used to pump into 55-gallon drums the decontamination water that collected in the decontamination pad. Sampling equipment (e.g., Grundfos pumps) were decontaminated thoroughly each day before use ("daily decon") and after each well was sampled ("between-well decon"), as specified by NJDEP (1992, rev. 2005) and the New Jersey Administrative Code (1997).

2.14 Management of Investigation Derived Waste (IDW)

Solid and liquid IDW were contained during field activities. Solid waste generated during drilling activities was contained in Department of Transportation–approved 55-gallon, open-top steel drums. The drums were labeled with the type of media contained within the drum, its location of origin, and date the IDW was generated. The drums from offsite drilling locations were initially staged near the entrance of the Quanta Resources property, whereas the drums from drilling locations on the Quanta Resources property were staged next to each drilling location. The drums were periodically moved to the back portion of the Quanta Resources property to maintain security and aesthetics prior to their offsite disposal.

IDW fluids, in the form of drilling fluids (e.g., potable water used during drilling and commingled with groundwater), monitoring well development water, purge water during sampling, water generated during hydraulic testing, and decontamination fluids, were generated. These fluids were also contained in Department of Transportation–approved 55-gallon, open-top steel drums, and stored in the same manner as the solid IDW described above.

Personal protective equipment used during field activities was contained in plastic bags and disposed of as solid waste. Impacted personal protective equipment and sampling materials were containerized in the same manner as solid IDW.

TABLE 2-1
Summary of Soil Boring Information
Quanta Resources Site
Edgewater, New Jersey

Boring ID	Installation Date	Northing	Easting	Ground Elevation (Ft. MSL)	Property	Total Depth (Ft. BGS)	Logged Interval (Ft. BGS)	Method
SB-1	12/11/2005	718395.13	633391.71	7.4	115 River Road, LLC	20	0-20	Direct push GeoProbe
SB-2	8/18/2005	718488.76	633460.53	7.2	Quanta Resources	30	0-2 Logged 2-8 No Log* 8-30 Logged	4-1/4" HSA, 2" SS** 8" rolling air rotary bit 4-1/4" HSA, 2" SS
SB-3	8/22/2005	718578.89	633480.43	6.0	Quanta Resources	22	0 -1 No Log*** 1-22 Logged	4-1/4" HSA 4-1/4" HSA, 2" SS
SB-4	12/10/2005	718716.50	632894.53	6.8	115 River Road, LLC	30	0-30	Direct push GeoProbe
SB-5	7/28/2005	718689.60	633256.88	6.3	Quanta Resources	24	0-3 No Log*** 3-24 Logged	4-1/4" HSA 4-1/4" HSA, 2" SS
SB-6	8/2/2005	718727.69	633119.09	6.1	Quanta Resources	24	0-24	4-1/4" HSA, 2" SS
SB-7	8/17/2005	718822.50	633174.56	6.6	Quanta Resources	24	0-10 No Log* 10-24 Logged	8" rolling air rotary bit 4-1/4" HSA, 2" SS
SB-8	10/9/2005	718716.50	632894.53	6.8	115 River Road, LLC	27	0-1 No Log*** 1-2 Logged 2-3 No Log*** 3-27 Logged	4-1/4" HSA 4-1/4" HSA, 2" SS 4-1/4" HSA 4-1/4" HSA, 2" SS
SB-9	8/18/2005	718891.74	632988.39	6.3	Quanta Resources	28	0-10 No Log*** 10-28 Logged	8" rolling air rotary bit 4-1/4" HSA, 2" SS
SB-10	8/23/2005	718931.19	632714.57	5.4	Block 93, Lot 3	26	0-26	4-1/4" HSA, 2" SS
SB-11	8/23/2005	718994.03	632748.25	7.2	Block 93, Lot 3	24	0-24	4-1/4" HSA, 2" SS
SB-12	10/25/2005	719231.90	632945.15	11.5	River Road ROW	30	0-30	Direct push GeoProbe
SB-13	8/3/2005	718979.58	632676.38	5.6	Block 93, Lot 2	12	0-12	4-1/4" HSA, 2" SS
SB-14	10/24/2005	719288.13	632753.49	12.5	Gorge Road ROW	25	0-25	Direct push GeoProbe
SB-15	10/25/2005	719360.51	633025.42	12.2	River Road ROW	30	0-5 No Log^ 5-30 Logged	Air knifed Direct push GeoProbe
SB-16	11/15/2005	718298.40	633068.54	7.4	Lever Brothers	27	0-13 No Log* 13-27 Logged	10" rolling air rotary bit 4-1/4" HSA, 2" SS
SB-17	12/10/2005	718520.83	632876.49	6.6	115 River Road	30	0-30 Logged	Direct push GeoProbe
SB-18	11/18/2005	718424.75	632876.34	7.5	Lever Brothers	27	0-13 No Log* 13-27 Logged	10" rolling air rotary bit 4-1/4" HSA, 2" SS

Notes:
* - Air Drilled, No Log
** - 4-1/4" ID Hollow Stem Auger with 2" ID Split Spoon
*** - Hollow Stem Augered through obstruction
^ - Air knifed due to possible buried utilities
Ft. BGS - Feet below ground surface
Ft. MSL - Feet referenced to mean sea level

TABLE 2-2
Monitoring Well Construction Summary
Quanta Resources Site
Edgewater, New Jersey

Well ID	Diameter/ Construction/ Slot Size	Northing	Easting	Measuring Point Elevation (TIC) (Ft. AMSL)	Ground Elevation (Ft. AMSL)	Property	Confined/ Unconfined	Top of Screen (Ft. BGS)	Top of Screen (Ft. AMSL)	Bottom of Screen (Ft. BGS)	Bottom of Screen (Ft. AMSL)	Screen Length (Ft.)
Shallow Groundwater Wells												
MW-101A	2" PVC	719001.17	632734.82	10.14	8.1	Quanta Resources	Unconfined	4	4.1	19	-10.9	15
MW-102	2" PVC	718753.06	632914.91	6.62	4.1	Quanta Resources	Unconfined	4	0.1	19	-14.9	15
MW-102A	4" PVC/20 slot	718774.51	632942.16	9.72	6.80	Quanta Resources	Unconfined	2	4.8	12	-5.2	10
MW-102B	4" PVC/20 slot	718766.25	632931.53	9.64	6.80	Quanta Resources	Unconfined	14	-7.2	24	-17.2	10
MW-103	2" PVC	718614.16	633202.67	6.00	3.60	Quanta Resources	Unconfined	6	-2.4	21	-17.4	15
MW-103A	4" PVC/20 slot	718607.48	633205.75	10.03	6.60	Quanta Resources	Unconfined	3	3.6	13	-6.4	10
MW-104R	2" PVC/20 slot	718519.79	633611.94	9.11	6.20	Quanta Resources	Unconfined	3	3.2	13	-6.8	10
MW-105	2" PVC	718404	633554	5.03	2.5	Quanta Resources	Unconfined	9	-6.5	19	-16.5	10
MW-105A	4" PVC/20 slot	718414.17	633552.17	8.20	5.90	Quanta Resources	Unconfined	3	2.9	13	-7.1	10
MW-106	2" PVC	718195	633436	7.17	7.4	Lever Brothers	Unconfined	11	-3.6	21	-13.6	10
MW-106A	4" PVC/20 slot	718187.85	633438.50	6.65	7.10	Lever Brothers	Unconfined	3	4.1	13	-5.9	10
MW-107	2" PVC	718371	632980	6.85	7.1	Lever Brothers	Unconfined	13	-5.9	23	-15.9	10
MW-107A	4" PVC/20 slot	718371.31	632973.74	7.04	7.50	Lever Brothers	Unconfined	3	4.5	13	-5.5	10
MW-108	2" PVC	718580	632735	7.17	7.7	Lever Brothers	Unconfined	7.5	0.2	12.5	-4.8	5
MW-109	2" PVC	718036	633336	4.59	4.8	Lever Brothers	Unconfined	15	-10.2	20	-15.2	5
MW-109A	4" PVC/20 slot	718064.11	633349.26	4.56	4.90	Lever Brothers	Unconfined	3	1.9	13	-8.1	9
MW-111A	4" PVC/20 slot	719186.92	632597.85	7.98	8.40	Block 93, Lot 1	Unconfined	2	6.4	9	-0.6	7
MW-111B	4" PVC/20 slot	719195.22	632596.28	7.85	8.30	Block 93, Lot 1	Unconfined	3	5.3	13	-4.7	10
MW-112A	4" PVC/20 slot	718954.83	633038.93	10.01	6.80	Quanta Resources	Unconfined	3	3.8	10	-3.2	7
MW-112B	4" PVC/20 slot	718965.16	633046.35	9.60	6.80	Quanta Resources	Unconfined	2	4.8	12	-5.2	10
MW-113A	4" PVC/20 slot	718887.05	633231.50	10.20	7.00	Quanta Resources	Unconfined	3	4.0	13	-6.0	7
MW-113B	4" PVC/20 slot	718891.63	633233.93	9.80	7.00	Quanta Resources	Unconfined	9	-2.0	19	-12.0	10
MW-113C	4" PVC/20 slot	718899.82	633232.35	9.94	7.20	Quanta Resources	Unconfined	25	-17.8	30	-22.8	5
MW-116A	4" PVC/20 slot	718564.88	633607.66	9.45	6.10	Quanta Resources	Unconfined	3	3.1	13	-6.9	10
MW-116B	4" PVC/20 slot	718564.00	633614.00	8.69	6.30	Quanta Resources	Unconfined	3	3.3	13	-6.7	10
MW-117A	4" PVC/20 slot	718495.51	633575.22	9.37	6.80	Quanta Resources	Unconfined	4	2.8	14	-7.2	10
MW-117B	4" PVC/20 slot	718490.38	633577.94	9.04	6.30	Quanta Resources	Unconfined	5	1.3	15	-8.7	10
MW-118A	4" PVC/20 slot	718454.55	633573.47	9.00	6.10	Quanta Resources	Unconfined	4	2.1	14	-7.9	10
MW-118B	4" PVC/20 slot	718443.68	633572.98	9.40	6.80	Quanta Resources	Unconfined	4	2.8	14	-7.2	10
MW-119A	4" PVC/20 slot	718343.86	633523.03	5.68	6.20	115 River Road, LLC	Unconfined	3	3.2	13	-6.8	10
MW-119B	4" PVC/20 slot	718355.51	633526.26	6.00	6.40	115 River Road, LLC	Unconfined	4	2.4	14	-7.6	10
MW-120A	4" PVC/20 slot	718212.64	633495.32	6.83	7.10	Lever Brothers	Unconfined	3	4.1	13	-5.9	10
MW-120B	4" PVC/20 slot	718223.61	633484.97	6.78	7.20	Lever Brothers	Unconfined	7	0.2	17	-9.8	10
MW-122A	4" PVC/20 slot	718339.41	632953.13	7.24	7.60	Lever Brothers	Unconfined	3	4.6	13	-5.4	10
Deep Sand Unit Wells												
MW-101DS	6" steel outer casing, 2" PVC IC/20 slot	719004.98	632748.11	10.45	7.10	Block 93, Lot 3	Confined	38	-30.9	48	-40.9	10
MW-103DS	6" steel outer casing, 2" PVC IC/20 slot	718609.96	633208.63	10.13	6.50	Quanta Resources	Confined	42	-35.5	52	-45.5	10
MW-107DS	6" steel outer casing, 2" PVC IC/20 slot	718369.21	632986.22	6.82	7.6	Lever Brothers	Confined	52	-44.4	62	-54.4	10
MW-116DS	6" steel outer casing, 2" PVC IC/20 slot	718555.99	633613.65	9.18	6.10	Quanta Resources	Confined	19	-12.9	29	-22.9	10

Notes:
Ft. AMSL - Feet above mean sea level
Ft. BGS - Feet below ground surface
Ft. BTIC - Feet below top of inner casing or "measuring point"

TA[illegible]2-3

Summary of Laboratory Analyses for Soil, Fall 2005

Quanta Resources Site

Edgewater, New Jersey

Location ID	Start Depth (ft)	End Depth (ft)	Field Sample ID	Date Sampled	Grain Size Distribution ASTM D422	Total Solids E160.3	Ammonia E350.2	Total Organic Carbon SM5310	Arsenic/Lead/ Total Chromium SW6010	Hexavalent Chromium SW7196	TAL-Metals SW7471	Pesticides SW8081	PCBs SW8082	VOCs SW8260	SVOCs SW8270	Total Cyanide SW9012
MW-106A	0	0.16	SS-106A-001	11/09/05		x			x	x			x	x	x	
	11.5	12	SB-106A-003	11/09/05		x			x	x			x	x	x	
MW-109A	0	0.16	SS-109A-001	11/08/05		x			x	x			x	x	x	
	4.5	5	SB-109A-002	11/08/05		x			x	x			x	x	x	
MW-112A	0	0.16	*SB-081505-D1*	08/15/05		x	x		x	x		x	x	x	x	
			SS-112A-001	08/15/05		x	x		x	x		x	x	x	x	
	1.8	2	SB-112A-003	08/15/05		x	x		x	x		x	x	x	x	
MW-116B	0	0.16	SS-116B-001	08/16/05		x			x	x			x	x	x	
	1.75	2	SB-116B-002	08/16/05	x	x			x	x			x	x	x	
	4.5	5	SB-116B-003	08/16/05		x			x	x			x	x	x	
	14.5	15	SB-116B-004	08/16/05		x			x	x			x	x	x	
MW-120B	0	0.16	SS-120B-001	11/11/05		x			x	x			x	x	x	
	3.5	4	SB-120B-002	11/11/05	x	x			x	x			x	x	x	
	18	19	SB-120B-004	11/11/05		x			x	x			x	x	x	
SB-01A	1	1.5	SS-01A-001	12/11/05		x			x	x			x	x	x	
	9	10	SB-01A-003*	12/11/05		x			x	x			x	x	x	
	14	15	SB-01A-004	12/11/05		x			x	x			x	x	x	
SB-02B	0	0.16	SS-02B-001	08/18/05		x			x	x			x	x	x	
	9.5	10	SB-02B-003	08/18/05		x			x	x			x	x	x	
	29	30	SB-02B-004	08/18/05		x			x	x			x	x	x	
SB-03C	0	0.16	SS-03C-001	08/22/05		x			x	x			x	x	x	
	3.5	4	SB-03C-002	08/22/05	x	x			x	x			x	x	x	
	11	12	SB-03C-003	08/22/05		x			x	x			x	x	x	
	21	22	SB-03C-004	08/22/05		x			x	x			x	x	x	
SB-04D	1	1.5	SS-04D-001	12/10/05		x			x	x			x	x	x	
	3	3.5	SB-04D-002	12/10/05	x	x			x	x			x	x	x	
	14	15	SB-04D-003*	12/10/05		x			x	x			x	x	x	
	29.5	30	SB-04D-004	12/10/05		x			x	x			x	x	x	
SB-05E	22	24	SB-05D-004	07/28/05		x			x	x			x	x	x	
SB-06F	0	1	SS-06F-001	08/02/05		x			x	x			x	x	x	
	1.5	2	SB-06F-002	08/02/05	x	x			x	x			x	x	x	
	23	24	SB-06F-004	08/02/05		x			x	x			x	x	x	
SB-07G	0	0.16	SS-07G-001	08/17/05		x			x	x			x	x	x	
	16.5	17	SB-07G-003	08/17/05		x			x	x			x	x	x	
	23	24	SB-07G-004	08/17/05		x			x	x			x	x	x	
SB-08H	1	1.5	SB-08H-002	10/09/05		x		x	x	x			x	x	x	
	8.5	9	SB-08H-003	10/09/05		x			x	x			x	x	x	
	24	25	SB-08H-004	10/09/05		x			x	x			x	x	x	
SB-09I	0	0.16	SS-09I-001	08/18/05		x			x	x			x	x	x	
	0.8	1.3	SB-09I-002	08/18/05		x			x	x			x	x	x	
	9.5	10	SB-09I-003	08/18/05		x			x	x			x	x	x	
	27.5	28	SB-09I-004	08/18/05		x			x	x			x	x	x	

TABLE 2-3
Summary of Laboratory Analyses for Soil, Fall 2005
Quanta Resources Site
Edgewater, New Jersey

Location ID	Start Depth (ft)	End Depth (ft)	Field Sample ID	Date Sampled	Grain Size Distribution ASTM D422	Total Solids E160.3	Ammonia E350.2	Total Organic Carbon SM5310	Arsenic/Lead/ Total Chromium SW6010	Hexavalent Chromium SW7196	TAL Metals SW7471	Pesticides SW8081	PCBs SW8082	VOCs SW8260	SVOCs SW8270	Total Cyanide SW9012
SB-101DS	0	0.16	SS-101DS-001	08/30/05		x	x		x	x		x	x	x	x	
	3.5	4	SB-101DS-002	08/30/05	x	x	x		x	x		x	x	x	x	
	16.2	16.7	SB-101DS-003	08/30/05		x	x		x	x		x	x	x	x	
	25	25.5	SB-101DS-004	08/31/05		x	x		x	x		x	x	x	x	
	47	47.5	SB-101DS-005	09/01/05		x			x	x			x	x	x	
SB-102B	0	0.16	SS-102B-001	07/25/05		x			x	x			x	x	x	
	2.67	3.67	SB-102B-002	07/25/05	x	x			x	x			x	x	x	
	24	26	SB-102B-004	07/26/05		x			x	x			x	x	x	
SB-103DS	0	0.16	SS-103DS-001	08/26/05		x			x	x		x	x	x	x	
	1.4	1.9	SB-103DS-002	08/26/05	x	x			x	x		x	x	x	x	
	5	6	SB-103DS-003	08/26/05		x			x	x		x	x	x	x	
	21.5	22	SB-103DS-004	08/26/05		x			x	x		x	x	x	x	
	51	52	SB-103DS-005	08/29/05		x			x	x			x	x	x	
SB-105A	3.4	3.6	*SB-082205-DUP1*	08/22/05		x			x	x			x	x	x	
			SS-105A-001	08/22/05		x			x	x			x	x	x	
	3.6	3.9	SB-105A-002	08/22/05		x			x	x			x	x	x	
	9	10	SB-105A-003	08/22/05		x			x	x			x	x	x	
	17	18	SB-105A-004	08/22/05		x			x	x			x	x	x	
SB-106A	18.5	19	SB-106A-004	11/18/05		x			x	x			x	x	x	
SB-107DS	0	0.16	SS-107DS-001	11/16/05		x			x	x			x	x	x	
	3.5	4	SB-107DS-002	11/16/05		x			x	x			x	x	x	
	19.5	20	SB-107DS-003	11/16/05		x			x	x			x	x	x	
	24	25	SB-107DS-004	11/16/05		x			x	x			x	x	x	
	61	61.5	SB-107DS-005	11/17/05		x			x	x			x	x	x	
SB-10J	0	0.16	SS-10J-001	08/23/05		x			x	x	x		x	x	x	
	3	4	SB-10J-003	08/23/05		x			x	x	x		x	x	x	
	25.5	26	SB-10J-004	08/23/05		x			x	x	x		x	x	x	
SB-111A	1.7	2	SS-111A-001	08/04/05		x	x		x	x		x	x	x	x	
	3.8	4	SB-111A-002	08/04/05	x	x	x		x	x		x	x	x	x	
	10.7	12	SB-111A-003	08/04/05		x	x		x	x		x	x	x	x	
	29.5	30	SB-111A-004	08/04/05		x	x		x	x		x	x	x	x	
SB-112B	13	15	SB-112B-004	07/27/05		x	x		x	x			x	x	x	
SB-113C	0	0.16	SS-113C-001	11/22/05		x			x	x		x	x	x	x	
SB-115B	0	0.16	*SB-111005*	11/10/05		x			x	x			x	x	x	
			SS-115B-001	11/10/05		x			x	x			x	x	x	
SB-117B	0	0.16	SB-117B-001	07/26/05		x			x	x			x	x	x	
	4	5.5	SB-117B-002	07/26/05		x			x	x			x	x	x	
	15	18	*SB-072605-D1*	07/26/05		x			x	x			x	x	x	
			SB-117B-004	07/26/05		x			x	x			x	x	x	
SB-118B	0	0.16	SS-118B-001	07/25/05		x			x	x			x	x	x	
	6.5	7	SB-118B-002	07/25/05		x			x	x			x	x	x	
	16	17	SB-118B-004	07/25/05		x			x	x			x	x	x	

TA[illegible]2-3

Summary of Laboratory Analyses for Soil, Fall 2005

Quanta Resources Site

Edgewater, New Jersey

Location ID	Start Depth (ft)	End Depth (ft)	Field Sample ID	Date Sampled	Grain Size Distribution ASTM D422	Total Solids E160.3	Ammonia E350.2	Total Organic Carbon SM5310	Arsenic/Lead/ Total Chromium SW6010	Hexavalent Chromium SW7196	TAL Metals SW7471	Pesticides SW8081	PCBs SW8082	VOCs SW8260	SVOCs SW8270	Total Cyanide SW9012
SB-119B	9.5	10	SB-119B-003	10/08/05		x			x	x			x	x	x	
	14.5	15	SB-119B-004	10/08/05		x			x	x			x	x	x	
SB-119			*SB-100805-D1*	10/08/05		x			x	x			x	x	x	
SB-11K	0	0.16	SS-11K-001	08/23/05		x			x	x	x		x	x	x	x
	1.5	2	SB-11K-002	08/23/05		x			x	x	x		x	x	x	x
	4.5	5	SB-11K-003	08/23/05		x			x	x	x		x	x	x	x
	23.2	24	SB-11K-004	08/23/05		x			x	x	x		x	x	x	x
SB-12L	0	0.16	SS-12L-001	10/25/05		x	x		x	x	x		x	x	x	
	22.5	23	SB-12L-003	10/25/05		x	x		x	x	x		x	x	x	
	29.5	30	SB-12L-004	10/25/05		x	x		x	x	x		x	x	x	
SB-13M	0	1	SS-13M-001	08/03/05		x	x		x	x	x		x	x	x	x
	1	2	SB-13M-002	08/03/05	x	x	x		x	x	x		x	x	x	x
	11	12	SB-13M-004	08/03/05		x	x		x	x	x		x	x	x	x
SB-14N	0	0.16	SS-14N-001	10/24/05		x	x		x	x			x	x	x	
	0.16	0.5	SB-14N-002	10/24/05		x	x		x	x			x	x	x	
	22.5	23	SB-14N-004	10/24/05		x	x		x	x			x	x	x	
SB-15D	0	0.16	SS-15D-001	10/25/05		x	x		x	x	x		x	x	x	
	7	7.5	SB-15D-003	10/25/05		x	x		x	x	x		x	x	x	
	28.5	29	SB-15D-004	10/25/05		x	x		x	x	x		x	x	x	
SB-16P	0	0.16	SS-16P-001	11/09/05		x			x	x			x	x	x	
	16.5	17	SB-16P-003	11/15/05		x			x	x			x	x	x	
	26	27	SB-16P-004	11/15/05		x			x	x			x	x	x	
SB-17Q	0.3	0.5	SS-17Q-001	12/10/05		x			x	x			x	x	x	
	4	5	SB-17Q-002	12/10/05	x	x			x	x			x	x	x	
	9	10	SB-17Q-003*	12/10/05		x			x	x			x	x	x	
	27	28	SB-17Q-004	12/10/05		x			x	x			x	x	x	
SB-18R	0	0.16	SS-18R-001	11/10/05		x			x	x			x	x	x	
	26	26.5	SB-18R-004	11/18/05		x			x	x			x	x	x	

Notes:

Samples in *italics* are duplicate samples

TABLE 2-4
Summary of Historic and Current NAPL Observations
Quanta Resources Site
Edgewater, New Jersey

Well Name	NAPL Thickness (feet)				
	RSI Report, (GeoSyntec, 2000)		CH2M HILL Remedial Investigation Field Notes		
	Phase I Investigation (November 1998)	Phase II Investigation (June 1999)	NAPL Measurement Event (10/18/05 & 10/20/05)	Fall 2005 Groundwater Sampling (11/14/05-12/30/05)	Synoptic Water Level and NAPL Measurements (12/30/05)
Shallow Groundwater Wells					
MW-101	ND	ND	ND	NM	ND
MW-102	ND	Yes^	0.75	1.50	1.50
MW-102A	N/A	N/A	4.0	4.0	6.50
MW-102B	N/A	N/A	0.10	0.10	0.10
MW-103	ND	Yes^	0.50	1.0	0.65
MW-103A	N/A	N/A	0.16	ND	ND
MW-104*	Yes^	4.0	N/A*	N/A*	N/A*
MW-104R	N/A	N/A	0.25	NM	0.60
MW-105	N/A	0.1	2.70	0.50	5.90
MW-105A	N/A	N/A	ND	0.1	ND
MW-106	N/A	ND	NM	ND	ND
MW-106A	N/A	N/A	N/A	ND	ND
MW-107	N/A	ND	N/A	4.0	3.80
MW-107A	N/A	N/A	N/A	ND	ND
MW-108	N/A	ND	NM	ND	NM
MW-109	N/A	ND	NM	ND	ND
MW-109A	N/A	N/A	N/A	ND	ND
MW-111A	N/A	N/A	ND	ND	ND
MW-111B	N/A	N/A	ND	ND	ND
MW-112A	N/A	N/A	0.10	ND	0.20
MW-112B	N/A	N/A	2.00	2.50	1.8
MW-113A	N/A	N/A	ND	ND	ND
MW-113B	N/A	N/A	ND	ND	ND
MW-113C	N/A	N/A	N/A	ND	ND
MW-116A	N/A	N/A	0.10	0.10	0.20
MW-116B	N/A	N/A	2.55	0.15	6.9
MW-117A	N/A	N/A	0.16	0.9	0.35
MW-117B	N/A	N/A	ND	ND	ND
MW-118A	N/A	N/A	ND	ND	ND
MW-118B	N/A	N/A	0.10	0.03	0.10
MW-119A	N/A	N/A	NM	ND	ND
MW-119B	N/A	N/A	NM	ND	ND
MW-120A	N/A	N/A	N/A	ND	ND
MW-120B	N/A	N/A	N/A	ND	ND
MW-122A	N/A	N/A	N/A	ND	ND
Deep Sand Unit Wells					
MW-101DS	N/A	N/A	ND	ND	ND
MW-103DS	N/A	N/A	ND	ND	ND
MW-107DS	N/A	N/A	N/A	ND	ND
MW-116DS	N/A	N/A	ND	ND	ND

Notes:
* - Monitoring well was destroyed
^ - NAPL thickness not provided in the RSI Report (GeoSyntec, 2000)
N/A - Not applicable: monitoring well not installed prior to NAPL observation event
ND - No NAPL detected
NM - Not measured
All thicknesses are measured in feet.

TABLE 2-5
Summary of Laboratory Analyses for Groundwater and Surface Water, Fall 2005
Quanta Resources Site
Edgewater, New Jersey

Location ID	Field Sample ID	Date Sampled	Ammonia E350_2	Arsenic/ Lead SW6020	Pesticides SW8081	PCBs SW8082	VOCs SW8260	SVOCs SW8270
MW-101A	MW-101A-111705	11/17/05	x	x	x	x	x	x
MW-101DS	MW-101DS-111705	11/17/05		x		x	x	x
MW-102	MW-102-111505	11/15/05		x		x	x	x
MW-102A	MW-102A-111805	11/18/05		x		x	x	x
MW-102B	MW-102B-111505	11/15/05		x		x	x	x
MW-103	MW-103-111805	11/18/05		x	x	x	x	x
MW-103A	MW-103A-111705	11/17/05		x	x	x	x	x
MW-103DS	MW-103DS-111705	11/17/05		x		x	x	x
MW-105A	MW-105-112105	11/21/05		x		x	x	x
MW-105A	MW-105A-112105	11/21/05		x		x	x	x
MW-106	MW-106-120605	12/06/05		x		x	x	x
MW-106A	*DUP-120605-GW*	12/06/05		x		x	x	x
	MW-106A-120605	12/06/05		x		x	x	x
MW-107	MW-107-120605	12/06/05		x		x	x	x
MW-107A	MW-107A-120505	12/05/05		x		x	x	x
MW-108	MW-108-120705	12/07/05		x		x	x	x
MW-109	MW-109-120605	12/06/05		x		x	x	x
MW-111A	MW-111A-111605	11/16/05	x	x	x	x	x	x
MW-111B	*DUP-111605-GW*	11/16/05	x	x	x	x	x	x
	MW-111B-111605	11/16/05	x	x	x	x	x	x
MW-112A	MW-112A-112105	11/21/05	x	x	x	x	x	x
MW-112B	MW-112B-111805	11/18/05	x	x	x	x	x	x
MW-113A	MW-113A-111505	11/15/05		x	x	x	x	x
MW-113B	MW-113B-111505	11/15/05		x	x	x	x	x
MW-116A	*DUP-112205-GW*	11/22/05		x		x	x	x
MW-116A	MW-116A112205	11/22/05		x		x	x	x
MW-116B	MW-116B-112305	11/22/05		x		x	x	x
MW-116DS	MW-116DS-112205	11/22/05		x		x	x	x
MW-117A	MW-117A-112105	11/21/05		x	x	x	x	x
MW-117B	MW-117B-112105	11/21/05		x	x	x	x	x
MW-118A	MW-118A-112105	11/21/05		x		x	x	x
MW-118B	MW-118B-112105	11/21/05		x		x	x	x
MW-119A	MW-119A-120705	12/07/05		x		x	x	x
MW-119B	MW-119B-120705	12/07/05		x		x	x	x
MW-120A	MW-120A-120505	12/05/05		x		x	x	x
MW-120B	MW-120B-120505	12/05/05		x		x	x	x
MW-122A	MW-122A-120505	12/05/05		x		x	x	x
SW-A	30916SW-A-111705	11/17/05	x	x	x	x	x	x
SW-B	30916SW-B-111705	11/17/05	x	x	x	x	x	x
SW-C	30916SW-C-111705	11/17/05	x	x	x	x	x	x
	DUP-111705	11/17/05	x	x	x	x	x	x
SW-D	30916SW-D-111705	11/17/05	x	x	x	x	x	x

Notes:
Samples in *italics* are duplicate samples

TABLE 2-6
Summary of Groundwater Quality Field Parameters
Quanta Resources Site
Edgewater, New Jersey

Monitoring Well Name	Date Sampled	Final Measurement Time	Flow Rate (mL/min)	Total Purged Volume (gal)	pH	Conductivity (mS/cm)	Dissolved Oxygen (mg/l)	Temperature (C)	Oxygen Reduction Potential (mV)	Turbidity (NTU)
MW-101A	11/17/2005	10:55	400.0	11.00	6.89	2.03	0.00	16.00	-140.00	17.00
MW-101DS	11/17/2005	9:36	400.0	5.00	7.08	1.26	1.63	15.36	38.00	1.91
MW-102	11/15/2005	16:40	500.0	11.00	6.98	2.50	0.00	18.14	-302.00	10.00
MW-102A	11/18/2005	9:52	400.0	10.25	8.10	1.45	0.00	15.06	-321.00	4.65
MW-102B	11/15/2005	17:50	500.0	16.00	6.25	5.11	0.45	16.75	-268.00	19.0
MW-103	11/18/2005	14:32	400.0	12.00	6.32	1.87	8.00	15.90	-345.00	9.2
MW-103A	11/17/2005	15:22	400.0	8.00	6.95	1.04	0.00	14.14	-314.00	N/A
MW-103DS	11/17/2005	14:10	500.0	7.00	7.51	1.07	0.12	14.22	-37.00	5.7
MW-105	11/21/2005	13:55	200.0	3.75	6.47	0.676	0.26	18.21	-263.00	3.40
MW-105A	11/21/2005	10:00	400.0	4.00	6.65	1.26	0.00	17.83	-281.00	1.50
MW-106	12/6/2005	11:51	400.0	4.00	6.86	3.86	0.00	18.45	-163.00	5.78
MW-106A	12/6/2005	11:45	300.0	4.00	6.48	2.65	0.00	18.13	-132.00	2.32
MW-107	12/6/2005	14:25	300.0	10.50	4.10	3.60	0.00	17.34	146.00	3.22
MW-107A	12/5/2005	9:42	400.0	5.00	7.14	4.44	0.00	16.91	79.00	N/A
MW-107DS	12/30/2005	13:22	400.0	9.50	9.00	1.10	0.00	13.30	-48.00	320.00
MW-108	12/7/2005	13:25	350.0	8.00	6.71	3.73	0.00	20.23	-147.00	22.10
MW-109	12/6/2005	16:28	Variable	2.50	6.33	19.70	6.64	15.52	-90.00	23.40
MW-109A	12/30/2005	15:17	350.0	2.50	7.43	3.78	2.64	9.60	-19.00	1.60
MW-111A	11/16/2005	14:30	400.0	9.00	6.68	3.67	0.73	9.51	-195.00	3.90
MW-111B	11/16/2005	11:43	400.0	2.00	6.40	3.31	0.00	21.60	-155.00	1.59
MW-112A	11/18/2005	14:55	100.0	4.70	10.26	3.50	1.04	18.88	-540.00	100.00
MW-112B	11/18/2005	10:50	500.0	8.00	6.22	6.16	0.01	19.87	-354.00	1.60
MW-113A	11/15/2005	10:07	450.0	5.00	6.51	3.38	0.0	18.4	-114.0	3.1
MW-113B	11/15/2005	12:15	500.0	7.50	4.64	3.39	0.0	18.8	156.0	12.1
MW-113C	12/30/2005	11:20	300.0	9.00	4.22	3.64	0.0	13.6	180.0	7.1
MW-116A	11/22/2005	13:06	500.0	7.00	6.73	0.492	0.39	16.92	-377	3.7
MW-116B	11/23/2005	10:11	400.0	5.50	6.82	1.06	1.48	14.79	-179.00	15.00
MW-116DS	11/22/2005	14:40	400.0	3.50	7.32	1.85	0.00	15.22	-391.00	8.20
MW-117A	11/21/2005	15:21	400.0	7.70	4.51	0.426	0.04	16.27	-204.00	0.71
MW-117B	11/21/2005	15:51	400.0	3.00	6.69	0.545	0.30	17.02	-160.00	2.03
MW-118A	11/21/2005	12:22	400.0	5.50	6.61	1.19	0.48	17.07	-206.00	0.00
MW-118B	11/21/2005	11:04	400.0	4.50	6.47	0.587	0.26	17.87	-133.00	0.94
MW-119A	12/7/2005	8:32	300.0	4.50	6.47	4.06	0.00	17.80	-139.00	-2.01
MW-119B	12/7/2005	8:05	300.0	9.50	6.95	5.50	0.00	18.75	-277.00	2.98
MW-120A	12/5/2005	14:42	400.0	4.00	11.15	4.33	0.00	17.85	-134.00	N/A
MW-120B	12/5/2005	14:45	300.0	5.50	6.93	18.9	0.00	18.17	-333.00	N/A
MW-122A	12/5/2005	10:45	300.0	12.5	5.01	3.61	0.00	16.10	33.00	N/A
SW-A*	11/17/2005	8:45	N/A	N/A	5.46	0.432	11.05	9.80	-186.00	N/A
SW-B*	11/17/2005	9:30	N/A	N/A	6.35	0.251	12.06	10.52	-255.00	N/A
SW-C*	11/17/2005	10:51	N/A	N/A	7.15	0.266	11.52	12.35	-230.00	N/A
SW-D*	11/17/2005	11:52	N/A	N/A	7.78	0.037	10.93	12.33	-250.00	N/A

Notes:
mL/min - milliliters per minute
mS/cm - milliSiemens per centimeter
NTU - Nephelometric turbidity unit
mV - millivolt
N/A - Not applicable
* - Surface water samples from seasonal standing water

Section 3

SECTION 3

Laboratory Data Usability

3.1 Historic Analytical Data

Historical data for this site was obtained and evaluated for usability. Two criteria were used for judging usability. First, laboratory reports (if available) were evaluated. Data supported by laboratory quality control data were considered usable and of known quality unless the review of the data revealed a reason to reject the data due to quality control issues. Second, data was considered usable if no laboratory quality control data was available, but the data had been reported previously to and reviewed by USEPA.

3.2 RI Analytical Data

All analytical data collected to date has been validated following the process outlined in the QAPP. The review of the analytical data was performed in accordance with USEPA National Functional Guidelines and SW846 methodology. Thirteen soil sample delivery groups and seven water sample delivery groups were evaluated.

Soil samples were analyzed for the following: VOCs by EPA SW846 Method 8260B, SVOCs by SW846 Method 8270C, Pesticides by SW846 Method 8081B, PCBs by SW846 Method 8082, metals by SW846 Method 6010B, and hexavalent chromium by SW846 Method 7196.

Water samples were analyzed for the following: VOCs by SW846 Method 8260B, SVOCs by SW846 Method 8270C, Pesticides by SW846 Method 8081B, PCBs by SW846 Method 8082, metals by SW846 Method 6020, and ammonia by USEPA Method 350.2.

Quality control criteria that were evaluated for all samples include the following as appropriate for each analytical method: laboratory blanks, field blanks, field duplicates, laboratory duplicates, laboratory control samples, matrix spikes and matrix spike duplicates (MS/MSDs), initial and continuing calibrations, instrument tuning, internal standards, surrogates, confirmation, degradation, holding times, and sample preservation.

An overall evaluation of the data indicates that the sample handling, shipment, and analytical procedures have been adequately completed, and that the analytical results should be considered accurate. The analytical data had minor quality control concerns; however, it did not affect data usability for those specific results. The validation review demonstrated that the analytical systems were generally in control and the data results can be used in the decision making process. Data management procedures included the phases described below.

3.3 Data Collection and Tracking

The data collection and data-tracking phase includes the following:

- Preparing all sample bottle labels and chain-of-custody forms

- Documenting all required data in the field log book
- Performing daily data entry of the sampling information into the sample tracking system and the field data electronic data deliverable (EDD) templates
- Entering survey data into the appropriate field data EDD template
- Quality assurance/quality control reviews of all data entry
- Comparing all chain-of-custody forms to the sampling event's project instructions

3.4 Laboratory Analysis

The laboratory analysis phase includes the following:

- Regular communication between the laboratory and the project chemist
- Reviewing the laboratory's sample receipt acknowledgement form
- Documenting the project's progress in the sample tracking system
- Laboratory preparation of the Honeywell EIM EDD specifications and producing error-free EDDs using the EDD Checker provided by Locus
- Submission of the preliminary data and hardcopy reports to CH2M HILL for data loading, verification, and validation

3.5 EDD Verification

The EDD verification phase includes the following:

- Running the EDDs through the EIM "Input" module to verify correct format and that the laboratory meets valid values and data integrity
- Comparing the chain-of-custody forms to the hardcopy–EDD content
- Performing a 100 percent hardcopy–EDD comparison for all detected results and a 10 percent random full sample/method verification
- Resolving hardcopy–EDD discrepancies with the laboratory
- Recording all data error issues (EDD resubmissions, turnaround time problems, hardcopy incomplete) into the sample tracking system or designated sample tracking form

3.6 Data Loading

The data loading phase includes the following:

- Loading all field data EDDs into the database
- Loading verified EDD into the project database

- Resolving any data loading issues
- Creating a post load report for content review
- Notifying the project chemist when EDDs are available in EIM for validation

3.7 Data Verification and Validation

The data verification/validation phase includes the following:

- Verifying and validating data according to project specifications and QAPP
- Inserting appropriate data qualification flags and final results into the database as required by the validation level
- Rejecting or excluding those results that are redundant or unusable duplicates
- Generating a data verification/validation report
- Submitting the report to the project database manager, field team leader, and project files

As indicated in the OU1 RI/FS Work Plan (Parsons, 2005), results of the data validation for all RI data will be summarized in an appendix to the RI report.

3.8 Data Visualization and Analysis

The data visualization and analysis phase includes the initial data review by the project team and the production of data queries and draft reports to dissect and digest the data. This phase was accomplished through the use of query tools and preformatted reports in EIM.

Section 4

SECTION 4

Results and Preliminary Evaluation

The following subsections present a preliminary evaluation of data collected as part of RI/FS activities completed to date. The preliminary assessment of these data was performed in the context of historic data for the Site and surrounding properties when available.

4.1 Geologic and Hydrogeologic Evaluations

4.1.1 Site Geology

The native estuarine and salt marsh deposits overlying bedrock at the Site consist of 5 to 10 ft of fine to medium grained well-sorted sand (deep sand unit), followed by 10 to 20 ft of soft silt and clay that contains traces of roots, and shell fragments (confining unit), overlain by 5 to 10 ft of medium to coarse poorly sorted sand. There are discontinuous peat and sand layers observed in the western portion of the Site east of River Road. The marsh and riverine deposits pinch out to the west near River Road. The non-native fill overlying the native soils is present throughout the Site and surrounding properties and consists of a mixture of gravel, sand, and silt with cinder/slag material, brick, wood, and concrete fragments (CH2M HILL, 2005). The USDA (1995) classifies the soils at the Site as Urban Lands. A wooden bulkhead separates the upland OU1 portion of the Site from the Hudson River (OU2) portion of the Site. Geologic cross-sections of the Site are provided as Figures 4-1, 4-2, and 4-3.

A tidally influenced mud flat/marsh associated with the Hudson River borders OU1 to the east. These river sediments consist of silt to clayey silt approximately 45 ft thick immediately east of the bulkhead; these sediments thicken eastward to approximately 250 ft thick beneath the main channel of the river (Parsons, 2005). These mud flats are exposed to approximately 500 ft from shore during low tide and are flooded under approximately 6.5 ft of river water during high tide.

4.1.2 Site Hydrogeology

Three distinct hydrostratigraphic units exist at the Site above the bedrock surface. The shallowest unit consists of an unconfined, surficial water-bearing zone extending from the water table (about 4 ft bgs) to approximately 15 to 20 ft bgs. This unit is underlain by a silty clay aquitard approximately 10 to 20 ft thick. Last, a confined water-bearing "deep sand" unit exists between the aquitard (confining u-nit) and the bedrock surface. This deep sand unit is about 5 to 10 ft thick and extends to at the bedrock surface, which is about 30 to 60 ft bgs. In some places at OU1, the potentiometric surface of this water-bearing zone is approximately 1 to 3 ft higher than the unconfined water table unit (e.g., upward vertical hydraulic gradients). The silty clay aquitard has a measured hydraulic conductivity of 0.0001 ft/day at 15 to 17 ft at MW-108 (GeoSyntec, 2001).

4.2 Hydraulic Conductivity Testing

Interpretations of the hydraulic conductivity tests were made using the Bouwer and Rice (1976) method. Detailed graphs and interpretations of these tests are presented in Appendix D, and these data are summarized in Table 4-1.

4.2.1 Shallow Groundwater Hydrostratigraphic Unit

Results of the hydraulic conductivity tests conducted at 26 monitoring wells screened in the shallow hydrostratigraphic unit indicate that monitoring wells screened across the water table (A wells) have a range of hydraulic conductivity values of between 8 and 239 ft/day, with a geometric mean of 51 ft/day. The 15 tested monitoring wells screened at the base of the shallow hydrostratigraphic unit (B wells) have a range of values from 2 to 51 ft/day, with a geometric mean of 9 ft/day. The decrease in hydraulic conductivity with depth in the shallow hydrostratigraphic unit is consistent with changes in geology observed during the soil boring and monitoring well installation program.

4.2.2 Deep Sand Hydrostratigraphic Unit

Results of the hydraulic conductivity tests conducted in the deep hydrostratigraphic unit indicate that monitoring wells have a range in hydraulic conductivities of 5 to 19 ft/day with a geometric mean of 8 ft/day.

4.3 Tidal Study Results

Hydrographs for the shallow and deep sand unit monitoring wells monitored during the tidal study are provided as Figures 4-4 and 4-5, respectively. Tidal influences on the shallow and deep hydrostratigraphic units decrease westward from the Hudson River. Typically, there are small changes in groundwater elevations in monitoring wells at the northwestern portion of the Quanta Resources property, compared to larger changes in monitoring wells at the southeastern portion of the property (Appendix D). However, wells along the border of the Quanta Resources property and the Hudson River (MW-116, MW-117, MW-118, MW-105) do not appear to be nearly as tidally influenced as those along the river to the south at 115 River Road, LLC and Lever Brothers. This lack of response is likely a result of the presence of the wooden bulkhead in this area that appears to be acting as a hydraulic boundary between the river and the shallow groundwater.

The groundwater flow direction remains consistent between tidal events; however, the hydraulic gradient is slightly steeper during low tide conditions due to the larger change in groundwater elevations in downgradient monitoring wells. In addition, monitoring wells in the deep hydrostratigraphic unit are more heavily influenced by tidal conditions than monitoring wells in the shallow hydrostratigraphic unit. The shallow hydrostratigraphic unit may be less sensitive to tidal influences due to the presence of the wooden bulkhead on the banks of the Hudson River along the eastern portion of the Quanta Resources property. Evaluations of the both the horizontal and vertical hydraulic gradients during low and high tide scenarios are discussed below in Section 4.4.

4.4 Groundwater Flow Direction

A synoptic water level elevation survey was conducted at 38 monitoring wells on December 30, 2005. During this survey, depth-to-groundwater measurements were recorded in shallow and deep monitoring wells during low- and high-tide conditions. The results of these events are summarized in Tables 4-3 and 4-4. In the shallow hydrostratigraphic unit, the highest groundwater elevations occur at the northwestern portion of the Quanta Resources property. Shallow groundwater flow direction was mapped using wells screened across the water table and is presented in Figure 4-6. The direction of the shallow groundwater is predominately to the southeast, under a hydraulic gradient of 0.0064 ft/ft) during low-tide conditions and 0.0062 ft/ft during high-tide conditions. Groundwater flow direction does appear to have a significantly southerly component as a slight mounding of groundwater is occurring in the western and central portions of the Quanta Resources property and, in turn flow is forced more to the south in this area. This is likely a result of increased localized recharge in this area. Since groundwater flow directions did not significantly change between low- and high-tide events, a groundwater elevation contour map was prepared to illustrate the groundwater flow conditions only during low tide.

As in the shallow hydrostratigraphic unit, the highest groundwater elevations in the deep hydrostratigraphic unit are in the northwest. Groundwater flow direction was mapped using only those wells screened within the deep sand unit across and is presented in Figure 4-7. Groundwater flow direction is also predominately to the southeast, under a hydraulic gradient of 0.0012 ft/ft during low-tide conditions and 0.0005 ft/ft during high-tide conditions. Similarly to the shallow groundwater, flow directions did not significantly change between low- and high-tide events, a so a groundwater elevation contour map was prepared only for low tide conditions.

Using Darcy's equation, average linear groundwater flow velocities were calculated in the shallow hydrostratigraphic unit using the geometric means of the A and B wells and assumed effective porosity of 25 percent. In the shallow hydrostratigraphic unit, assuming an effective porosity of 25 percent, the calculated seepage velocity was 1.3 ft/day during low and high tide conditions. Average linear flow velocities were calculated in the deep hydrostratigraphic unit using an average hydraulic conductivity of 9 ft/day and an effective porosity assumption of 25 percent. The calculated average linear velocities in the deep hydrostratigraphic unit were 0.04 and 0.02 ft/day during low and high tide, respectively.

Vertical hydraulic gradients were calculated both with in the shallow unconfined groundwater zone and between deep sand unit and the shallow unconfined groundwater zone (across the aquitard). Results of these calculations are summarized in Table 4-5 and are illustrated on the cross-sections shown as Figures 4-2 and 4-3. Vertical hydraulic gradients in the shallow groundwater to the west of the Site are downward. As might be expected, the direction of the vertical component of groundwater flow in the shallow groundwater shifts upward to the east, nearer the river. However, the presence of the wooden bulkhead at the foot of the Quanta Resources property creates a hydraulic barrier that allows groundwater to mound in this portion of the Site and causes the vertical hydraulic gradients to remain downward in close proximity to the Hudson River. Further to the south along the river where the wooden bulkhead is absent, vertical hydraulic gradients in well couplets adjacent to the river shift upward. Several of the wells here also have vertical hydraulic

gradients that are tidally influenced, and shift downward during high tide. This is not observed in wells adjacent to the wooden bulkhead. Shallow groundwater flow directions do not appear to be influenced by any additional subsurface structures present at the Site.

In the deep sand unit hydraulic heads are consistently higher than those observed in collocated wells screened at the base of the unconfined shallow groundwater zone. These vertical hydraulic gradients remain upward across both high and low tide conditions. The presence of upward vertical hydraulic gradients across the shallow saturated zone and deep sand units and differing groundwater flow directions in both, confirms that that the two hydrostratigraphic units are not hydraulically connected.

4.5 Indoor Air

In January 2001, NJDOHSS reported that based on limited air and soil sample data from the Palisades Child Care Center, no health concern was present at that facility (NJDOHSS, 2002).

In April 2005, indoor air samples were collected by Environmental Waste Management Associates, LLC (EWMA, 2005), on behalf of the property owner in the Palisades Child Care Center, located in the office building on the 115 River Road, LLC property south of the Quanta Resources property. Twenty-four-hour average air samples were collected using evacuated stainless steel SUMMA canisters. Four indoor air samples were collected from within the child care center. One indoor air sample was collected from a location near the entrance to the center. Two air samples were collected from the roof of the building. All of these samples were analyzed using EPA Method TO-15. The analytical results are presented by EWMA (2005). Benzene, toluene, ethylbenzene, and xylene (BTEX), along with other VOCs (dichlorodifluoromethane, methyl isobutyl ketone, methyl-tert-butyl ether, and n-hexane) were detected in at least one air sample. The origin of the detected concentrations in air was not identified.

As requested by USEPA and NJDEP, a Vapor Intrusion Evaluation Work Plan (CH2M HILL, 2006), prepared consistent with both USEPA and NJDEP guidance, was submitted to the agencies on January 25, 2006. The Work Plan proposes collection and analysis of indoor air samples within the office building on the 115 River Road, LLC property (including the child care center), soil vapor samples below and adjacent to the building foundation, and background air samples.

4.6 Subsurface Utility Preferential Pathways

The nature and extent of subsurface features at the Site including active/inactive utilities, process lines, and conduits was investigated and documented in the RSI report (GeoSyntec, 2000). The results of this geophysical survey conducted during the RSI were plotted and used to guide test trenching activities. As part of the RSI test trenching activities various small-anomalies were identified around the Quanta Resources and the Edgewater Enterprises property. These features seem appeared to extend for only a few feet before terminating and were indicative of buried metallic objects and reinforced concrete. A subsurface anomaly was identified with the RD4000DF Receiver Pipe and Cable Locator in the vicinity of borings SB-12 and SB-15. An 18-in.-diameter metallic pipe was identified and tracked for approximately

190 ft trending eastward towards the Hudson River. The feature terminates approximately 325 ft west of the bulkhead. Historically, this pipe was thought to extend to the Hudson River; however, the section that extended to the river may have been removed during a past removal action.

As part of the RI activities additional work was performed to augment GeoSyntec's subsurface utility investigation. Figure 4-8 depicts the approximate locations of subsurface utilities and potential preferential pathways that have been identified to date, and Appendix E presents a memorandum describing the complete results of the most recent preferential pathway survey. Brief descriptions of some of the key results related to this work are described below.

One 8-in. pipe was observed approximately 40 ft from the Hudson River to the west of the concrete pier, which forms the boundary between OU1 and the Hudson River. Additional 8-in. water pipes may connect the existing fire hydrants although no direct observations of these pipes were achieved during the field survey.

A motor boat, flashlight, and mirror (to redirect natural light), were used to observe three utility pipes located beneath the concrete pier. On the north side of the waterfront on the Quanta Resources property, underneath the concrete pier, a 36-in. pipe was observed. Much of the pipe was covered with sediment which appears to terminate at an unknown distance east of the concrete pier. This 36-in. pipe was observed from the surface of the concrete pier through a metal grate. An adjacent pipe (8-in. diameter) running parallel to the large pipe that rises from beneath the pier to the surface of the pier was also observed in this vicinity. A third pipe (8 to 10-inch diameter) was observed beneath the concrete pier near the northern extent of the Site. The termination of this pipe was unable to be located during the field survey.

Towards the south edge of the property (south of the concrete pier), two 8-in.-diameter pipes spaced approximately 1 ft apart were observed rising from the subsurface to the underside of the dilapidated wooden pier. It was unclear if the pipes were discharging from the Quanta Resources property or are a component of the pier's construction. Both pipes were composed of steel and were open ended. An aboveground concrete trough was also observed in the vicinity of the two 8-inch pipes. Approximately 20 ft southeast of the concrete trough a 4-inch steel pipe was observed emanating from below the parking lot the 115 River Road property onto the tidal mudflat of the Hudson River. Additional information on the procedures and findings associated with this survey are provided in Appendix E. To date, no information has been provided by the Town of Edgewater, New Jersey regarding municipally controlled subsurface utilities running between River Road and the Hudson River. Additional efforts are underway to obtain this information from the Town and any newly acquired information will be incorporated into the RI Report for the Site. Figure 4-8 depicts the approximate locations of subsurface utilities and potential preferential pathways, and Appendix E presents a memorandum describing the complete results of the preferential pathway survey.

4.7 Soil Results

4.7.1 Soil Constituents of Interest

For the purpose of evaluating the soil data collected as part of the RI/FS, laboratory results for all chemical constituents were screened against the following soil criteria:

- New Jersey Residential Soil Cleanup Criteria
- New Jersey Non-Residential Soil Cleanup Criteria
- New Jersey Impact to Groundwater Soil Cleanup Criteria
- USEPA Region 9 Industrial Soil Preliminary Soil Remediation Goals (PRGs)
- USEPA Region 9 Residential Soil PRGs

In accordance with the RI/FS Work Plan (Parsons, 2005), the most recent RI/FS soil data were compared to the lower value of the soil five screening criteria shown above. Those compounds for which there was an exceedance of the lowest soil criteria were considered COIs in soil for the purpose of this preliminary assessment. Tables 4-2a, 4-2b, and 4-2c list the COIs in soil and summarize the results for each for RI/FS samples collected at the Quanta Resources property, West of River Road and South of the Quanta Resources property, respectively. Laboratory analytical results tables for all RI/FS soil samples analyzed for these constituents are provided in Appendix F. Complete lab reports for soil are included in the Lab Reports attachment to this report.

The COIs provided in Tables 4-2a through 4-2c consist of a number of SVOCs (predominantly PAHs), VOCs (benzene, ethylbenzene, and xylenes), lead, and arsenic. In addition, a limited number of low level detections of chlorinated solvents (trichloroethylene [TCE], tetrachloroethylene [PCE] and vinyl chloride) and some low level PCBs in excess of the lower of the PRGs and NJSCC were observed during the RI/FS sampling. Exceedances of select metals (antimony, beryllium, iron, and thallium) were also observed. These constituents have also been included in the list of COIs for the purpose of the preliminary assessment.

Based on the combined historic and RI soil data set, the constituents identified in Tables 4-2a through 4-2c represent COIs in soil for the Site. Constituents that were previously identified as "commonly detected compounds" in the May 2005 RI/FS Work Plan and are no longer considered COIs in soil include toluene and chromium. The RI/FS Work Plan indicated that only one of 128 historical samples for chromium collected from the Lever Brothers property and one of 36 samples for toluene had exceeded a USEPA PRG or NJSCC. Neither of these constituents was detected in soil above their applicable screening criteria during the most recent RI soil sampling. The final list of constituents of concern (COCs) will be derived from the results of the complete RI, including risk evaluations, and will represent the appropriate constituents for consideration of ARARs and remedial action objectives.

4.7.2 Nature and Extent of Soil COIs

For the purpose of the preliminary assessment the evaluation of the nature and extent of COIs in soil was performed in consideration of available historical data for the Site.

SVOCs

Unsaturated and Unconfined Saturated Zone Deposits. Consistent with previous soil sampling events in and around the Site, soil samples collected during RI/FS activities indicate the presence of PAHs in both unsaturated and saturated deposits. Across the entire sampling area, PAHs were detected in approximately 90 percent of the soil samples collected. With detections in almost all the samples collected from the fill, silty sand, and the upper 2 ft of the silty clay confining units that make up the vadose zone and unconfined saturated deposits beneath the Site. Samples collected from the top of the confining layer deposits consisting of silty clay were found in general to have lower concentrations than those found in the fill.

Figures 4-9 and 4-10 depict benzo(a)pyrene concentrations to illustrate the lateral distribution of PAHs in both unsaturated zone soils and saturated zone soils, respectively. Both figures show screening criteria exceedances of this constituent which is typical of most PAHs found at and beyond the Site. The presence of significant thicknesses of urban fill in both the saturated and unsaturated zone soils throughout this area is likely the reason for this distribution of screening criteria exceedances. Concentrations of benzo(a)pyrene up to two orders of magnitude greater than those seen to the north and south of the Site are observed in both the unsaturated and saturated zone soils at OU1. These elevated concentrations extend as far west as boring SB-11K (immediately west of River Road) and in various locations across OU1 (Figures 4-9 and 4-10). One or more PAHs were detected in 98 percent of the samples analyzed from the Quanta Resources property.

Naphthalene, which is a lighter end PAH and not typically found at elevated concentrations in urban fill deposits, had a different distribution from those PAHs commonly detected in urban fill. Figures 4-11 and 4-12 illustrate the distribution of naphthalene in unsaturated and saturated zone soils, respectively. In the unsaturated deposits, elevated concentrations up to five orders of magnitude greater than those seen at the adjacent properties to the north, south, and west are again found within the boundary of the Quanta Resources property. Elevated concentrations of naphthalene in unsaturated soil where concentrations range from 2,600 to 10,000 mg/kg are found in the vicinity of MW-112A, SB-06F, and SB-03C between 0 and 4 ft bgs. Figure 4-12 illustrates the distribution of naphthalene concentrations in saturated soil. Here the majority of exceedances and highest concentrations are found along the southern and western borders of the Quanta Resources property where concentrations range from 890 mg/kg at SB-01A to 5,800 mg/kg at boring SB-08H. Additional exceedances of screening criteria of naphthalene in saturated soil appear to be concentrated along the northern border of the Quanta Resources property and the southernmost portion of the Edgewater Enterprises property. The distribution of naphthalene in saturated zone soils is likely governed by this constituent's presence in groundwater, both in the dissolved phase and as a constituent of a multicomponent NAPL present in the saturated deposits.

Other SVOCs found in soil samples collected during the RI activities include phenols (phenol, 2-methylphenol, 4-methylphenol, 2,4-dimethylphenol). Like naphthalene, these lighter SVOC compounds are not typically found in urban fill soils. Figures 4-13 and 4-14 show the distribution of the 2,4-dimethylphenol (heavier and most prevalent of the phenols) in unsaturated and saturated zone soils in and around the Site. Detections of this compound in the unsaturated zone soils are limited to the Quanta Resources property in the areas of borings SB-112A (1.8–2.0 ft bgs) and SB-03C (3.5–4.0 ft bgs) where they were detected at

concentrations of 120 and 340 mg/kg, respectively. Figure 4-14 shows the results for 2,4-dimethylphenol in the saturated deposits. Here impacts appear to be slightly more widespread and hydraulically downgradient (to the south and west) of where this constituent was seen in the unsaturated zone soils (SB-09I, SB-02B, SB-116B and SB-117B). Soil at SB-11K (west of River Road) also shows an exceedance of the screening criteria for this constituent. This sample was collected at the water table at a depth of 4.5 to 5.0 ft bgs and might be more representative of unsaturated zone soils.

Although phenols were not found to be a major component of the NAPL and are not widespread in soil, they are relatively soluble (0.1–8.28 g/mL) SVOCs and appear to be impacting groundwater (see Section 4.8). Like naphthalene, the distribution of this constituent in the saturated zone soils is best understood by evaluating the distribution of dissolved phase constituents in groundwater.

SVOCs in the unsaturated soil appear to have been delineated to levels that are consistent with what is expected to be present in urban fill. The extent of SVOCs in saturated deposits is controlled by the presence of NAPL and dissolved phase SVOCs in groundwater and have not been defined to the southeast.

Saturated Zone Deep Sand Unit. Three samples were collected from the deep sand unit, at SB-101DS, SB-103DS, and SB-107DS. No exceedances of any SVOCs as tested were observed in theses samples. With the exception of low levels of PAHs as well as bis(2-ethylhexyl)phthalate in the sample collected from SB-103DS, SVOCs were not detected in the deep sand deposits above laboratory method detection limits.

VOCs

Unsaturated and Unconfined Zone Saturated Deposits. Consistent with prior sampling events, benzene, ethylbenzene, and xylene were detected in both saturated and unsaturated zone soils in and around the Site. One or more of these constituents were detected in 83 percent of the samples collected at the Quanta Resources property with detections to the south at the Lever Brothers property and west of River Road at a lesser frequency of 53 percent of the samples analyzed. Of these constituents, benzene in soils was found to exceed the lower of the applicable PRG and NJSCC criteria in a greater number of samples (21) than ethylbenzene (1) and xylenes (5). In order to understand the distribution of these constituents in soil, historical soil-sampling results in addition to the most recent RI data for benzene have been plotted for unsaturated and saturated zone soils in Figures 4-15 and 4-16, respectively.

The distribution of benzene in unsaturated zone soils appears to be similar to that of naphthalene. Figure 4-15 shows exceedances of this constituent in unsaturated zone soils ranging between 4.6 mg/kg at SB-112A and 1 mg/kg at boring SB-06F. These concentrations are limited to within the Quanta Resources property boundary.

The distribution of saturated zone soils sampling results for benzene is also similar to that for naphthalene. Exceedances here are more widespread and appear to extend past the boundary of the former Quanta Resources property to the east and west and as far south as borings SB-107DS and SB-16P. As with naphthalene, additional exceedances of screening criteria for benzene in saturated zone soils appear to be concentrated on the northern border of the Quanta Resources property and the southernmost portion of the Edgewater

Enterprises property. It is unclear whether the source of the benzene impacts in the northern portion of the Quanta Resources property are a result of a source or former source related to historical operations at the property; however, historical borings in this area appear to have bound the extent of these exceedances to the north and in most cases, the extent of detectable concentrations of benzene.

Several chlorinated VOCs were also detected in eight of the 106 soil samples collected during the RI/FS. All chlorinated VOCs detections across the entire study area were of PCE, TCE, and their related break-down products (cis-1,2-dichloroethene [DCE] and vinyl chloride). No sources of these constituents have been identified. The highest concentration of any chlorinated compound was for PCE, which was found in the surficial soil at SB-102B at a concentration of 0.52 mg/kg. Other low concentrations of PCE or TCE in the unsaturated zone soils were found on the 115 River Road, LLC property at SB-17Q, SB-09I, and SB-116. A sample collected directly above the water table at the Lever Brothers property (SB-120B) had low levels of all four of the chlorinated compounds discussed above. No VOCs as tested were detected in additional samples collected above and below this sample at this location. No chlorinated VOCs as tested in soil samples collected from the unconfined saturated deposits were detected above the laboratory method detection limits. The presence of low levels of chlorinated solvents in soil are not likely related to the historic operations at the former Quanta Resources property

Like SVOCs, coal tar-related VOCs in the unsaturated soil appear to have been delineated to a large degree The extent of coal tar related VOCs in saturated deposits are controlled by the presence of NAPL and dissolved phase VOCs in groundwater and have not been defined to the southeast.

Saturated Zone Deep Sand Unit. Three samples were collected from the deep sand deposits at SB-101DS, SB-103DS, and SB-107DS. No screening criteria exceedances of any VOCs as tested were observed in theses samples. VOCs that were detected in the deep sand unit samples included several VOCs (ethylbenzene, toluene, and xylene) at SB-103DS and low levels of TCE at SB-103DS and SB-101DS. All other VOCs as tested for in the deep sand samples were below the laboratory method detection limits.

Metals

Unsaturated and Unconfined Saturated Zone Deposits. Consistent with prior sampling events, certain metals (antimony, arsenic, beryllium, iron, lead, and thallium) were detected in both unsaturated and saturated zone soils samples in the vicinity of the Quanta Resources property at concentrations in excess of the lower of USEPA Region 9 PRGs and NJSCC. In accordance with the RI/FS Work Plan USEPA, Target Analyte List (TAL) metals were only analyzed for those samples collected west of River Road with the exception of samples collected from borings SB-111A and SB-101DS. Sixteen samples were collected in this portion of the Site. Additional sampling of lead, arsenic, chromium, and hexavalent chromium was performed across the remainder of the Site.

Results of the TAL analyses performed on samples collected west of River Road indicated exceedances of the screening criteria for antimony, beryllium, iron, and thallium. These constituents had not previously been identified as COIs for the Site; however, they likely result from the presence of the urban fill deposits that dominate the area. The highest

concentrations of these metals were found near borings SB-11K and SB-13M. However, upgradient boring SB-15D, on the west side of River Road across from the southern portion of the Edgewater Enterprises property, also had elevated concentrations of these metals in a sample collected from fill deposits in the vicinity of the water table. The presence of elevated concentrations in this portion of the Edgewater Enterprises property (borings C-79 and C-80) has previously been documented and defined to the south and east. Although typical values of these constituents for historic fill material are not presented in NJAC, 2005, 7:26E-4.6, these metals have been documented to be present within the soil in urban Piedmont environments in New Jersey and are likely a result of the presence of urban fill (Sanders, 2003).

The highest concentrations of lead in the most recent soil data are located in the saturated zone fill deposits at borings south of the Quanta Resources property at the 115 River Road, LLC property (SB-119B and SB-17Q) and, again, northwest at SB-15D, where concentrations of lead range between 906 and 1,040 mg/kg. Historical data indicate that the highest concentrations are located to the north and upgradient of the property at the Edgewater Enterprises and Lustrelon properties. The highest result for lead observed during the RI/FS was well below the maximum concentration in typical historic fill material (NJAC, 2005, 7:26E-4.6).

The distribution of arsenic in soil samples collected during the RI field activities is consistent with historical data for the Site and surrounding properties, with the exception of a concentration of 913 mg/kg west of the Quanta Resources property in shallow unsaturated zone soils at boring SB-13M. Arsenic was detected in 95 percent of all the soil samples collected during the RI. The distribution of arsenic in unsaturated and saturated zone soils near the Site using current and historical data is illustrated in Figures 4-17 and 4-18, respectively. The presence of arsenic exceedances in both the saturated and unsaturated zone soils at the Site is due at least in part to the documented presence of urban fill throughout the area. In accordance with the RI/FS Work Plan, the data in Figures 4-17 and 4-18 have been compared to a soil screening value of 0.39 mg/kg (the lower of the PRGs and NJSCC). According to the Summary of Target Contaminant Concentrations in Typical Historic Fill Material, the average arsenic concentration in urban fill in New Jersey is 13.15 mg/kg (NJAC, 2005, 7:26E-4.6).

In general, saturated deposits at the Site typically have concentrations of arsenic higher than those found in the shallower unsaturated zone soils. This may be due the presence of reducing geochemical conditions which tend to cause the release of arsenic in soils to groundwater.

The presence of arsenic and lead in both the unsaturated and saturated deposits has been well documented, and it does not appear that a source exists at the Site outside of the urban fill. It is unclear whether the elevated concentrations of arsenic, lead, and other metals north and upgradient at the Edgewater Enterprises property, and those found in shallow soils west of the Quanta Resources property in SB-13M are a result of urban fill.

As noted previously, total chromium was not detected above the lower of the PRG and NJSCC soil criteria (20 mg/kg) in soil samples that were analyzed during the RI. Hexavalent chromium was also not detected in soil samples collected during the RI above 4 mg/kg.

Saturated Deep Sand Unit. With the exception of arsenic, concentrations of metals in samples collected from the deep sand deposits at locations SB-101DS, SB-103DS, and SB-107D were below the applicable screening criteria. Arsenic was detected above the screening standard in each of these samples, at concentrations ranging from 2.5 to 3.9 mg/kg.

PCBs

Unsaturated and Unconfined Saturated Deposits. PCBs, mostly at low levels, were detected in 41 percent of the samples that were analyzed for PCBs. PCBs in unsaturated zone soils in excess of screening criteria are predominantly in a localized, surface area on the western portion of the Site, west of River Road at borings SB-10J, SB-09J, and SB-102B. This is consistent with historical data, which show a PCB concentration of 74 mg/kg in sample QE002, located immediately east of River Road on the Quanta Resources property. Subsequent surficial sampling revealed concentrations ranging from 0.38 to 3.3 mg/kg immediately to the east of the original detection. Based on the most recent results and in consideration of these historical data, low levels of PCBs above soil screening criteria exist in the shallow soil in the western portion of the property. Historical data indicate that these exceedances do not extend further than 50 ft to the south of borings SB-112B and SB-102B (location of clean historic borings QE001 and QE003). Additional shallow unsaturated exceedances were found in the northeast corner of the Quanta Resources property and at the Lever Brothers property in borings SB-116B and SB-18R, respectively.

The only exceedances in the unconfined saturated deposits for PCBs were from two samples collected at the 115 River Road, LLC property from boring SB-01 at depths ranging from 9 to 15 ft bgs. The source of these low-level exceedances (0.37 and 0.51 mg/kg) is unknown. Additional sampling recently conducted in the vicinity of this location may help define a potential source of these detections.

Aroclors 1242, 1248, 1254, and 1260 were all detected above the lower of their respective PRG and NJSCC (0.22 mg/kg). Aroclors 1254 and 1260 were the most frequently identified, detected in 38 percent of the samples for which PCBs were analyzed. Conversely, Aroclors 1242 and 1248 were detected in less than 5 percent of the samples analyzed for PCBs at OU1. Samples collected to the west of River Road and on properties to the south indicated the presence of PCBs in soil slightly more frequently than those collected on the Quanta Resources property.

Saturated Deep Sand Unit. PCBs were detected in one of the three samples collected from the deep sand deposits at locations SB-101DS, SB-103DS, and SB-107D. Specifically, Aroclor 1260 was detected at a concentration of 16 mg/kg at a depth of 47.0 to 47.5 ft bgs in SB-101DS. It is unlikely that the detection of PCBs in saturated soil at this depth is representative of true formation conditions. The reason for the anomalous presence of PCBs in the deep sand unit at this location is not understood at this time.

Ammonia

In accordance with the RI/FS Work Plan, all soil samples in the vicinity of the former 10,000-gallon ammonia tank were sampled for ammonia. Included were samples from locations west of River Road (SB-101DS, SB-111B, and SB-12 through SB-15) in addition to SB-112B. Analytical results for these samples indicated that ammonia was not present in the soil above the laboratory method detection limits.

4.8 Groundwater Evaluation

4.8.1 Groundwater COIs

For the purpose of evaluating the groundwater data collected as part of the RI/FS, laboratory results for all chemical constituents were screened against the higher of the Groundwater Quality Criterion and the Practical Quantitation Limit presented for each constituent in Appendix Table 1 of Chapter 7:9C of the NJAC (2005, Groundwater Quality Standards). For those constituents that do not currently have a groundwater quality criterion, an interim generic groundwater quality criterion was used in accordance with NJAC (2005, section 7:9C-1.7 (C)(6)) groundwater quality standards. The applicable criterion for each constituent will be referred to herein as the groundwater quality criterion (GWQC).

For the purpose of this preliminary assessment, those compounds that were detected in groundwater during the fall 2005 groundwater-sampling event at or above their applicable GWQC have been considered COIs in groundwater. Table 4-6 lists these constituents and indicates the number of exceedances as well as where the highest and lowest concentrations of each constituent were observed. Laboratory analytical results tables for all RI/FS groundwater samples analyzed for these constituents are provided in Appendix G.

The COIs provided presented in Table 4-6 consist of SVOCs (predominantly PAHs), VOCs (BTEX compounds, chlorinated VOCs and styrene), several metals (lead and arsenic), and ammonia. In addition, a limited number of low-level detections of pesticides in excess of the GWQC were observed during the RI sampling.

With the exception of several PAHs (acenaphthene, anthracene, fluorene, and fluoranthene) and chromium, the constituents identified previously for the Site as COIs in Table 3-2 of the RI/FS Work Plan (Parsons, 2005) were included in the current list of COIs in Table 4-6. The Work Plan indicated that the last groundwater-sampling event showed no more than one location for each of these constituents where the Groundwater Quality Criterion was exceeded. Based on the collective data set these constituents were not specifically evaluated for the purpose of this preliminary assessment.

Constituents identified as COIs during this most recent groundwater-sampling event that had not been previously identified in the RI/FS Work Plan include several chlorinated VOCs (1,1-DCE, PCE, and TCE), pesticides, and ammonia. In addition, the VOC nitrobenzene was also detected slightly above its GWQC at one location south of the Quanta Resources property. Although chlorinated organics were detected in deep sand groundwater during RI activities at concentrations that warrant their consideration as COIs for the purpose of this report, it should be noted that they are not related to any known historic operations on the former Quanta Resources property. The highest concentrations of these constituents were found in the deep sand unit and are likely related to an off-site, upgradient source.

4.8.2 Nature and Extent of Groundwater COIs

For the purpose of this preliminary assessment, the nature and extent of COIs in groundwater was evaluated with respect to available historical data for the Site.

Shallow Groundwater Hydrostratigraphic Unit

SVOCs. Seventeen SVOCs were detected in groundwater samples in exceedance of the NJDEP GWQC. Of these, 12 are classified as PAHs: 2-methylnaphthalene, acenaphthylene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzofuran, dibenz(a,h)anthracene, indeno(1,2,3-cd)pyrene, naphthalene, and phenanthrene.

To illustrate the distribution of the majority of PAHs found in groundwater at the Site, concentrations of both benzo(a)pyrene and naphthalene are plotted in Figures 4-19 and 4-20, respectively. These compounds were selected to illustrate PAHs in groundwater since they represent the heavy- and light-end PAHs encountered at the Site. Concentrations of benzo(a)pyrene were detected above screening criteria in monitoring wells MW-116B, MW-102, and MW-103. Although the highest concentrations of benzo(a)pyrene and other PAHs (with the exception of naphthalene) generally corresponded to the locations where NAPL was observed, PAHs were not consistently detected in monitoring wells where NAPL was observed. This is likely a function of the fact that these constituents are relatively insoluble in water (water solubility of benzo(a)pyrene is 3.8×10^{-7} g/100 mL). As is the case with many of the PAHs detected in soil at the Site, detected benzo(a)pyrene concentrations in groundwater are not as widespread as are some of the more soluble SVOCs (naphthalene and phenols) despite the elevated concentrations in soil throughout the Site.

A review of the most recent groundwater data indicates that naphthalene is the most widely distributed PAH throughout the shallow groundwater zone. Concentrations of naphthalene in shallow groundwater are plotted in Figure 4-20. The highest concentrations were detected at monitoring wells MW-105, MW-102A, MW-103, MW-12B, and MW-107A and are consistent with observances of NAPL in these shallow monitoring wells. Monitoring wells located down gradient from these locations also exhibit high concentrations of PAHs consistent with the distribution of NAPL. Carbazole, which is less soluble than naphthalene but more soluble than the majority of the PAHs, has a distribution similar to naphthalene's. Concentrations of carbazole are not as widespread as those of naphthalene.

Phenols, like naphthalene, are more soluble in water than the majority of PAHs detected at the Site and are found at their highest concentration at monitoring well MW-102A, which is screened across the water table but does contain a measurable thickness of NAPL. Concentrations of 2,4-dimethylphenol are plotted in Figure 4-21 to illustrate the distribution of the phenol compounds. This figure indicates that 2,4-dimethylphenol is not as widely distributed as naphthalene. The elevated and localized presence of the phenols in this area is likely due to the presence of a source for these groundwater concentrations, which has been documented as measurable thicknesses of NAPL in and around MW-102A. The NAPL measured at this location was found to contain greater concentrations of phenols than the NAPL detected further east in the vicinity of the highest dissolved phase concentrations of PAHs.

In consideration of historical groundwater results from wells to the north at the Edgewater Enterprises property it is anticipated that the extent of SVOCs in groundwater to the north will be completed once wells on this property can be accessed and sampled. However, SVOCs in groundwater to the southeast of the Quanta Resources property may require further delineation.

VOCs. Consistent with previous investigations, elevated concentrations of BTEX were detected in shallow monitoring wells in exceedance of GWQC. Benzene was detected in approximately 78 percent of the groundwater samples collected during RI/FS activities. As such, benzene concentrations were plotted in Figure 4-22 to assess BTEX distribution. Figure 4-22 indicates that as with naphthalene, benzene concentrations are widely distributed across the Site, particularly in locations where NAPL has been observed.

In addition to BTEX compounds, nitrobenzene and styrene were detected at concentrations exceeding GWQC in monitoring wells MW-120A and MW-102A, respectively. These elevated concentrations are considered to be limited in nature and extent to these two wells and appear to be isolated occurrences.

In consideration of historical groundwater results from wells to the north at the Edgewater Enterprises property it is anticipated that the extent of BTEX constituents in groundwater to the north will be complete once these wells can be accessed and sampled. BTEX constituents may require further delineation in groundwater to the southeast of the Quanta Resources property.

Ammonia. Groundwater samples collected during RI/FS activities were analyzed for ammonia in accordance with the RI/FS Work Plan. Exceedances of ammonia were detected in four monitoring wells, MW-111A, MW-111B, MW-112A, and MW-112B. In addition, ammonia was detected (below standard) in MW-101A. These monitoring wells are located directly downgradient from a former 10,000-gallon capacity ammonia storage tank. As discussed in Section 4.7, ammonia was detected in soil borings in this vicinity; however, the detections were below the screening criterion. Elevated concentrations of ammonia are believed to be limited in nature and extent to the area immediately downgradient of the former ammonia storage tank.

Metals. Arsenic and lead were the only metals detected above the GWQC values of 3 μg/L and 5 μg/L, respectively. Exceedances of arsenic were detected in 78 percent of shallow monitoring wells sampled, with concentrations ranging from 3.1 μg/L to 62,100 μg/L. Concentrations of arsenic, plotted in Figure 4-23, which indicate that the highest concentrations of arsenic are at the northwestern portion of the Site, particularly in monitoring well MW-111B, and on the Lever Brothers property, at MW-107. These elevated concentrations of arsenic are consistent with elevated concentrations detected in soil samples at the Site and are well documented in previous reports. The presence of arsenic in groundwater at the Site is in part a result of the presence of urban fill across the Quanta Resources property and properties to the north, south, and west. The reducing groundwater conditions evidenced in the very low oxidation-reduction potential values measured during groundwater sampling is likely a significant factor in the ongoing dissolution of arsenic from soil into groundwater.

There are elevated concentrations of certain metals, including arsenic, in soil north of the Quanta Resources property, in the southern half of the Edgewater Enterprises property.

Screening criteria exceedances of lead were detected in five shallow monitoring wells, with concentrations ranging from 5 μg/L to 16.2 μg/L. Elevated concentrations of lead were not consistently detected in the shallow groundwater zone and most likely stem from the presence of historical urban fill deposits.

PCBs. Dissolved phase PCBs were not detected in the shallow groundwater hydrostratigraphic unit above laboratory method detection limits.

Deep Sand Hydrostratigraphic Unit

The following chlorinated VOCs were detected in groundwater samples collected from deep sand unit monitoring wells MW-101DS and MW-103DS, in exceedance of the GWQC values: 1,1- DCE, PCE, and TCE. Concentrations of 1,1-DCE, TCE, and PCE were detected at 3.5 µg/L, 7.5 µg/L, and 380 µg/L respectively in monitoring well MW-101DS. Concentrations of 1,1-DCE and TCE were detected at 1.6 µg/L and 100 µg/L, respectively, in monitoring well MW-103DS. Other chlorinated solvents (cis-1,2-DCE and 1,1-dichloroethane) were also detected in deep monitoring wells at concentrations below the screening criteria. Due the presence of the highest values of chlorinated VOCs in the most upgradient monitoring well (MW-103DS), the lack of elevated chlorinated VOCs in Site soils, and no detections of these constituents in shallow groundwater, an offsite source of these solvent-related constituents is suspected.

There were no screening criteria exceedances of SVOCs in groundwater samples collected from deep monitoring wells. Arsenic was detected at a concentration of 5.9 µg/L in monitoring well MW-103DS, which exceeds the NJDEP GWQS of 3 µg/L. The absence of NAPL and elevated concentrations of VOCs and SVOCs in this unit, indicate that NAPL impacts from the former Quanta Resources operations are limited to the shallow hydrostratigraphic unit and further investigation of the deep sand unit and bedrock is not warranted.

Dissolved phase PCBs were not detected in the deep sand hydrostratigraphic unit above laboratory method detection limits.

4.9 NAPL Evaluation

To assess the extent to which NAPL is distributed into the shallow groundwater zone, both physical and chemical characteristics were evaluated. Physical characteristics were evaluated based on field observations and lab analyses for viscosity, interfacial tension, American Petroleum Institute gravity at 60°F, density, and specific gravity. Chemical characteristics consisted of conducting laboratory analyses for VOCs, SVOCs, trace metals, PCBs, and select biomarkers. Data tables of laboratory results for NAPL analyses are provided in Appendix H.

NAPL samples were also collected from below the water table at wells MW-102, MW-103, MW-104, and MW-105 in November 2003. These samples were analyzed by META Environmental for chemical composition and source identification using various constituent ratios. Results of these analyses are provided in Appendix H.

4.9.1 Physical Characteristics

Samples were collected for physical characterization to better understand the characteristics that governing the mobility and tendencies of the observed NAPL. The physical results for NAPL sample analyses are summarized in Table 4-7.

The kinematic viscosity of the NAPL sampled ranged from 3.49 to 181.6 cSt at 122°F (note that the laboratory was not able to conduct viscosity measurements on NAPL at lower temperatures due to the high viscosity of the samples at these temperatures). NAPL samples collected from monitoring wells at the Site were found to be least viscous at MW-107. Slightly more viscous NAPL was detected north of this location, at MW-102A, and NAPLs with relatively elevated viscosities were observed still further north, in monitoring well MW-112B and along the Hudson River at MW-105. These data support field observations that also indicated that the NAPLs at MW-112B and MW-105 were "thick" and difficult to penetrate with the sampling device. NAPL sampled from monitoring well MW-107 was the easiest to sample, and appeared to flow freely into the sample container.

The interfacial tension values for the NAPL samples ranged between 8.2 and 30.2 dynes/cm. Interfacial tension measurements represent the force that exists in the interface between the two immiscible fluids, in this case, the groundwater and the NAPL. The lower these forces are, the more propensity the NAPL will have to spread over a greater area. Results of the NAPL sampling are consistent with those values typically seen for NAPL at industrial sites which usually range between 5 and 35 dynes/cm, (Advanced Applied Technology Development Facility, 1997). Interfacial tensions are the lowest in the NAPL collected from monitoring well MW-107.

The density of the NAPLs sampled during the RI activities ranged between 1,050 and 1,129 kg/m^3. These results indicate that the NAPLs detected are slightly denser than water, which has a density of 1,000 kg/m^3. The density of most DNAPLs found at industrial sites typically range from anywhere from 1,030 to 1,700 kg/m^3 (Advanced Applied Technology Development Facility, 1997). The least dense of the observed NAPL at the Site was collected from MW-107, where at a density of 1,050 kg/m^3, it is marginally denser than water.

4.9.2 Chemical Composition

Analytical data for NAPL samples are summarized in Appendix H.

A review of the laboratory data report indicates that each of the five NAPL samples is pyrogenic. A pyrogenic substance is a mixture of mostly hydrocarbons produced from organic matter subjected to high temperatures but with insufficient oxygen for complete combustion. Pyrogenic substances are produced by fires, internal combustion engines, and furnaces. They are also formed when coke or gas is produced from coal or oil. The five samples collected at the Site are characterized by a lack of alkanes and petroleum biomarker compounds; however, they have a dominance of unsubstituted PAHs (including those PAHs detected in soil and groundwater at the Site). In addition, a comparison of the ratios of fluoranthene/pyrene to dibenzofuran/fluorene in each of the five samples indicates that the NAPLs were formed under a relatively high temperature process.

The results of the laboratory analysis for NAPL samples were compared between each location. Using the results from each sample location, the degree of weathering exhibited by each sample was assessed. On the basis of this assessment, the NAPL sample collected from monitoring well MW-105D is considered to be slightly weathered owing to a slight reduction in the relative abundance of naphthalene, 2-methylnaphthalene, and 1-methylnaphthalene as compared to other NAPL samples. In contrast, NAPL samples collected from monitoring wells MW-102D, MW-107D, MW-112D, and MW-116D are each

considered to be relatively unweathered because of the dominance of two-ring PAHs. Overall, the patterns of detected compounds are consistent with coal carbonization tars, coke oven tars, and creosotes. Further, the PAH histogram provided in the Lab Reports attachment to this report indicates that the NAPL samples appear to have come from the same source. There were no indications of petroleum products or petrogenic substances in any of the samples.

In general, the constituents detected in the NAPL samples collected at the Site were consistent with those constituents detected in groundwater. As multicomponent products the dissolution of these NAPLs are governed by Raoult's Law, which states that a given constituent's propensity to dissolve into groundwater is a function of not only its solubility, but also the mole fraction that it represents within the NAPL mixture. The product of these two factors results in the effective solubility of a constituent in a given NAPL. Effective solubility also represents a rough idea of the theoretical maximum concentration that could be found in groundwater in equilibrium with the NAPL.

A preliminary comparison was made between the compounds found to have the highest effective solubility for each NAPL and the concentration of those constituents in groundwater samples collected from the wells where NAPL samples were collected to determine if the NAPL was the likely source of groundwater impacts at the Site. With a few exceptions (likely a result of additional complexities surrounding multicomponent NAPL dissolution as well as the potential presence of NAPL in groundwater samples), those constituents observed to have higher effective solubilities in the NAPLs were typically the constituents seen most often in groundwater and at the highest concentrations (naphthalene, benzene, phenols).

SVOCs

The analytical data provided in Appendix H indicates that the highest concentrations of SVOCs were detected in monitoring well MW-107, whereas the lowest concentrations were detected in monitoring well MW-112B. The most common SVOCs detected in NAPL samples were naphthalene, phenanthrene, 2-methylnaphthalene, and C1-phenanthrenes/anthracenes. Overall, naphthalene is the most common PAH detected in DNAPL samples, and it is widely distributed in dissolved concentrations in groundwater.

VOCs

The following VOCs were detected in NAPL samples: 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, benzene, ethylbenzene, isopropylbenzene, naphthalene, n-propylbenzene, p-isopropyltolune, styrene, toluene, and xylene. Analytical results of these analyses are summarized in Appendix H.

Metals

NAPL samples were analyzed for select metals as described in the RI/FS Work Plan. Analytical results of these analyses are summarized in Appendix H. Concentrations of antimony, arsenic, chromium, copper, lead, selenium, silver, and zinc were detected in NAPL samples.

PCBs

The NAPL samples were analyzed for PCBs as described in the RI/FS Work Plan. The analytical results of these analyses are summarized in Appendix H. There were no detections of PCBs in any of the NAPL samples collected.

4.9.3 Nature and Extent of NAPL

Field activities were conducted during the RI/FS to assess the vertical and horizontal extent of NAPL at the Site. To achieve this objective, soil borings and monitoring wells were installed in the shallow and deep hydrostratigraphic units across the Site. A summary of laboratory analytical results for the NAPL analyses are included as Appendix H. A copy of the META Environmental Laboratory report for NAPL samples is provided in the lab report attachment to this PSCR.

Horizontal Extent

Figure 4-24 illustrates those areas where field observations have indicated the presence of NAPL. In the eastern portion of the Site, accumulations of NAPL has been observed in monitoring wells MW-116A, MW-116B, MW-117A, MW-118B, and MW-119B. The thickest and most- viscous deposits of NAPL have been observed in this area and range in measured thickness from 0.1 to 6.9 ft. Soil borings SB-1, SB-2, and SB-3, advanced directly to the west of these monitoring wells, encountered a hard NAPL and plastic tar-like substance similar that of the neighboring monitoring wells. This NAPL has not been observed south of MW-119B or west of soil boring SB-2. Additional borings north of MW-116B, on the Edgewater Enterprises property, are needed to define the northern extent of this NAPL. Currently, efforts are underway along the southern portion of the Edgewater Enterprises property to better define the northern extent of coal tar in an effort to advance the development of that portion of the property. Boring observation and laboratory analytical data collected as part of this effort will be evaluated as part of the RI. The shallow hydrostratigraphic unit in this portion of the Site also contains the thickest fill deposits (up to 15 ft), and is the portion of the Site least sensitive to tidal influences of the Hudson River.

In the central portion of the Site, accumulations of NAPL have been observed in monitoring wells MW-103 and MW-107 at thicknesses of 0.65 and 3.8 ft, respectively. The NAPL observed in monitoring well MW-103 was slightly less viscous than the NAPL observed in the eastern portion of the Site. At monitoring well MW-107, NAPL had not been observed during previous investigations (GeoSyntec, 2000); however, it was observed for the first time during RI/FS activities. The NAPL at MW-107 is the least viscous encountered onsite and was the easiest to sample. Soil boring SB-16 was advanced southeast of MW-107 and encountered a similar NAPL. This indicates that the extent of the NAPL in the central portion of the Site has not been fully defined.

In the western portion of the Site, deposits of NAPL have been observed in monitoring wells MW-112A, MW-112B, MW-102, MW-102A, and MW-102B at thicknesses ranging from 0.1 to 6.5 ft. Additional deposits of NAPL have also been observed in soil borings SB-10, SB-11, and SB-13, which are northwest of these monitoring wells. The NAPL at this portion of the property is similar in nature to that of the NAPL encountered in the central portion of the property. Both NAPL and plastic tar have been observed in soil borings in this area. The

extent of this NAPL appears to be well defined to the north, east, and south; however, the western and southern extent has not been fully delineated.

Vertical Extent

As noted in Figures 4-2 and 4-3 (cross-sections), a clay confining unit exists about 12 to 23 ft below grade across the Site. Observed thicknesses of NAPL are most commonly found in B monitoring wells screened directly on top of this confining unit and containing 2-foot sumps below the well screens. NAPL has not been observed in soil borings or monitoring wells installed in the deep sand hydrostratigraphic unit, and as such, is considered to be limited in nature and extent to only the shallow hydrostratigraphic unit.

The surface of the confining unit varies across the Site, exhibiting an undulating surface that gradually becomes deeper westward, away from the Hudson River. In each of the three areas where NAPL tends to reside, the surface of the confining unit is typically lower than that of the surrounding area, essentially creating a natural sump in which the NAPL collects.

In summary, the horizontal extent of NAPL is concentrated in three distinct areas in the eastern, central, and western portions of the Site. NAPL is limited in vertical extent to only the shallow hydrostratigraphic unit and typically resides in low areas found on the surface of the confining unit. NAPL has never been observed in the deep hydrostratigraphic unit. The specific types of NAPL vary across the Site and differ in physical and chemical characteristics at each location. The most viscous NAPL resides in the eastern portion of the Site and is considered to be immobile on the basis of hydrogeologic conditions in this area. The extent of this NAPL is well defined to the west and south; however, additional borings are necessary to fully define the northern extent. The NAPL located at the central portion of the Site is less viscous than that of the eastern Site NAPL. NAPL not observed during previous investigations was newly encountered in this area (MW-107), and as such, the extent of this NAPL (particularly to the south east) is not fully defined. NAPL encountered at the western portion of the Site is similar in nature to that of the central area of the Site. The northern, eastern, and southern extent of this NAPL area is well defined, however additional borings are suggested to better define the western extent.

TABLE 4-1
Summary of Hydraulic Conductivity Values
Quanta Resources Site
Edgewater, New Jersey

Well Name	Hydraulic Conductivity (ft/day)	Geometric Mean Hydraulic Conductivity (ft/day)
Shallow Groundwater Wells		
MW-102A	8	51
MW-103	109	
MW-103A	57	
MW-107	239	
MW-107A	114	
MW-113A	34	
MW-116A	20	
Deep Unconfined Groundwater Wells		
MW-102B	51	9
MW-116B	2	
MW-113B	10	
MW-113C	5	
Deep Sand Unit Wells		
MW-103DS	19	8
MW-107DS	5	
MW-116DS	5	

Notes:
The average of the results from all rising and falling head tests at each location was used to determine hydraulic conductivity for that location.

TAB[illegible]-2a

Summary of RI Soil Data for Constituents Exceeding Screening Criteria - January 2006

Quanta Resources Property

Quanta Resources Site

Edgewater, New Jersey

Compound	# of Detections	# of Exceedances	Soil Screening Criteria (mg/kg)					2005 Soil Results (mg/kg)					
			New Jersey			USEPA Region 9 PRGs						Depth (ft)	
			Impact to GW	Non-Residential	Residential	Industrial	Residential	High	Low	Average	Location	Top	Bottom
SVOCs													
2,4-Dimethylphenol	14	7	**10**	10000	1100	12000	1200	340	0.3	67.2	SB-03C	3.5	4.0
2,4-Dinitrotoluene	6	5	**10**	**4**	**1**	1200	120	24	0.082	13.0	SB-117B	4.0	5.5
4-Methylphenol	15	1	-	10000	2800	3100	**310**	630	0.11	98.5	SB-03C	3.5	4.0
4-Nitroaniline	5	3	-	-	-	82	**23**	58	3.6	29.8	MW-116B	4.5	5.0
Acenaphthene	42	14	**100**	10000	3400	29000	3700	2400	0.058	243.0	MW-116B	4.5	5.0
Anthracene	43	18	**100**	10000	10000	100000	22000	1500	0.062	235.9	SB-03C	3.5	4.0
Benzo(a)anthracene	43	39	**500**	**4**	**0.9**	**2.1**	**0.62**	3700	0.042	304.9	SB-03C	3.5	4.0
Benzo(a)pyrene	42	42	**100**	**0.66**	**0.66**	**0.21**	**0.06**	3500	0.22	296.2	SB-03C	3.5	4.0
Benzo(b)fluoranthene	42	38	**50**	**4**	**0.9**	**2.1**	**0.62**	4100	0.26	349.8	SB-03C	3.5	4.0
Benzo(k)fluoranthene	42	32	**500**	**4**	**0.9**	**21**	**6.2**	2000	0.11	147.5	SB-03C	3.5	4.0
Carbazole	41	19	-	-	-	**86**	**24**	1200	0.069	113.1	SB-03C	3.5	4.0
Chrysene	42	26	**500**	**40**	**9**	**210**	**62**	4200	0.25	329.0	SB-03C	3.5	4.0
Dibenz(a,h)anthracene	40	37	**100**	**0.66**	**0.66**	**0.21**	**0.06**	510	0.045	47.3	SB-03C	3.5	4.0
Dibenzofuran	42	10	-	-	-	**1600**	**150**	1900	0.046	197.4	MW-116B	4.5	5.0
Fluoranthene	43	21	**100**	10000	**2300**	22000	**2300**	10000	0.13	806.6	SB-03C	3.5	4.0
Fluorene	43	14	**100**	10000	2300	26000	2800	2000	0.054	249.2	MW-116B	4.5	5.0
Indeno(1,2,3-cd)pyrene	42	35	**500**	**4**	**0.9**	**2.1**	**0.62**	1700	0.092	138.0	SB-03C	3.5	4.0
Naphthalene	43	18	**100**	**4200**	**230**	**190**	**56**	10000	0.11	1061.6	SB-03C	3.5	4.0
Phenol	18	4	**50**	10000	10000	100000	18000	460	0.056	52.4	SB-03C	3.5	4.0
Pyrene	43	21	**100**	10000	**1700**	29000	**2300**	8700	0.1	678.4	SB-03C	3.5	4.0
VOCs													
Benzene	32	12	**1**	**13**	**3**	**1.4**	**0.64**	33	0.0006	2.7	SB-09I	9.5	10.0
Ethylbenzene	30	0	100	1000	1000	400	400	100	0.002	6.7	SB-02B	9.5	10.0
Tetrachloroethene	2	1	1	6	4	1.3	**0.48**	0.52	0.006	0.3	SB-09I	0.0	0.16
Trichloroethene	2	0	1	54	23	0.12	0.05	0.009	0.005	0.0	MW-103DS	51	52
Vinyl Chloride	0	0	10	7	2	0.75	0.07	ND	ND	ND	N/A	N/A	N/A
Xylene (Total)	38	2	**67**	1000	410	420	270	230	0.001	12.7	SB-02B	9.5	10.0
Metals													
Antimony	0	0	-	340	14	410	31	ND	ND	ND	N/A	N/A	N/A
Arsenic	43	43	-	**20**	**20**	**1.6**	**0.39**	343	1.3	29.9	MW-112A	1.8	2.0
Beryllium	0	0	-	2	2	1900	150	ND	ND	ND	N/A	N/A	N/A
Iron	0	0	-	-	-	100000	24000	ND	ND	ND	N/A	N/A	N/A
Lead	43	6	-	**600**	**400**	800	**400**	791	5.3	133.8	MW-112A	1.8	2.0
Thallium	0	0	-	2	2	68	5.2	ND	ND	ND	N/A	N/A	N/A
PCBs													
PCBs - Aroclor 1242	4	3	50	2	**0.49**	**0.74**	**0.22**	0.81	0.11	0.5	SB-09I	0.8	1.3
PCBs - Aroclor 1248	0	0	50	2	0.49	0.74	0.22	ND	ND	ND	N/A	N/A	N/A
PCBs - Aroclor 1254	5	2	50	2	**0.49**	0.74	**0.22**	0.5	0.014	0.2	MW-116B	0.0	0.16
PCBs - Aroclor 1260	15	3	50	2	**0.49**	**0.74**	**0.22**	1.6	0.0073	0.2	SB-09I	0.8	1.3

Notes:

N/A - Not applicable, contaminant was not detected

ND - Not detected in soil samples above the laboratory method detection limit

Shaded and Bolded screening criteria indicate that one or more sample was detected at or above that screening criterion.

TABLE 4-2b
Summary of RI Soil Data for Constituents Exceeding Screening Criteria - January 2006
West of River Road
Quanta Resources Site
Edgewater, New Jersey

Compound	# of Detections	# of Exceedances	Soil Screening Criteria (mg/mg)					2005 Soil Results (mg/kg)					
				New Jersey		USEPA Region 9 PRGs						Depth (ft)	
			Impact to GW	Non-Residential	Residential	Industrial	Residential	High	Low	Average	Location	Top	Bottom
SVOCs													
2,4-Dimethylphenol	1	1	**10**	10000	1100	12000	1200	16	16	16	SB-11K	4.5	5.0
2,4-Dinitrotoluene	0	0	10	4	1	1200	120	ND	ND	ND			
4-Methylphenol	2	1	-	**10000**	**2800**	**3100**	**310**	63000	0.21	31500.1	SB-11K	4.5	5.0
4-Nitroaniline	0	0	-	-	-	82	23	ND	ND	ND			
Acenaphthene	22	2	**100**	10000	3400	29000	3700	990	0.042	65.0	SB-11K	4.5	5.0
Anthracene	23	2	**100**	10000	10000	100000	22000	1100	0.054	71.0	SB-11K	4.5	5.0
Benzo(a)anthracene	23	18	**500**	**4**	**0.9**	**2.1**	**0.62**	1400	0.047	97.9	SB-11K	4.5	5.0
Benzo(a)pyrene	22	22	**100**	**0.66**	**0.66**	**0.21**	**0.06**	1200	0.14	94.6	SB-11K	4.5	5.0
Benzo(b)fluoranthene	23	19	**50**	**4**	**0.9**	**2.1**	**0.62**	1400	0.045	106.3	SB-11K	4.5	5.0
Benzo(k)fluoranthene	22	15	**500**	**4**	**0.9**	**21**	**6.2**	660	0.068	50.7	SB-11K	4.5	5.0
Carbazole	20	3	-	-	-	**86**	**24**	390	0.047	30.7	SB-11K	4.5	5.0
Chrysene	23	11	**500**	**40**	**9**	**210**	**62**	1300	0.044	91.7	SB-11K	4.5	5.0
Dibenz(a,h)anthracene	17	16	**100**	**0.66**	**0.66**	**0.21**	**0.06**	120	0.046	16.7	SB-11K	4.5	5.0
Dibenzofuran	20	2	-	-	-	1600	**150**	870	0.044	59.6	SB-11K	4.5	5.0
Fluoranthene	25	7	**100**	10000	**2300**	22000	**2300**	3500	0.1	214.4	SB-11K	4.5	5.0
Fluorene	21	2	**100**	10000	2300	26000	2800	1200	0.065	80.7	SB-11K	4.5	5.0
Indeno(1,2,3-cd)pyrene	22	16	**500**	**4**	**0.9**	**2.1**	**0.62**	540	0.077	48.8	SB-11K	4.5	5.0
Naphthalene	21	2	**100**	**4200**	**230**	**190**	**56**	4400	0.047	246.6	SB-11K	4.5	5.0
Phenol	2	0	50	10000	10000	100000	18000	3.1	0.36	1.7	SB-11K	4.5	5.0
Pyrene	25	7	**100**	10000	**1700**	29000	**2300**	3200	0.088	192.4	SB-101DS	51	52
VOCs													
Benzene	13	3	**1**	13	3	**1.4**	**0.64**	2	0.0006	0.28	SB-10J	3.0	4.0
Ethylbenzene	8	0	100	1000	1000	400	400	3.8	0.004	0.53	SB-10J	3.0	4.0
Tetrachloroethene	1	0	1	6	4	1.3	0.48	0.088	0.088	0.09	SB-11K	0.0	0.16
Trichloroethene	1	0	1	54	23	0.12	0.05	0.006	0.006	0.01	MW-103DS	51	52
Vinyl Chloride	0	0	10	7	2	0.75	0.07	ND	ND	ND	N/A	N/A	N/A
Xylene (Total)	10	0	67	1000	410	420	270	7.6	0.002	0.9	SB-10J	3.0	4.0
Metals													
Antimony	2	1	-	340	**14**	410	31	24.1	5.7	14.9	SB-13M	0.0	1.0
Arsenic	28	28	-	**20**	**20**	**1.6**	**0.39**	913	2.1	50.6	SB-13M	0.0	1.0
Beryllium	16	2	-	**2**	**2**	1900	150	5.8	0.17	1.1	SB-11K	4.5	5.0
Iron	16	9	-	-	-	100000	**24000**	39100	8730	25373	SB-13M	11.0	12.0
Lead	27	3	-	**600**	**400**	**800**	**400**	906	7.8	136.526	SB-15D	7.0	7.5
Thallium	5	3	-	**2**	**2**	68	5.2	4.8	1.5	2.98	SB-13M	0.0	1.0
PCBs													
PCBs - Aroclor 1242	1	0	50	2	0.49	0.74	0.22	0.051	0.051	0.051	SB-11K	0.0	0.16
PCBs - Aroclor 1248	1	1	50	2	**0.49**	**0.74**	**0.22**	0.77	0.77	0.77	SB-10J	0.0	0.16
PCBs - Aroclor 1254	8	1	50	2	0.49	0.74	**0.22**	0.29	0.0099	0.08261	SB-10J	0.0	0.16
PCBs - Aroclor 1260	11	1	50	**2**	**0.49**	**0.74**	**0.22**	16	0.018	1.50264	SB-101DS	47.0	47.50

Notes:
N/A - Not applicable, contaminant was not detected
ND - Not detected in soil samples above the laboratory method detection limit
Shaded and Bolded screening criteria indicate that one or more sample was detected at or above that screening criterion.

TA[illegible]4-2c

Summary of RI Soil Data for Constituents Exceeding Screening Criteria - January 2006
South of Quanta Resources Property
Quanta Resources Site
Edgewater, New Jersey

Compound	# of Detections	# of Exceedances	Soil Screening Criteria (mg/kg)					2005 Soil Results (mg/kg)					
			New Jersey			USEPA Region 9 PRGs						Depth (ft)	
			Impact to GW	Non-Residential	Residential	Industrial	Residential	High	Low	Average	Location	Top	Bottom
SVOCs													
2,4-Dimethylphenol	3	0	10	10000	1100	12000	1200	2.1	0.14	1.28	SB-16P	16.5	17.0
2,4-Dinitrotoluene	1	1	**10**	**4**	**1**	1200	120	29	29	29	SB-08H	8.5	9.0
4-Methylphenol	5	0		10000	2800	3100	310	19	0.15	4.486	SB-08H	8.5	9.0
4-Nitroaniline	0	0				82	23	ND	ND	ND			
Acenaphthene	29	5	**100**	10000	3400	29000	3700	1300	0.043	72.8	SB-08H	8.5	9.0
Anthracene	30	4	**100**	10000	10000	100000	22000	920	0.052	55.2	SB-08H	8.5	9.0
Benzo(a)anthracene	29	21	**500**	**4**	**0.9**	**2.1**	**0.62**	660	0.045	45.9	SB-08H	8.5	9.0
Benzo(a)pyrene	29	27	**100**	**0.66**	**0.66**	**0.21**	**0.06**	460	0.045	36.9	SB-08H	8.5	9.0
Benzo(b)fluoranthene	28	22	**50**	**4**	**0.9**	**2.1**	**0.62**	530	0.056	43.6	SB-08H	8.5	9.0
Benzo(k)fluoranthene	25	18	500	**4**	**0.9**	**21**	**6.2**	200	0.047	19.2	SB-08H	8.5	9.0
Carbazole	26	4				**86**	**24**	340	0.051	21.3	SB-08H	8.5	9.0
Chrysene	29	13	**500**	**40**	**9**	**210**	**62**	610	0.043	42.9	SB-08H	8.5	9.0
Dibenz(a,h)anthracene	22	21	100	**0.66**	**0.66**	**0.21**	**0.06**	58	0.06	7.4	SB-08H	8.5	9.0
Dibenzofuran	27	2				1600	**150**	960	0.042	51.0	SB-08H	8.5	9.0
Fluoranthene	31	5	**100**	10000	2300	22000	2300	2000	0.096	115.2	SB-08H	8.5	9.0
Fluorene	30	4	**100**	10000	2300	26000	2800	1200	0.044	64.3	SB-08H	8.5	9.0
Indeno(1,2,3-cd)pyrene	24	19	500	**4**	**0.9**	**2.1**	**0.62**	210	0.051	21.7	SB-08H	8.5	9.0
Naphthalene	28	7	**100**	**4200**	**230**	**190**	**56**	5800	0.057	365.4	SB-08H	8.5	9.0
Phenol	2	0	50	10000	10000	100000	18000	1.2	0.32	0.8	MW-120B	3.5	4.0
Pyrene	31	5	**100**	10000	1700	29000	2300	1600	0.089	96.7	MW-120B	3.5	4.0
VOCs													
Benzene	21	6	**1**	**13**	**3**	**1.4**	**0.64**	29	0.0008	2.21	SB-08H	8.5	9.0
Ethylbenzene	16	1	**100**	1000	1000	400	400	120	0.01	13.62	SB-08H	8.5	9.0
Tetrachloroethene	2	0	1	6	4	1.3	0.48	0.094	0.003	0.05	MW-120B	3.5	4.0
Trichloroethene	1	1	1	54	23	**0.12**	**0.05**	0.48	0.48	0.48	MW-103DS	51	52
Vinyl Chloride	1	1	10	7	2	0.75	**0.07**	0.096	0.096	0.096	MW-120B	3.5	4.0
Xylene (Total)	20	3	**67**	1000	410	420	270	220	0.002	24.6	SB-08H	8.5	9.0
Metals													
Antimony	0	0	-	340	14	410	31	ND	ND	ND	N/A	N/A	N/A
Arsenic	30	30	-	**20**	**20**	**1.6**	**0.39**	138	2.1	24.4	SB-107DS	19.5	20.0
Beryllium	0	0	-	2	2	1900	150	ND	ND	ND	N/A	N/A	N/A
Iron	0	0	-	-	-	100000	24000	ND	ND	ND	N/A	N/A	N/A
Lead	33	5	-	**600**	**400**	**800**	**400**	1040	3.6	185.6	SB-119B	9.5	10.0
Thallium	0	0	-	2	2	68	5.2	ND	ND	ND	N/A	N/A	N/A
PCBs													
PCBs - Aroclor 1242	0	0	50	2	0.49	0.74	0.22	ND	ND	ND	N/A	N/A	N/A
PCBs - Aroclor 1248	2	0	50	2	0.49	0.74	0.22	0.18	0.043	0.1115	SB-107DS	3.5	4.0
PCBs - Aroclor 1254	13	2	50	2	**0.49**	0.74	**0.22**	0.51	0.0071	0.13235	SB-01A	14.0	15.0
PCBs - Aroclor 1260	14	1	50	2	0.49	0.74	**0.22**	0.37	0.014	0.08771	SB-01A	9.0	10.0

Notes:
N/A - Not applicable, contaminant was not detected
ND - Not detected in soil samples above the laboratory method detection limit
Shaded and Bolded screening criteria indicate that one or more sample was detected at or above that screening criterion.

TABLE 4-3
Synoptic Water Levels - Low Tide - December 30, 2005
Quanta Resources Site
Edgewater, New Jersey

Well Name	Time	DTW (Ft. BTIC)	Measuring Point TIC Elevation (Ft. AMSL)	GW Elevation (Ft. AMSL)
Shallow Groundwater Wells				
MW-101A	14:40	5.10	10.14	5.04
MW-102	14:38	4.28	6.62	2.34
MW-102A	14:40	3.97	9.72	5.75
MW-102B	14:39	4.68	9.64	4.96
MW-103	14:20	3.56	6.00	2.44
MW-103A	14:18	4.32	10.03	5.71
MW-104R	14:25	5.90	9.11	3.21
MW-105	14:31	5.54	5.04	-0.50
MW-105A	14:30	5.69	8.20	2.51
MW-106	14:08	5.60	7.17	1.57
MW-106A	14:10	5.39	6.65	1.26
MW-107	14:05	2.71	6.85	4.14
MW-107A	14:01	3.58	7.04	3.46
MW-108*	N/A	N/A	7.17	N/A
MW-109	14:15	5.60	4.59	-1.01
MW-109A	14:16	5.89	4.56	-1.33
MW-111A	14:35	2.56	7.98	5.42
MW-111B	14:32	2.46	7.85	5.39
MW-112A	14:12	4.13	10.01	5.88
MW-112B	14:10	3.94	9.60	5.66
MW-113A	14:14	4.86	10.20	5.34
MW-113B	14:15	4.60	9.80	5.20
MW-113C	14:16	4.57	9.94	5.37
MW-116A	14:21	5.02	9.45	4.43
MW-116B	14:22	4.61	8.69	4.08
MW-117A	14:26	4.81	9.37	4.56
MW-117B	14:27	4.54	9.04	4.50
MW-118A	14:28	5.22	9.00	3.78
MW-118B	14:29	6.84	9.40	2.56
MW-119A	14:24	4.76	5.68	0.92
MW-119B	14:26	4.55	6.00	1.45
MW-120A	14:14	5.70	6.83	1.13
MW-120B	14:12	5.50	6.78	1.28
MW-122A	14:03	3.30	7.24	3.94
Deep Sand Unit Wells				
MW-101DS	14:39	4.91	10.45	5.54
MW-103DS	14:19	5.09	10.13	5.04
MW-107DS	14:45	1.59	6.82	5.23
MW-116DS	14:24	4.81	9.18	4.37
Tidal Gauge				
TGS-1	14:20	15.65	11.45	< -4.20**

Notes:
Depth to water measurements taken during low tide, December 30, 2005, between 14:00 and 14:40.
Ft. BTIC - Feet below top of monitoring well inner casing or "measuring point"
Ft. AMSL - Feet above mean sea level
N/A - Not applicable
* - Monitoring well not accessible
** - Elevation of water in Hudson River (at low tide the tidal gauge was completely unsubmerged)

TABLE 4-4
Synoptic Water Levels - High Tide - December 30, 2005
Quanta Resources Site
Edgewater, New Jersey

Well Name	Time	DTW (Ft. BTIC)	Measuring Point TIC Elevation (Ft. AMSL)	Groundwater Elevation (Ft. AMSL)
Shallow Groundwater Wells				
MW-101A	8:49	5.19	10.14	4.95
MW-102	10:01	4.32	6.62	2.30
MW-102A	10:11	3.90	9.72	5.82
MW-102B	10:03	5.69	9.64	3.95
MW-103	8:11	3.59	6.00	2.41
MW-103A	8:11	4.31	10.03	5.72
MW-104R	8:43	5.84	9.11	3.27
MW-105	9:25	5.32	5.04	-0.28
MW-105A	9:22	5.54	8.20	2.66
MW-106	7:58	5.50	7.17	1.67
MW-106A	8:01	5.30	6.65	1.35
MW-107	8:28	2.73	6.85	4.12
MW-107A	8:24	3.57	7.04	3.47
MW-108*	N/A	N/A	7.17	N/A
MW-109	8:13	7.24	4.59	-2.65
MW-109A	8:11	2.80	4.56	1.76
MW-111A	8:39	2.54	7.98	5.44
MW-111B	8:38	2.45	7.85	5.40
MW-112A	7:47	4.02	10.01	5.99
MW-112B	7:38	3.93	9.60	5.67
MW-113A	8:05	4.86	10.20	5.34
MW-113B	8:01	4.63	9.80	5.17
MW-113C	7:57	4.54	9.94	5.40
MW-116A	8:27	4.99	9.45	4.46
MW-116B	8:32	4.53	8.69	4.16
MW-117A	8:56	4.78	9.37	4.59
MW-117B	9:05	4.52	9.04	4.52
MW-118A	9:10	5.12	9.00	3.88
MW-118B	9:12	6.65	9.40	2.75
MW-119A	7:44	4.45	5.68	1.23
MW-119B	7:46	4.12	6.00	1.88
MW-120A	8:04	5.41	6.83	1.42
MW-120B	8:02	5.41	6.78	1.37
MW-122A	8:26	3.30	7.24	3.94
Deep Sand Unit Wells				
MW-101DS	8:44	4.80	10.45	5.65
MW-103DS	8:15	4.59	10.13	5.54
MW-107DS	8:23	1.49	6.82	5.33
MW-116DS	8:26	4.04	9.18	5.14
Tidal Gauge				
TGS-1	7:35	9.12	11.45	2.33**

Notes:
Depth to water measurements taken during high tide, December 30, 2005, 07:39
Ft. BTIC - Feet below top of monitoring well casing or "measuring point"
Ft. MSL - Feet referenced to mean sea level
N/A - Not applicable
* - Monitoring well not accessible
** - Elevation of water in Hudson River

TA[illegible]4-5

Summary of Vertical Hydraulic Gradients - December 30, 2005

Quanta Resources Site

Edgewater, New Jersey

Location	Monitoring Wells	Ground Surface Elevation (ft. AMSL)	Mid-point of Screened Interval (ft. bgs)	Elevation of Mid-point of Screened Interval (ft. AMSL)	Low-Tide Conditions					High-Tide Conditions				
					Groundwater Elevation (ft. AMSL)	Head Difference (ft)	Screen Elevation Difference (ft)	Vertical Gradient	Vertical Direction	Groundwater Elevation (ft. AMSL)	Head Difference (ft)	Elevation Difference (ft)	Vertical Gradient	Vertical Direction
Within Unconfined Aquifer														
MW-102	MW-102B	6.8	19	-12.2	4.96	-0.79	12	-0.07	DOWN	3.95	-1.87	12	-0.16	DOWN
	MW-102A	6.8	7	-0.2	5.75					5.82				
MW-103	MW-103	6.6	13.5	-6.9	2.44	-3.27	5.5	-0.59	DOWN	2.41	-3.31	5.5	-0.60	DOWN
	MW-103A	6.6	8	-1.4	5.71					5.72				
MW-105	MW-105	5.9	14	-8.1	-0.5	-3.01	6	-0.50	DOWN	-0.28	-2.94	6	-0.49	DOWN
	MW-105A	5.9	8	-2.1	2.51					2.66				
MW-106	MW-106	7.1	16	-8.9	1.57	0.31	8	0.04	UP	1.67	0.32	8	0.04	UP
	MW-106A	7.1	8	-0.9	1.26					1.35				
MW-107	MW-107	7.5	18	-10.5	4.14	0.68	10	0.07	UP	4.12	0.65	10	0.07	UP
	MW-107A	7.5	8	-0.5	3.46					3.47				
MW-109	MW-109	4.9	17.5	-12.6	-1.01	0.32	9.5	0.03	UP	-2.65	-4.41	9.5	-0.46	DOWN
	MW-109A	4.9	8	-3.1	-1.33					1.76				
MW-111	MW-111B	8.4	8	0.4	5.39	-0.03	2.4	-0.01	DOWN	5.40	-0.04	2.4	-0.02	DOWN
	MW-111A	8.3	5.5	2.8	5.42					5.44				
MW-112	MW-112B	6.8	7	-0.2	5.66	-0.22	0.5	-0.44	DOWN	5.67	-0.32	0.5	-0.64	DOWN
	MW-112A	6.8	6.5	0.3	5.88					5.99				
MW-113	MW-113B	7.2	14	-6.8	5.20	-0.14	7.3	-0.02	DOWN	5.17	-0.17	7.3	-0.02	DOWN
	MW-113A	7.0	6.5	0.5	5.34					5.34				
MW-116	MW-116B	6.3	8	-1.7	4.08	-0.35	0.2	-1.75	DOWN	4.16	-0.3	0.2	-1.50	DOWN
	MW-116A	6.1	8	-1.9	4.43					4.46				
MW-117	MW-117B	6.3	10	-3.7	4.50	-0.06	1.5	-0.04	DOWN	4.52	-0.07	1.5	-0.05	DOWN
	MW-117A	6.8	9	-2.2	4.56					4.59				
MW-118	MW-118B	6.8	9	-2.2	2.56	-1.22	0.7	-1.74	DOWN	2.75	-1.13	0.7	-1.61	DOWN
	MW-118A	6.1	9	-2.9	3.78					3.88				
MW-119	MW-119B	6.4	9	-2.6	1.45	0.53	0.8	0.66	UP	1.88	0.65	0.8	0.81	UP
	MW-119A	6.2	8	-1.8	0.92					1.23				
MW-120	MW-120B	7.2	12	-4.8	1.28	0.15	3.9	0.04	UP	1.37	-0.05	3.9	-0.01	DOWN
	MW-120A	7.1	8	-0.9	1.13					1.42				
Across Aquitard														
MW-101	MW-101DS	7.1	43	-35.9	5.54	0.5	31.2	0.02	UP	5.65	0.7	31.2	0.02	UP
	MW-101A	6.8	11.5	-4.7	5.04					4.95				
MW-103	MW-103DS	6.5	47	-40.5	5.04	2.6	33.6	0.08	UP	5.54	3.13	33.6	0.09	UP
	MW-103	6.6	13.5	-6.9	2.44					2.41				
MW-107	MW-107DS	7.6	57	-49.4	5.23	1.09	38.9	0.03	UP	5.33	1.21	38.9	0.03	UP
	MW-107	7.5	18	-10.5	4.14					4.12				
MW-116	MW-116DS	6.1	24	-17.9	4.37	0.29	16	0.02	UP	5.14	0.98	16	0.06	UP
	MW-116B	6.1	8	-1.9	4.08					4.16				

Notes:
bgs: below ground surface
AMSL: above mean sea level

TABLE 4-6

Summary of RI Groundwater Data for Constituents Exceeding Groundwater Criteria - Fall 2005

Quanta Resources Site

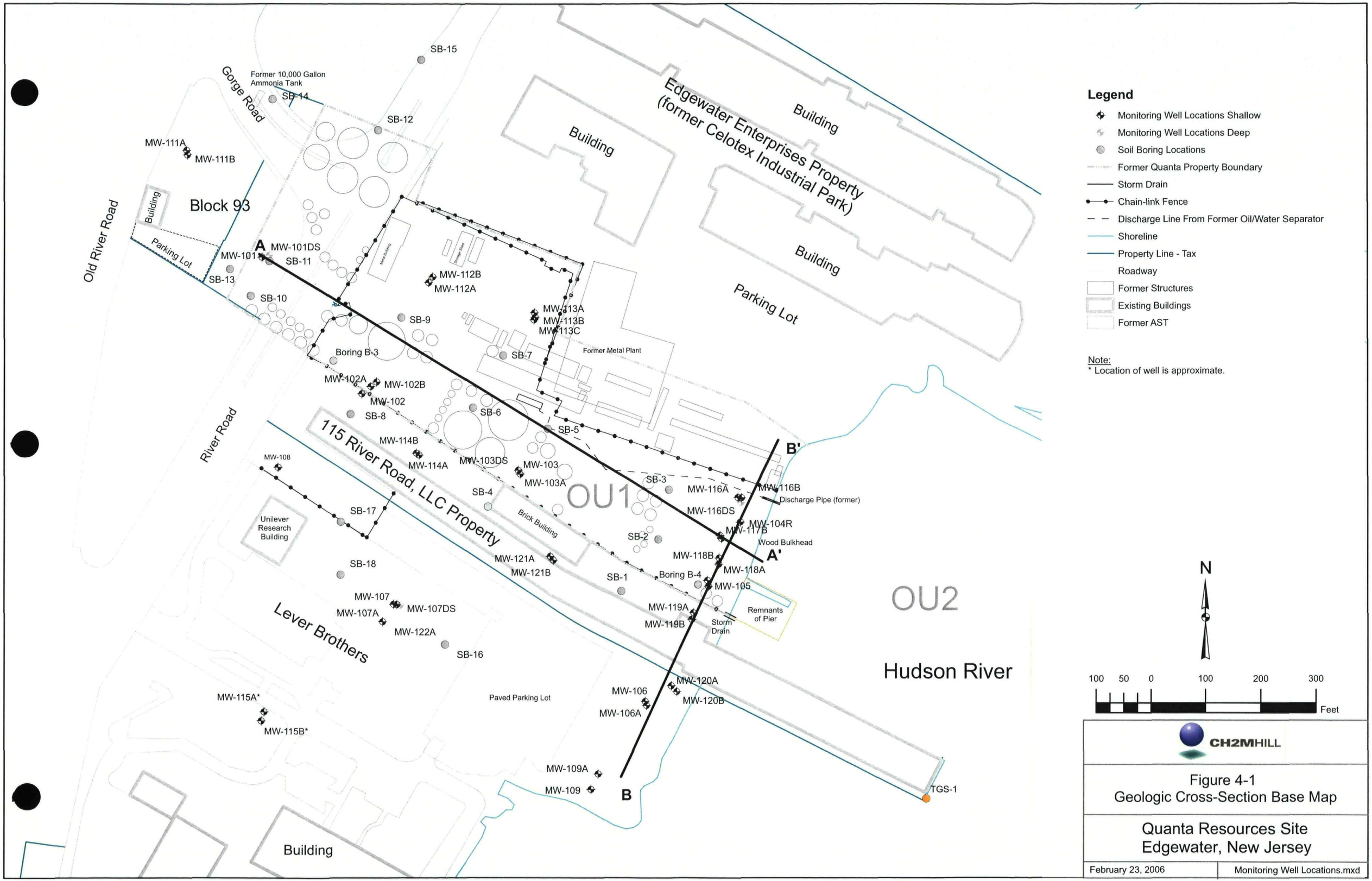
Edgewater, New Jersey

Compound	# of Detections	# of Exceedances	New Jersey Groundwater Quality Criteria (ug/L)	Fall 2005 Groundwater Results (ug/L)			
				High	Low	Average	Location with Highest Conc.
SVOCs							
2,4-Dimethylphenol	17	12	100	7400	14	1473	MW-102A
2-Methylnaphthalene	15	15	100	1400	310	957	MW-103
2-Methylphenol	7	7	100	4200	180	1611	MW-102A
4-Methylphenol	7	7	100	5800	110	2144	MW-102A
Acenaphthylene	4	4	100	210	140	168	MW-112B
Benzo(a)anthracene	12	12	0.1	46	1	6.7	MW-116B
Benzo(a)pyrene	4	4	0.1	32	1	13	MW-116B
Benzo(b)fluoranthene	6	6	0.2	39	1	10.3	MW-116B
Benzo(k)fluoranthene	3	3	0.5	13	1	6.7	MW-116B
Carbazole	20	20	5	460	6	165	MW-105A
Chrysene	10	2	5	47	1	7.6	MW-116B
Dibenzofuran	9	9	100	260	140	183	MW-105A
Dibenz(a,h)anthracene	1	1	0.3	2	2	2	MW-102
Indeno(1,2,3-cd)pyrene	3	3	0.2	12	1	6.7	MW-116B
Naphthalene	29	16	300	16000	1	5570	MW-102A
Phenanthrene	11	11	100	370	110	171	MW-116B
Phenol	10	1	2000	3100	2	676	MW-102A
VOCs							
1,1-Dichloroethene	2	2	1	3.5	1.6	2.55	MW-101DS
Benzene	25	23	1	11000	0.1	1324	MW-102
Ethylbenzene	25	8	700	1200	0.9	421	MW-112B
Nitrobenzene	1	1	6	8	8	8	MW-120A
Styrene	1	1	100	460	460	460	MW-102A
Tetrachloroethene	2	1	1	7.5	0.7	4.1	MW-101DS
Toluene	25	7	1000	4400	0.2	802	MW-102
Trichloroethene	5	3	1	380	0.1	96.3	MW-101DS
Xylene (Total)	27	11	1000	3400	0.2	907.985	MW-103
Metals							
Arsenic	33	27	3	62100	0.87	6000	MW-111B
Lead	27	4	5	16.2	0.18	2.8	MW-108
Pesticides							
4,4'-DDE	5	1	0.1	0.13	0.0052	0.04	MW-103
alpha-BHC	1	1	0.02	0.047	0.047	0.047	MW-117B
Inorganics							
Ammonia	5	4	3	22.3	1.9	10.4	MW-112B

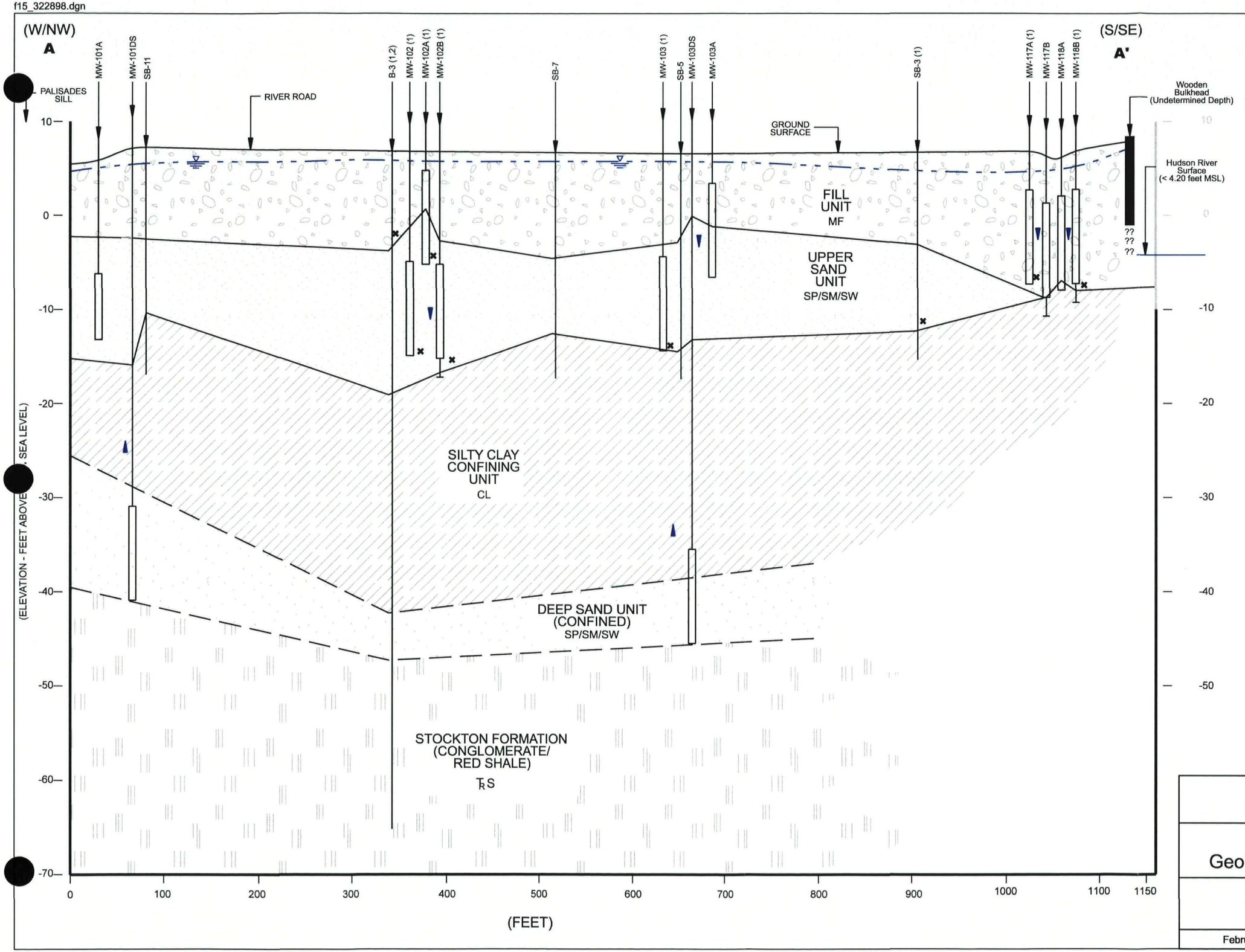
TABLE 4-7
Summary of NAPL Physical Parameters
Quanta Resources Site
Edgewater, New Jersey

Parameter	Method	Units	MW-105 12/5/05	MW-116B 12/5/05	MW102A 12/5/05	MW-112B 12/5/05	MW-107 12/12/05
Kinematic Viscosity @ 122 °F	ASTM-D445	cSt	181.6	27.44	14.31	61.23	3.49
Viscosity SFS @ 122 °F	ASTM-D2161	Second	86.4	N/A	N/A	31.1	N/A
Interfacial Tension	ASTM-D971	Dynes/cm	30.2	18.0	25.0	27.5	8.2
API Gravity @ 60 °F	ASTM-D4052	°API	NM	-6.2	-2.32	-4.81	3.15
Density @ 60 °F	ASTM-D4052	kg/m^3	NM	N/A	N/A	N/A	1049.8
Specific Gravity @ 60 °F	ASTM-D4052	none	NM	1.1293	1.0951	1.1168	1.0505

Notes:
ASTM - American Society for Testing and Materials
cSt - centistoke
SFS - Saybolt Furol Second
NM - American Petroleum Institute (API) Gravity reading was not measured because sample was thick with what appeared to be a sediment-like material.
N/A - Not applicable


Legend
Monitoring Well Locations Shallow
Monitoring Well Locations Deep
Soil Boring Locations
Former Quanta Property Boundary
Storm Drain
Chain-link Fence
Discharge Line From Former Oil/Water Separator
Shoreline
Property Line - Tax
Roadway
Former Structures
Existing Buildings
Former AST
Note:
* Location of well is approximate.
N
100 50 0 100 200 300
Feet
CH2MHILL
Figure 4-1
Geologic Cross-Section Base Map
Quanta Resources Site
Edgewater, New Jersey
February 23, 2006
Monitoring Well Locations.mxd
Edgewater Enterprises Property
(former Celotex Industrial Park)
Building
Building
Building
Parking Lot
Former Metal Plant
Gorge Road
Former 10,000 Gallon
Ammonia Tank
SB-15
SB-14
SB-12
MW-111A
MW-111B
Block 93
Building
Parking Lot
Old River Road
MW-101
MW-101DS
SB-11
SB-13
SB-10
SB-9
Boring B-3
MW-112B
MW-112A
MW-113A
MW-113B
MW-113C
SB-7
MW-102A
MW-102B
MW-102
SB-8
SB-6
SB-5
MW-114B
MW-114A
MW-103DS
MW-103
MW-103A
SB-4
OU1
SB-3
MW-116A
MW-116B
Discharge Pipe (former)
MW-116DS
MW-104R
MW-117B
Wood Bulkhead
SB-2
MW-118B
MW-118A
MW-105
Boring B-4
SB-1
MW-119A
MW-119B
Storm
Drain
Remnants
of Pier
OU2
Hudson River
TGS-1
MW-120A
MW-120B
MW-106
MW-106A
MW-109A
MW-109
B
B'
A
A'
115 River Road, LLC Property
River Road
MW-108
SB-17
Unilever
Research
Building
Brick Building
MW-121A
MW-121B
SB-18
MW-107
MW-107A
MW-107DS
MW-122A
SB-16
Lever Brothers
Paved Parking Lot
MW-115A*
MW-115B*
Building

f15_322898.dgn



LEGEND

MONITORING WELL SCREENED INTERVAL

(MONITORING WELL SUMP)

WATER TABLE (UNCONFINED). WATER LEVELS WERE COLLECTED BETWEEN 1400 AND 1440 HOURS ON DECEMBER 30, 2005, DURING LOW TIDE.

STRATIGRAPHIC CONTACT

STRATIGRAPHIC CONTACT (INFERRED)

TRS = STOCKTON FORMATION, GREY FELDSPATHIC ARKOSE) CONGLOMERATE AND RED SHALE

SM = SILTY SANDS, SAND-SILT MIXTURE

SP = POORLY-GRADED SANDS, GRAVELLY SANDS, LITTLE/NO FINES

SW = WELL - GRADED SANDS, GRAVELLY SANDS, LITTLE/NO FINES

CL = INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, LEAN CLAYS, SILTY CLAYS

MF = MIXED FILL (GRAVEL, SAND, CINDER/SLAG, BRICK, WOOD)

DIRECTION OF VERTICAL HYDRAULIC GRADIENT

✖ DENOTES THE PRESENCE OF NAPL

NOTES

(1) DENOTES WELLS OR SOIL BORINGS THAT EXHIBIT THE PRESENCE OF NAPL, EITHER OBSERVED IN SUBSURFACE SOIL, OR AS MEASURABLE THICKNESSES IN MONITORING WELL

(2) EVIDENCE OF NAPL AT BORING B-3 WAS ONLY DETECTED IN THE FILL UNIT

1" = 10' VERTICAL

1" = 100' HORIZONTAL

CH2MHILL

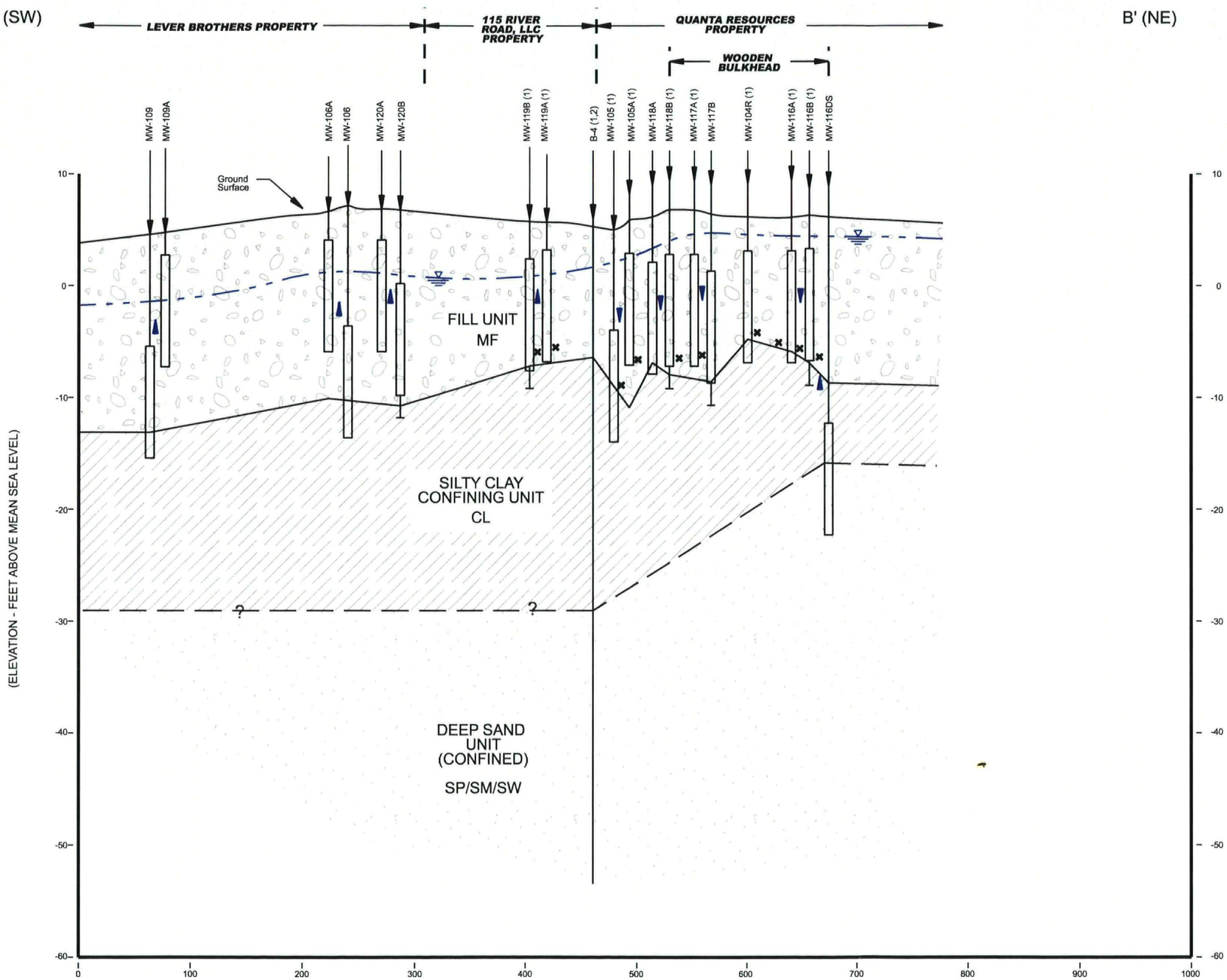
Figure 4-2

Geologic Cross-Section A - A'

Quanta Resources Site
Edgewater, New Jersey

February 2006	f11_332898.dgn

f16_322898.dgn



LEGEND

SM = SILTY SANDS, SAND-SILT MIXTURE

SP = POORLY-GRADED SANDS, GRAVELLY SANDS, LITTLE/NO FINES

SW = WELL - GRADED SANDS, GRAVELLY SANDS, LITTLE/NO FINES

CL = INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, LEAN CLAYS, SILTY CLAYS

MF = MIXED FILL (GRAVEL, SAND, CINDER/SLAG, BRICK, WOOD)

WATER TABLE (UNCONFINED). WATER LEVELS WERE COLLECTED BETWEEN 1400 AND 1440 HOURS ON DECEMBER 30, 2005, DURING LOW TIDE.

STRATIGRAPHIC CONTACT

STRATIGRAPHIC CONTACT (INFERRED)

MONITORING WELL SCREENED INTERVAL

(MONITORING WELL SUMP)

DIRECTION OF VERTICAL HYDRAULIC GRADIENT

DENOTES THE PRESENCE OF NAPL

NOTES

(1) DENOTES WELLS OR SOIL BORINGS THAT EXHIBIT THE PRESENCE OF NAPL, EITHER OBSERVED IN SUBSURFACE SOIL, OR AS MEASURABLE THICKNESSES IN MONITORING WELL

(2) EVIDENCE OF NAPL AT BORING B-4 WAS ONLY DETECTED IN THE FILL UNIT

1" = 10' VERTICAL

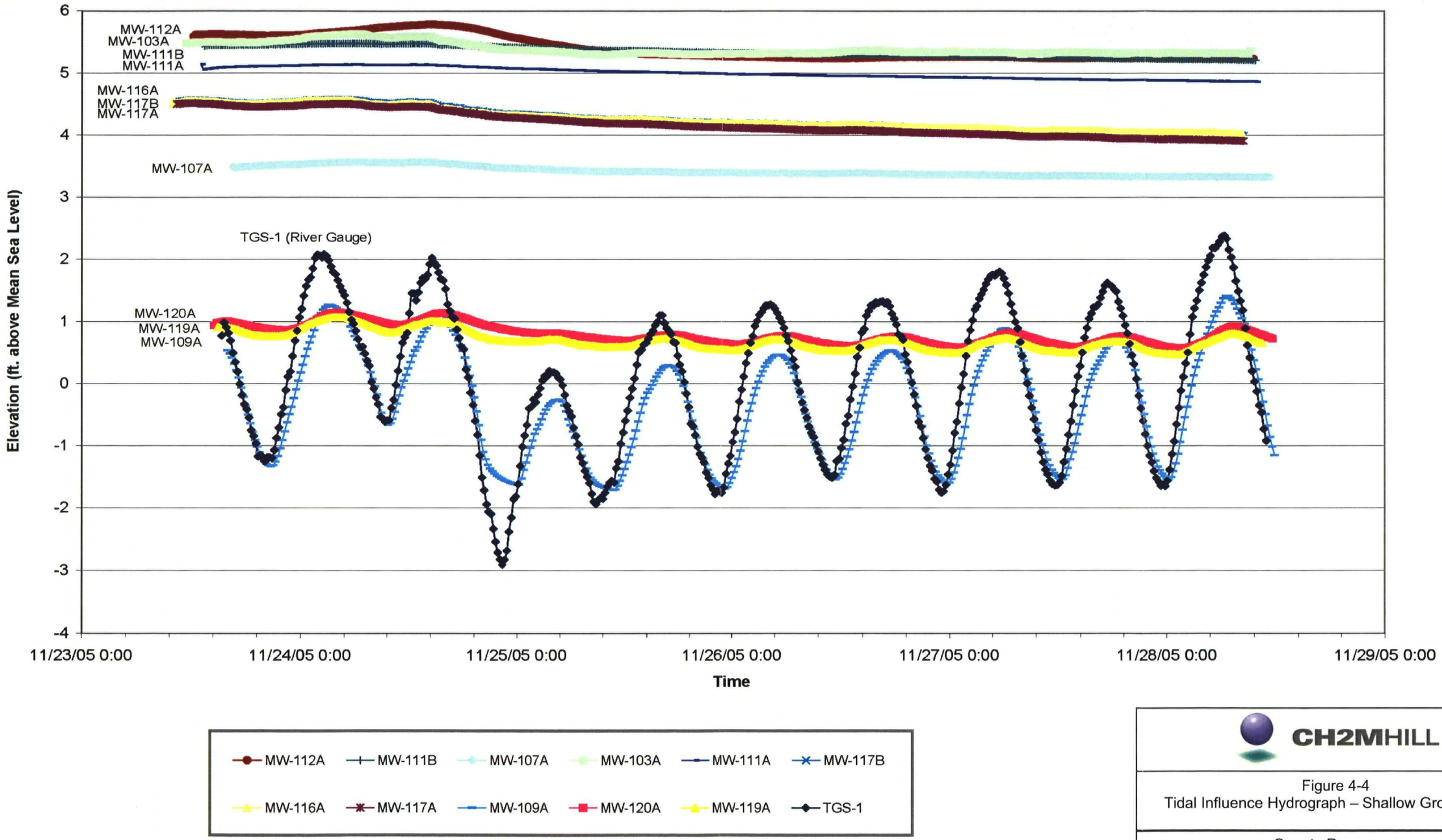
1" = 100' HORIZONTAL

CH2MHILL

Figure 4-3
Geologic Cross-Section B - B'

Quanta Resources Site
Edgewater, New Jersey

February 2006 | f12_332898.dgn

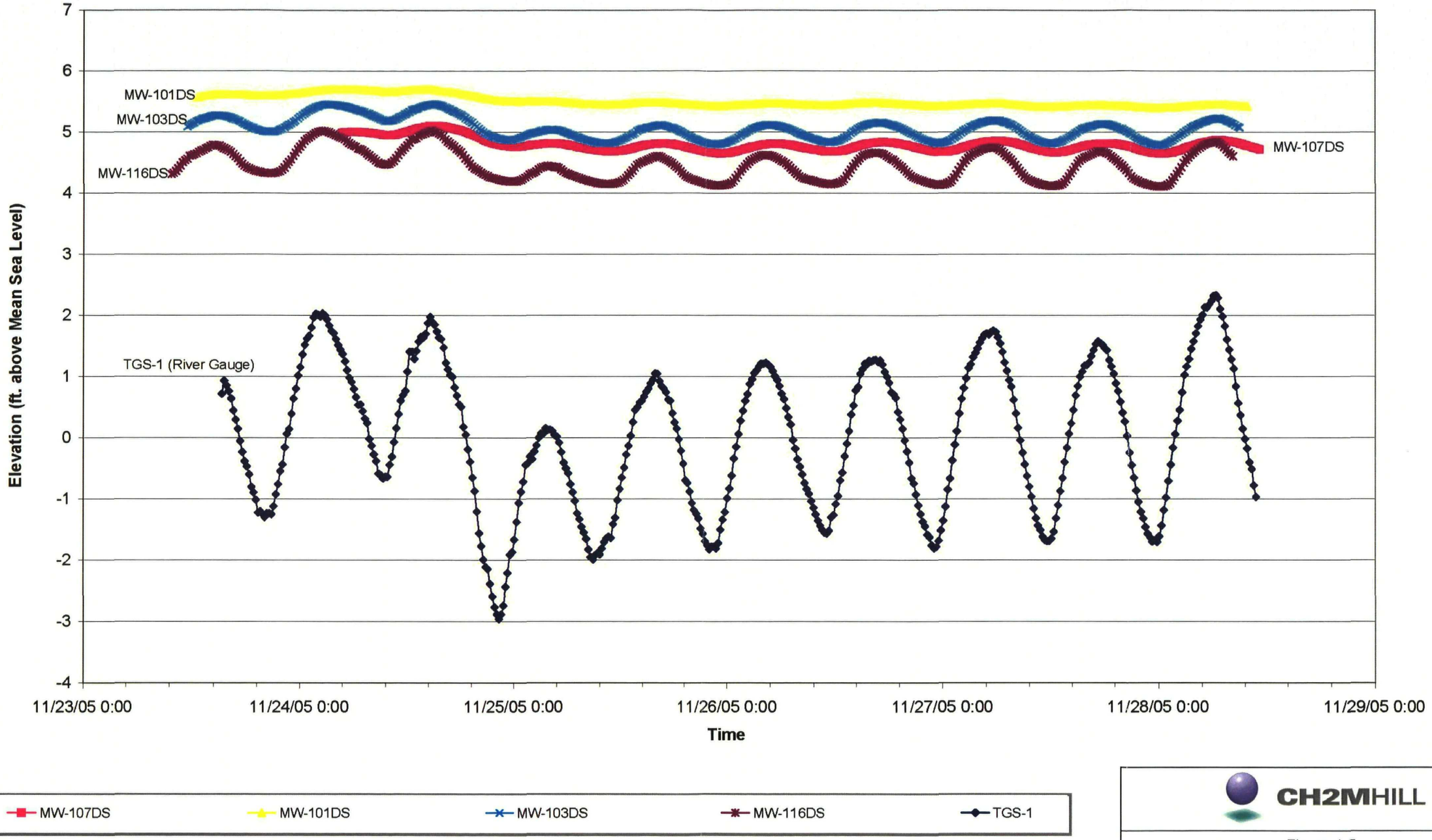


CH2MHILL

Figure 4-4
Tidal Influence Hydrograph – Shallow Groundwater

Quanta Resources
Edgewater, New Jersey

February 7, 2006 | Fig4-04.doc

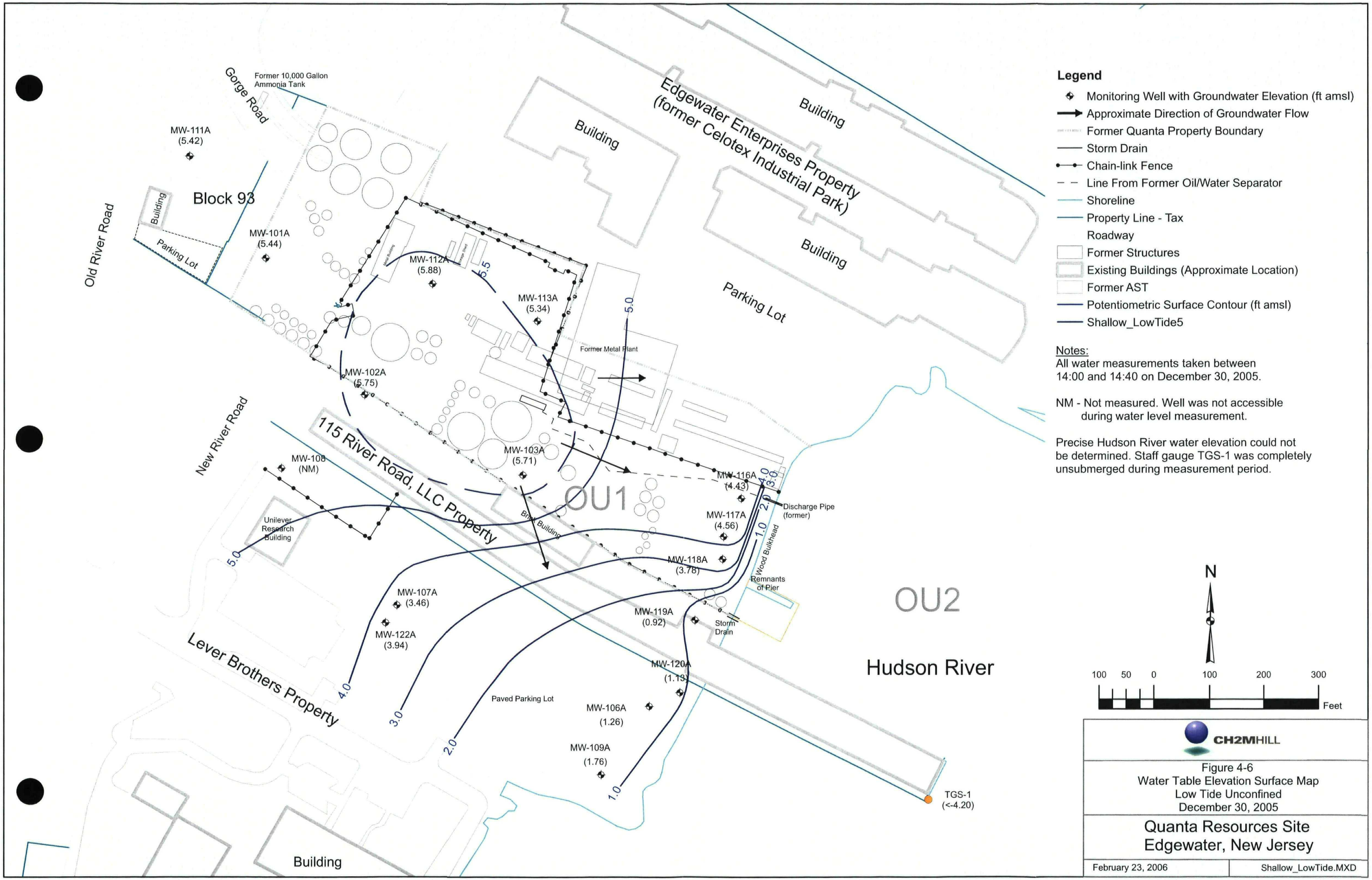


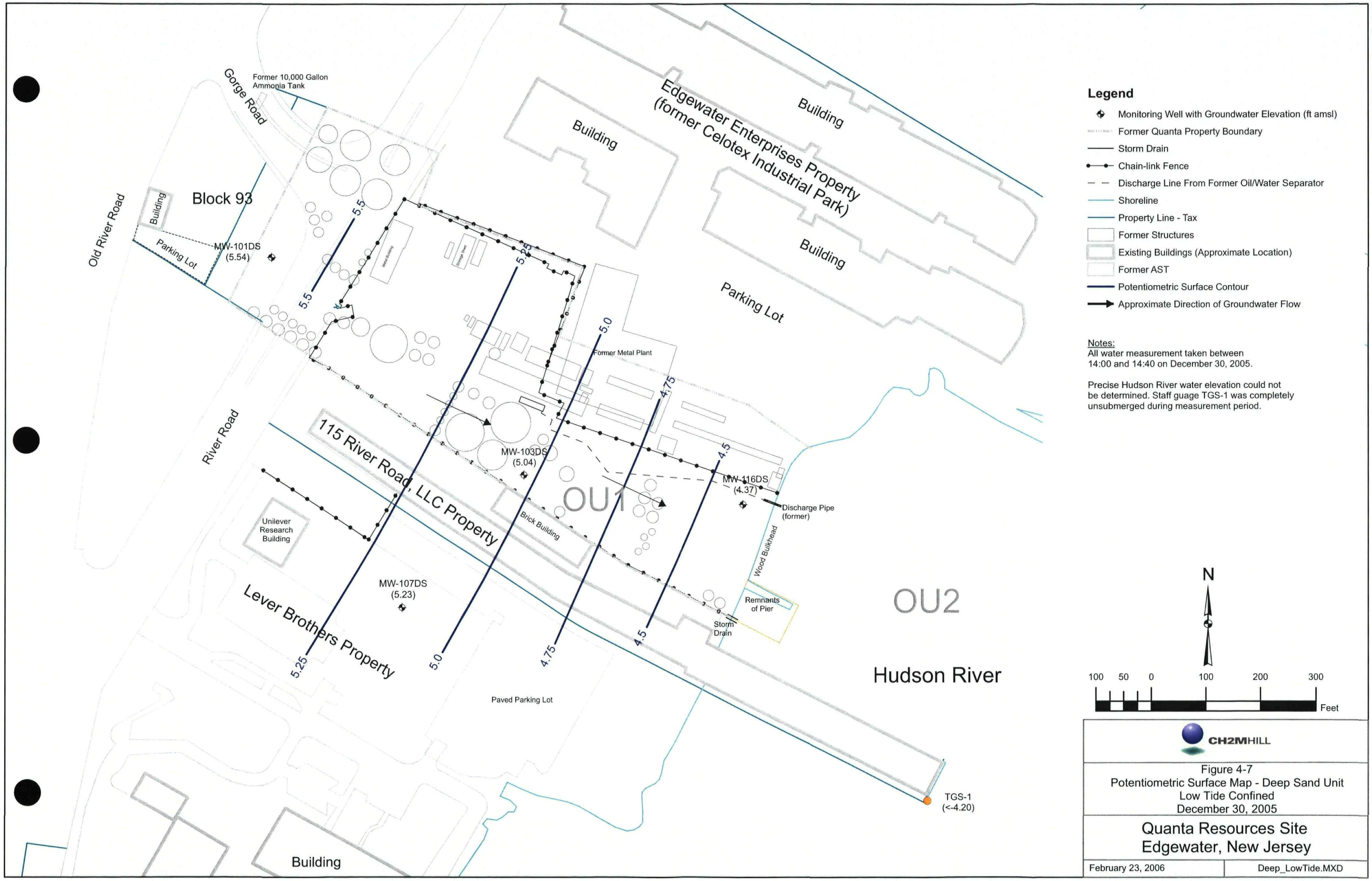
CH2MHILL

Figure 4-5
Tidal Influence Hydrograph – Deep Sand Unit

Quanta Resources
Edgewater, New Jersey

February 20, 2006 | Fig4-05.doc


Legend
Monitoring Well with Groundwater Elevation (ft amsl)
Approximate Direction of Groundwater Flow
Former Quanta Property Boundary
Storm Drain
Chain-link Fence
Line From Former Oil/Water Separator
Shoreline
Property Line - Tax
Roadway
Former Structures
Existing Buildings (Approximate Location)
Former AST
Potentiometric Surface Contour (ft amsl)
Shallow_LowTide5
Notes:
All water measurements taken between 14:00 and 14:40 on December 30, 2005.
NM - Not measured. Well was not accessible during water level measurement.
Precise Hudson River water elevation could not be determined. Staff gauge TGS-1 was completely unsubmerged during measurement period.
N
100 50 0 100 200 300
Feet
CH2MHILL
Figure 4-6
Water Table Elevation Surface Map
Low Tide Unconfined
December 30, 2005
Quanta Resources Site
Edgewater, New Jersey
February 23, 2006
Shallow_LowTide.MXD
Gorge Road
Former 10,000 Gallon Ammonia Tank
MW-111A (5.42)
Block 93
Building
Parking Lot
Old River Road
MW-101A (5.44)
MW-112A (5.88)
MW-113A (5.34)
MW-102A (5.75)
MW-103A (5.71)
MW-108 (NM)
New River Road
115 River Road, LLC Property
Unilever Research Building
Brick Building
Metal Building
Forge Shed
Former Metal Plant
Edgewater Enterprises Property (former Celotex Industrial Park)
Building
Building
Building
Parking Lot
OU1
OU2
MW-116A (4.43)
MW-117A (4.56)
MW-118A (3.78)
MW-119A (0.92)
MW-120A (1.13)
MW-106A (1.26)
MW-109A (1.76)
MW-107A (3.46)
MW-122A (3.94)
Discharge Pipe (former)
Wood Bulkhead
Remnants of Pier
Storm Drain
Paved Parking Lot
Lever Brothers Property
Hudson River
TGS-1 (<-4.20)
Building
5.0
5.5
4.0
3.0
2.0
1.0


Former 10,000 Gallon Ammonia Tank
Gorge Road
Edgewater Enterprises Property (former Celotex Industrial Park)
Building
Building
Building
Block 93
Old River Road
Building
Parking Lot
MW-101DS (5.54)
5.5
5.5
5.25
Metal Building
Storage Shed
Parking Lot
5.0
Former Metal Plant
4.75
River Road
115 River Road, LLC Property
MW-103DS (5.04)
4.5
MW-116DS (4.37)
Discharge Pipe (former)
OU1
Brick Building
Wood Bulkhead
Unilever Research Building
MW-107DS (5.23)
Remnants of Pier
Storm Drain
OU2
Lever Brothers Property
5.25
5.0
4.75
4.5
Hudson River
Paved Parking Lot
TGS-1 (<-4.20)
Building
Legend
Monitoring Well with Groundwater Elevation (ft amsl)
Former Quanta Property Boundary
Storm Drain
Chain-link Fence
Discharge Line From Former Oil/Water Separator
Shoreline
Property Line - Tax
Former Structures
Existing Buildings (Approximate Location)
Former AST
Potentiometric Surface Contour
Approximate Direction of Groundwater Flow
Notes:
All water measurement taken between 14:00 and 14:40 on December 30, 2005.
Precise Hudson River water elevation could not be determined. Staff guage TGS-1 was completely unsubmerged during measurement period.
N
100 50 0 100 200 300
Feet
CH2MHILL
Figure 4-7
Potentiometric Surface Map - Deep Sand Unit
Low Tide Confined
December 30, 2005
Quanta Resources Site
Edgewater, New Jersey
February 23, 2006
Deep_LowTide.MXD

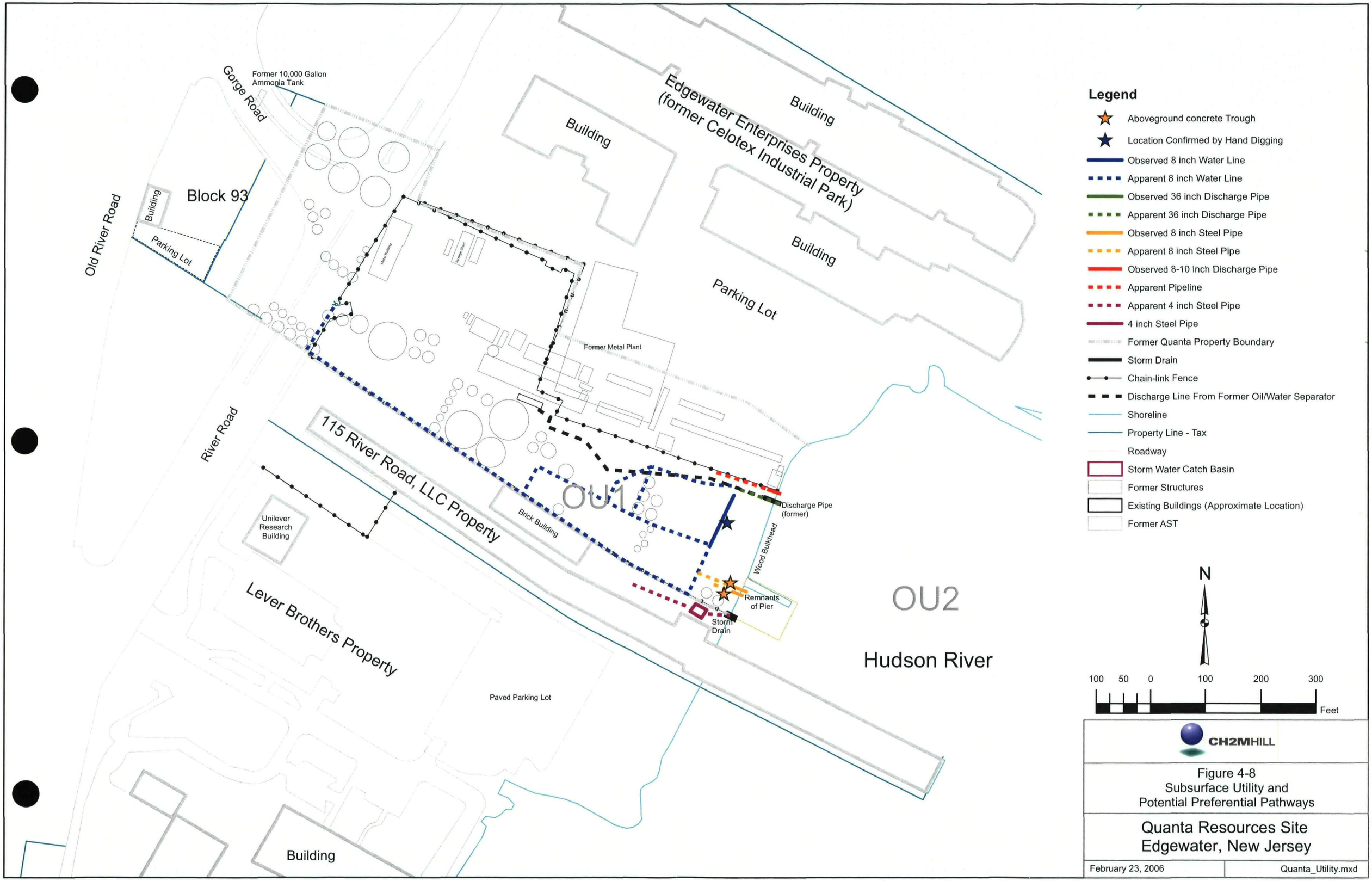
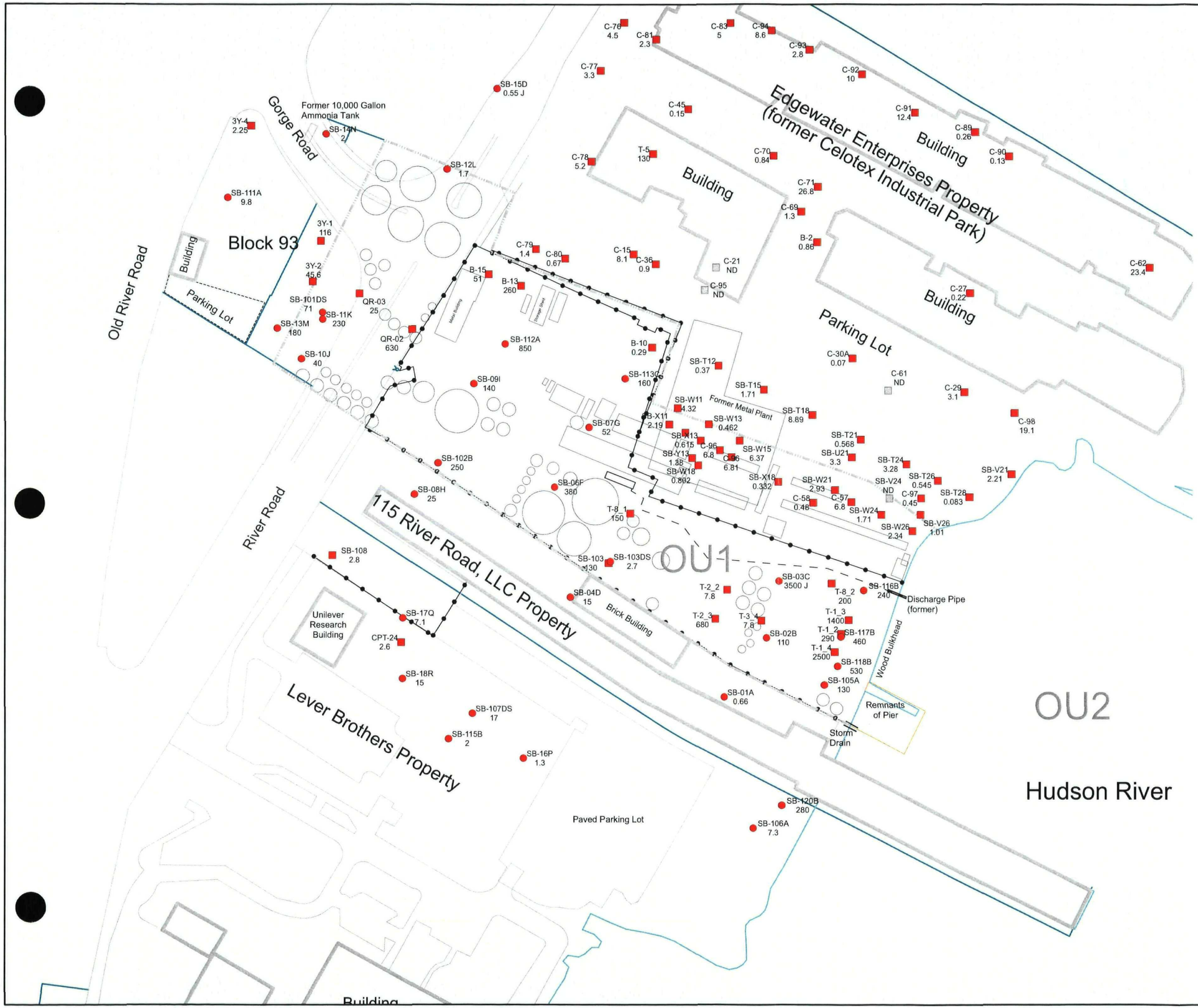


Figure 4-8
Subsurface Utility and
Potential Preferential Pathways

Quanta Resources Site
Edgewater, New Jersey

February 23, 2006 | Quanta_Utility.mxd



Legend

- Historical Soil Sampling Location with Result Not Exceeding Soil Screening Criteria[1] (mg/kg)
- RI Soil Sampling Location with Result Not Exceeding Soil Screening Criteria[1] (mg/kg)
- Historical Soil Sampling Location with Result Exceeding Soil Screening Criteria[1] (mg/kg)
- RI Soil Sampling Location with Result Exceeding Soil Screening Criteria[1] (mg/kg)
- Former Quanta Property Boundary
- Storm Drain
- Chain-link Fence
- Discharge Line From Former Oil/Water Separator
- Shoreline
- Property Line - Tax
- Roadway
- Former Structures
- Existing Buildings (Approximat Location)
- Former AST

Notes:
1: Maximum detected value shown for each location in mg/kg.
2: Soil sampling locations in RED indicate that the sample with the highest concentration detected that exceeded the lowest of the following USEPA and New Jersey screening criteria (value is shaded):

	New Jersey			USEPA - REGION 9	
Constituent	Impact to GW	Non-Residential	Residential	Industrial	Residential
Benzo(a)pyrene	100	0.66	0.66	0.21	0.06

3: ND: not detected above the laboratory method detection limit
4: mg/kg: milligrams per kilogram [parts per million (ppm)]

N

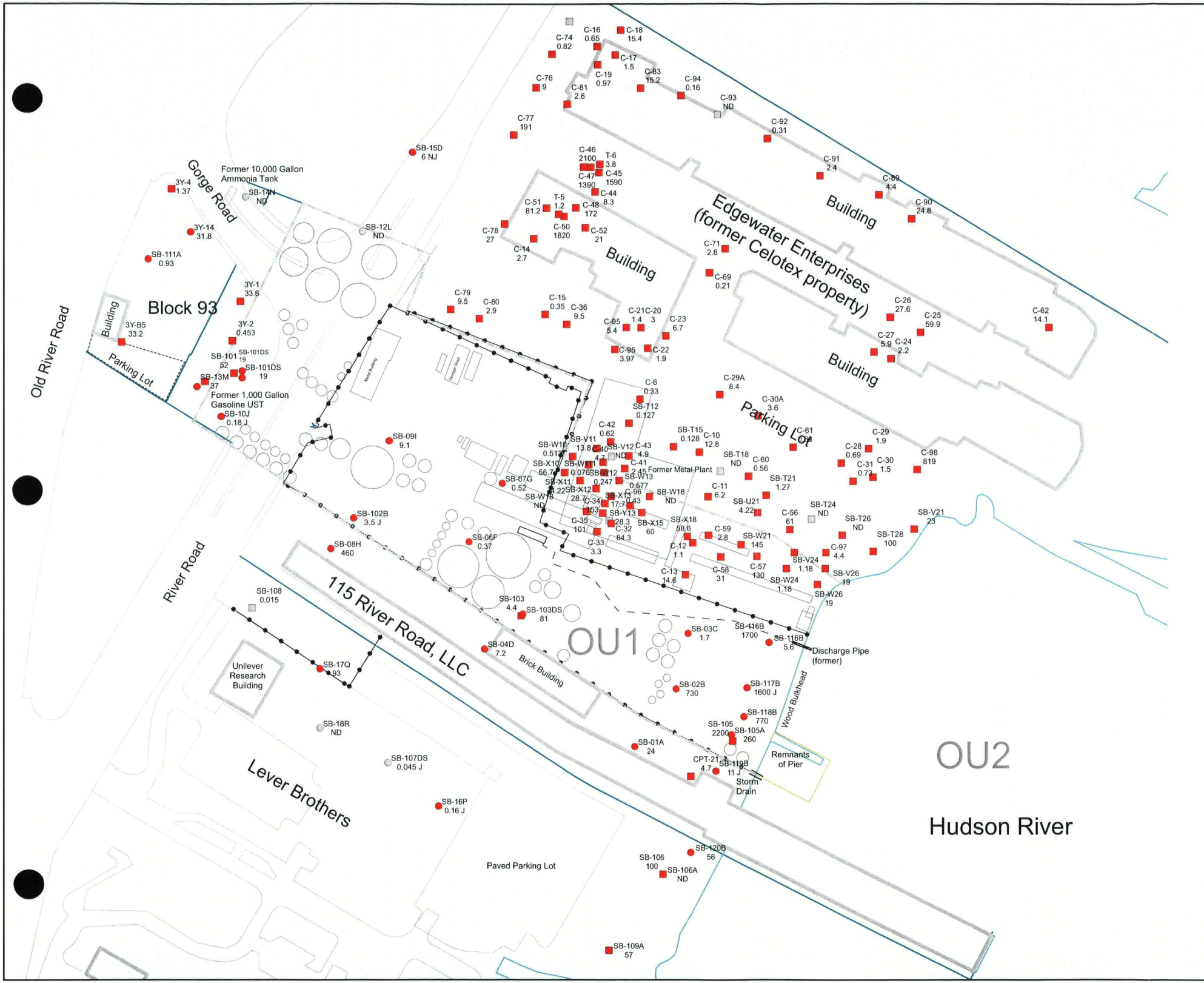
100 50 0 100 200 300 Feet

CH2MHILL

Figure 4-9
Unsaturated Soil Sampling Results
Benzo(a)pyrene (0-4 ft. below grade)

Quanta Resources Site
Edgewater, New Jersey

February 23, 2006 | Benzo(A)Pyrene_0_4.mxd



Legend

- Historical Soil Sampling Location with Result Not Exceeding Soil Screening Criteria[1] (mg/kg)
- RI Soil Sampling Location with Result Not Exceeding Soil Screening Criteria[1] (mg/kg)
- Historical Soil Sampling Location with Result Exceeding Soil Screening Criteria[1] (mg/kg)
- RI Soil Sampling Location with Result Exceeding Soil Screening Criteria[1] (mg/kg)
- Former Quanta Property Boundary
- Storm Drain
- Chain-link Fence
- Discharge Line From Former Oil/Water Separator
- Shoreline
- Property Line - Tax
- Roadway
- Former Structures
- Existing Buildings (Approximate Location)
- Former AST

Notes:
1: Maximum detected concentration shown for each location in mg/kg.
2: Soil sampling locations in RED indicate that the sample with the highest concentration detected that exceeded the lowest of the following USEPA and New Jersey screening criteria (value is shaded):

	New Jersey			USEPA - REGION 9	
Constituent	Impact to GW	Non-Residential	Residential	Industrial	Residential
Benzo(a)pyrene	100	0.66	0.66	0.21	0.06

2: ND: not detected above the laboratory method detection limit
3: mg/kg: milligrams per kilogram [parts per million (ppm)]

N

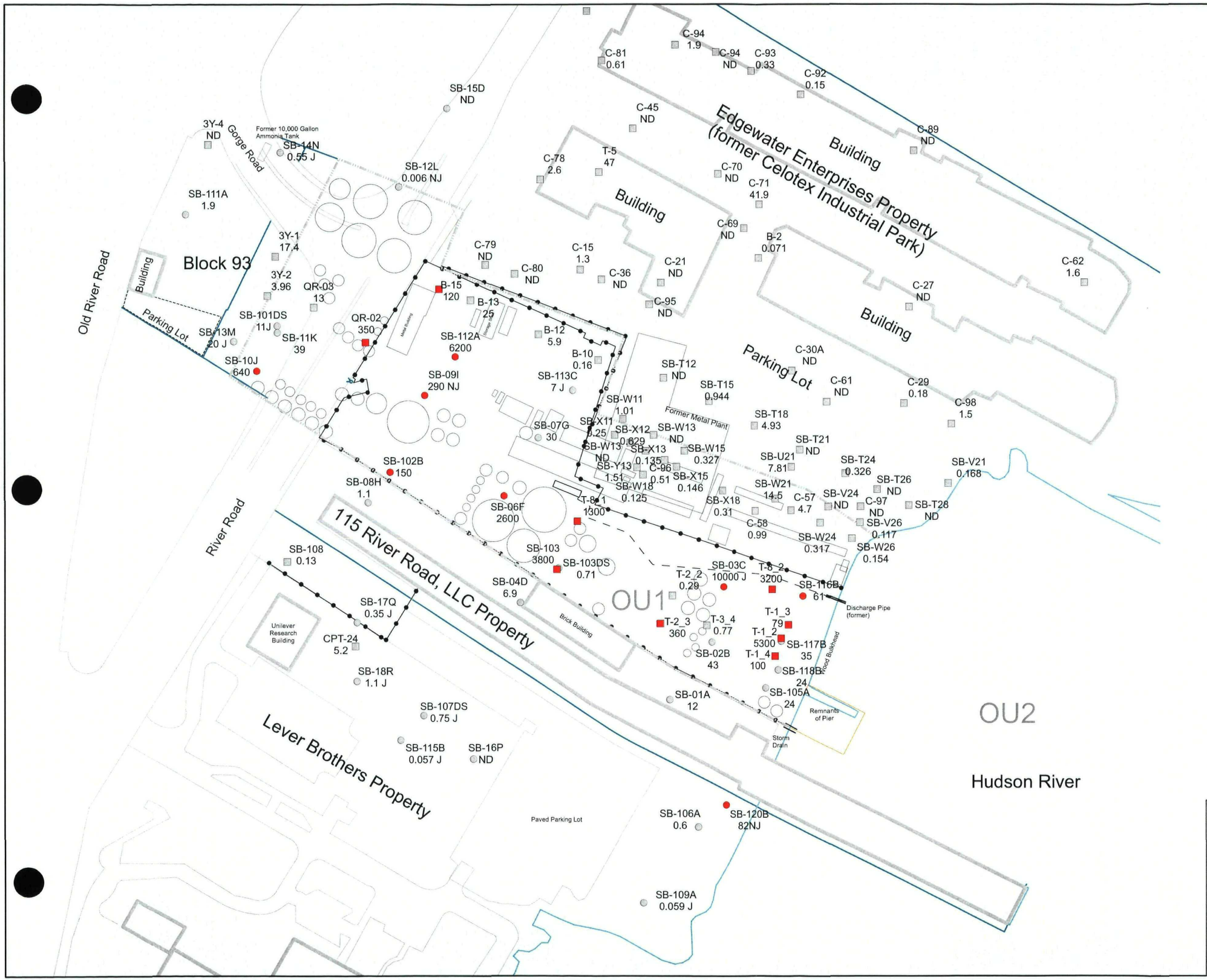
100 50 0 100 200 300 Feet

CH2MHILL

Figure 4-10
Saturated Soil Sampling Results
Benzo(a)pyrene (>4 ft. below grade)

Quanta Resources Site
Edgewater, New Jersey

February 23, 2006 | Benzo(a)pyrene_4_30.mxd



Legend

- Historical Soil Sampling Location with Result Not Exceeding Soil Screening Criteria[1] (mg/kg)
- RI Soil Sampling Location with Result Not Exceeding Soil Screening Criteria[1] (mg/kg)
- Historical Soil Sampling Location with Result Exceeding Soil Screening Criteria[1] (mg/kg)
- RI Soil Sampling Location with Result Exceeding Soil Screening Criteria[1] (mg/kg)
- Former Quanta Property Boundary
- Storm Drain
- Chain-link Fence
- Discharge Line From Former Oil/Water Separator
- Shoreline
- Property Line - Tax
- Roadway
- Former Structures
- Existing Buildings (Approximate Location)
- Former AST

Notes:
1: Maximum detected concentration shown for each location in mg/kg.
2: Soil sampling locations in RED indicate that the sample with the highest concentration detected that exceeded the lowest of the following USEPA and New Jersey screening criteria (value is shaded):

Constituent	New Jersey			USEPA - REGION 9	
	Impact to GW	Non-Residential	Residential	Industrial	Residential
Naphthalene	100	4200	230	190	56

3: ND: not detected above the laboratory method detection limit
4: mg/kg: milligrams per kilogram [parts per million (ppm)]

N

100 50 0 100 200 300 Feet

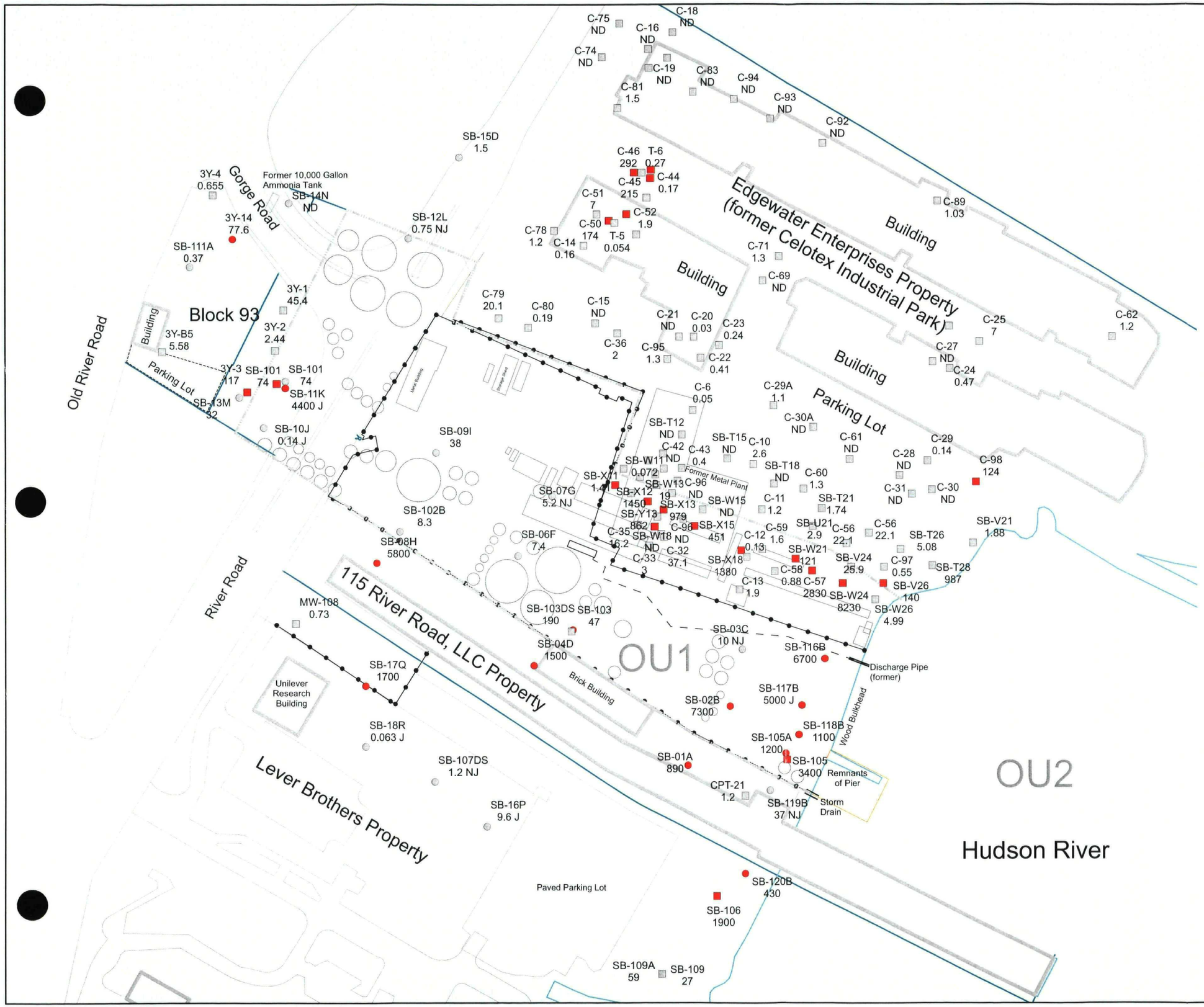
CH2MHILL

Figure 4-11
Unsaturated Soil Sampling Results
Naphthalene (0-4 ft. below grade)

Quanta Resources Site
Edgewater, New Jersey

February 23, 2006

Naphthalene_0_4.mxd



Legend

- Historical Soil Sampling Location with Result Not Exceeding Soil Screening Criteria[1] (mg/kg)
- RI Soil Sampling Location with Result Not Exceeding Soil Screening Criteria[1] (mg/kg)
- Historical Soil Sampling Location with Result Exceeding Soil Screening Criteria[1] (mg/kg)
- RI Soil Sampling Location with Result Exceeding Soil Screening Criteria[1] (mg/kg)
- Former Quanta Property Boundary
- Storm Drain
- Chain-link Fence
- Discharge Line From Former Oil/Water Separator
- Shoreline
- Property Line - Tax
- Roadway
- Former Structures
- Existing Buildings (Approximate Location)
- Former AST

Notes:
1: Maximum detected concentration shouwn for each location in mg/kg.
2: Soil sampling locations in RED indicate that the sample with the highest concentration detected that exceeded the lowest of the following USEPA and New Jersey screening criteria (value is shaded):

	New Jersey			USEPA - REGION 9	
Constituent	Impact to GW	Non-Residential	Residential	Industrial	Residential
Naphthalene	100	4200	230	190	56

3: ND: not detected above the laboratory method detection limit
4: mg/kg: milligrams per kilogram [parts per million (ppm)]

N

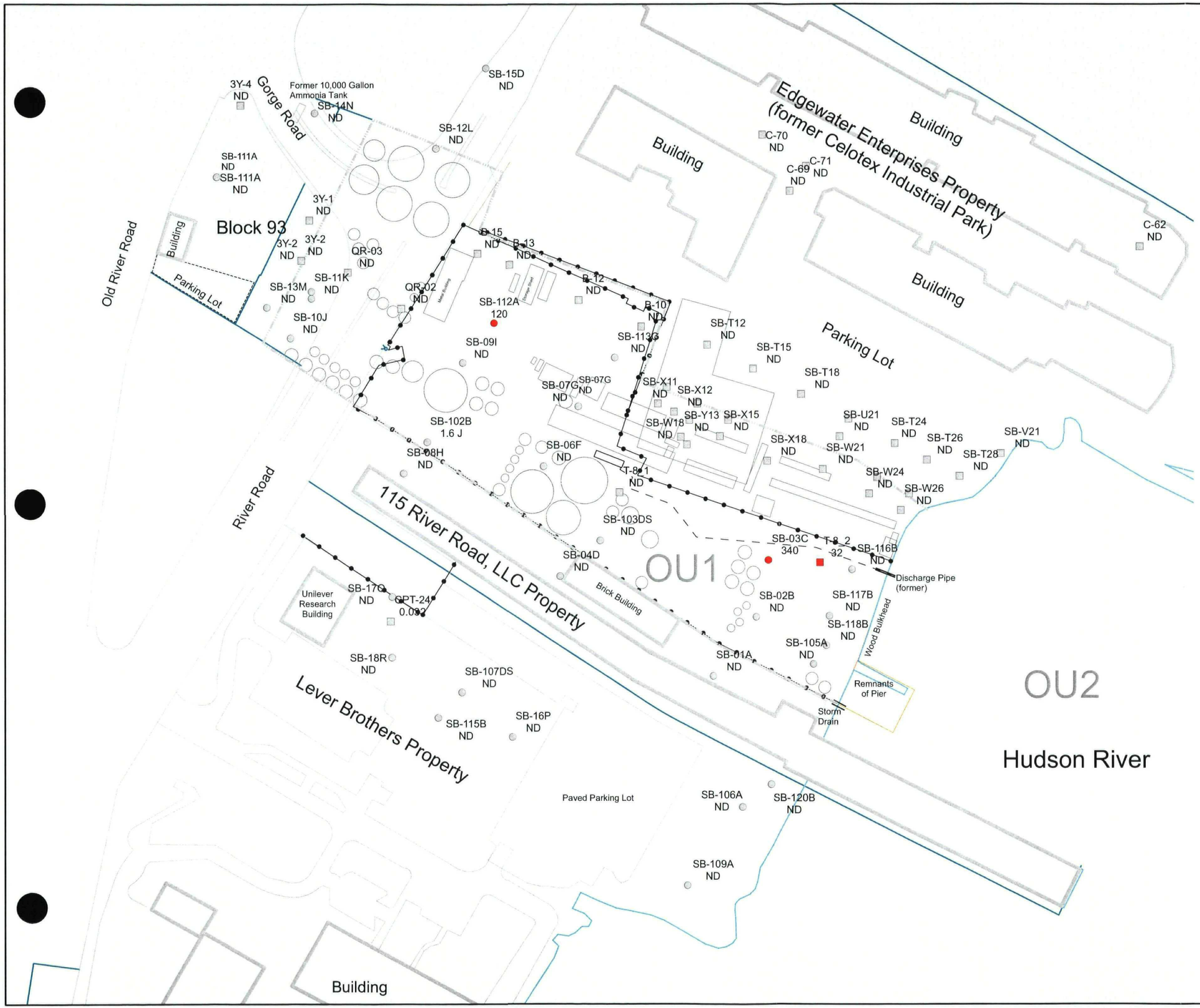
100 50 0 100 200 300 Feet

CH2MHILL

Figure 4-12
Saturated Soil Sampling Results
Naphthalene (>4 ft. below grade)

Quanta Resources Site
Edgewater, New Jersey

February 23, 2006 | Naphthalene_4_30.mxd



Legend

- Historical Soil Sampling Location with Result Not Exceeding Soil Screening Criteria[1] (mg/kg)
- RI Soil Sampling Location with Result Not Exceeding Soil Screening Criteria[1] (mg/kg)
- Historical Soil Sampling Location with Result Exceeding Soil Screening Criteria[1] (mg/kg)
- RI Soil Sampling Location with Result Exceeding Soil Screening Criteria[1] (mg/kg)
- Former Quanta Property Boundary
- Storm Drain
- Chain-link Fence
- Discharge Line From Former Oil/Water Separator
- Shoreline
- Property Line - Tax
- Roadway
- Former Structures
- Existing Buildings (Approximate Location)
- Former AST

Notes:
1: Maximum detected concentration shown for each location in mg/kg
2: Soil sampling locations in RED indicate that the sample with the highest concentration detected that exceeded the lowest of the following USEPA and New Jersey screening criteria (value is shaded):

	New Jersey			USEPA - REGION 9	
	Impact to GW	Non-Residential	Residential	Industrial	Residential
2,4-Dimethylphenol	10	10000	1100	12000	1200

2: ND: not detected above the laboratory method detection limit
3: mg/kg: milligrams per kilogram [parts per million (ppm)]

N

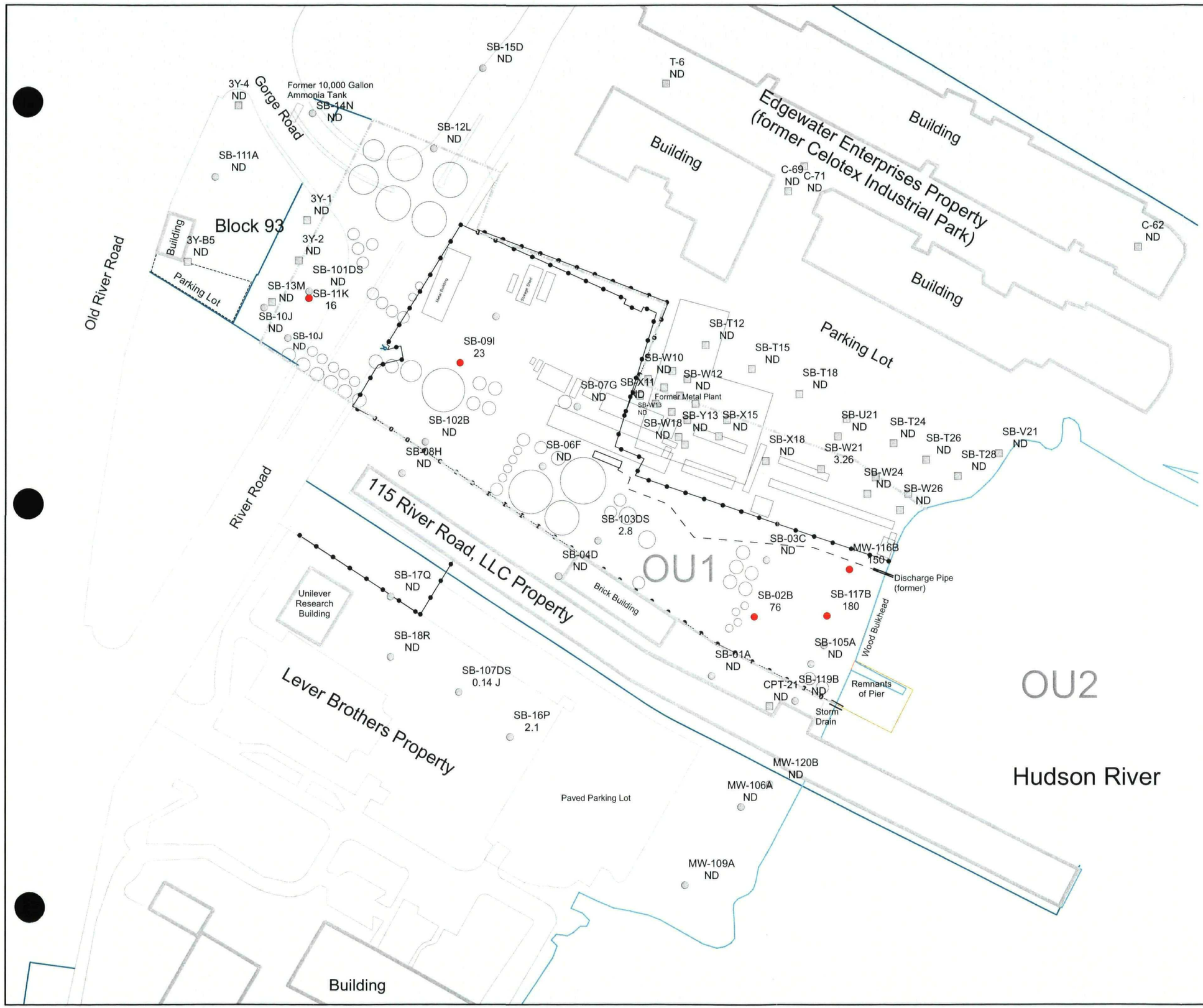
100 50 0 100 200 300
Feet

CH2MHILL

Figure 4-13
Unsaturated Soil Sampling Results
2,4-Dimethylphenol (0-4 ft. below grade)

Quanta Resources Site
Edgewater, New Jersey

February 23, 2006 | Dimethylphenol_0_4.mxd



Legend

- RI Soil Sampling Location with Result Exceeding Soil Screening Criteria[1] (mg/kg)
- Historical Soil Sampling Location with Result Exceeding Soil Screening Criteria[1] (mg/kg)
- RI Soil Sampling Location with Result Not Exceeding Soil Screening Criteria[1] (mg/kg)
- Historical Soil Sampling Location with Result Not Exceeding Soil Screening Criteria[1] (mg/kg)
- Former Quanta Property Boundary
- Storm Drain
- Chain-link Fence
- Discharge Line From Former Oil/Water Separator
- Shoreline
- Roadway
- Former Structures
- Existing Buildings (Approximate Locatioin)
- Former AST

Notes:
1: Maximum detected concentration shown for each location in mg/kg.
2: Soil sampling locations in RED indicate that the sample with the highest concentration detected that exceeded the lowest of the following USEPA and New Jersey screening criteria (value is shaded):

	New Jersey			USEPA - REGION 9	
	Impact to GW	Non-Residential	Residential	Industrial	Residential
2,4-Dimethylphenol	10	10000	1100	12000	1200

3: ND: not detected above the laboratory method detection limit
4: mg/kg: milligrams per kilogram [parts per million (ppm)]

N

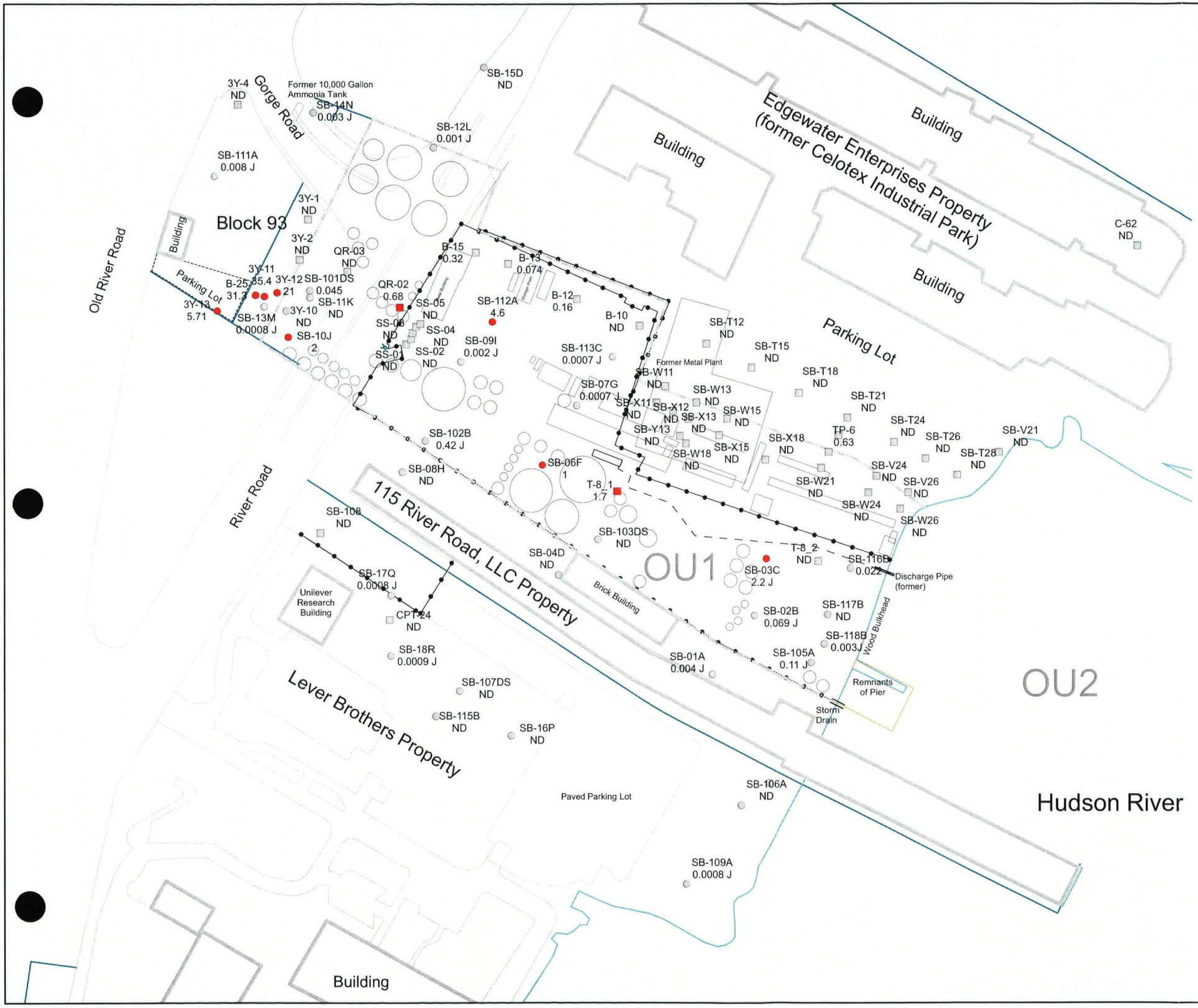
100 50 0 100 200 300 Feet

CH2MHILL

Figure 4-14
Saturated Soil Sampling Results
2,4-Dimethylphenol (>4 ft. below grade)

Quanta Resources Site
Edgewater, New Jersey

February 23, 2006 | Dimethylphenol_4_30.mxd



Legend

- RI Soil Sampling Location with Result Exceeding Soil Screening Criteria[1] (mg/kg)
- Historical Soil Sampling Location with Result Exceeding Soil Screening Criteria[1] (mg/kg)
- RI Soil Sampling Location with Result Not Exceeding Soil Screening Criteria[1] (mg/kg)
- Historical Soil Sampling Location with Result Not Exceeding Soil Screening Criteria[1] (mg/kg)
- Former Quanta Property Boundary
- Storm Drain
- Chain-link Fence
- Dicharge Line From Former Oil/Water Separator
- Shoreline
- Property Line - Tax
- Roadway
- Former Structures
- Existing Buildings (Approximate Location)
- Former AST

Notes:
1: Maximum detected concentration shown for each location in mg/kg.
2: Soil sampling locations in RED indicate that the sample with the highest concentration detected that exceeded the lowest of the following USEPA and New Jersey screening criteria (value is shaded):

	New Jersey			USEPA - REGION 9	
Constituent	Impact to GW	Non-Residential	Residential	Industrial	Residential
Benzene	1	13	3	1.4	0.64

3: ND: not detected above the laboratory method detection limit
4: mg/kg: milligrams per kilogram [parts per million (ppm)]

N

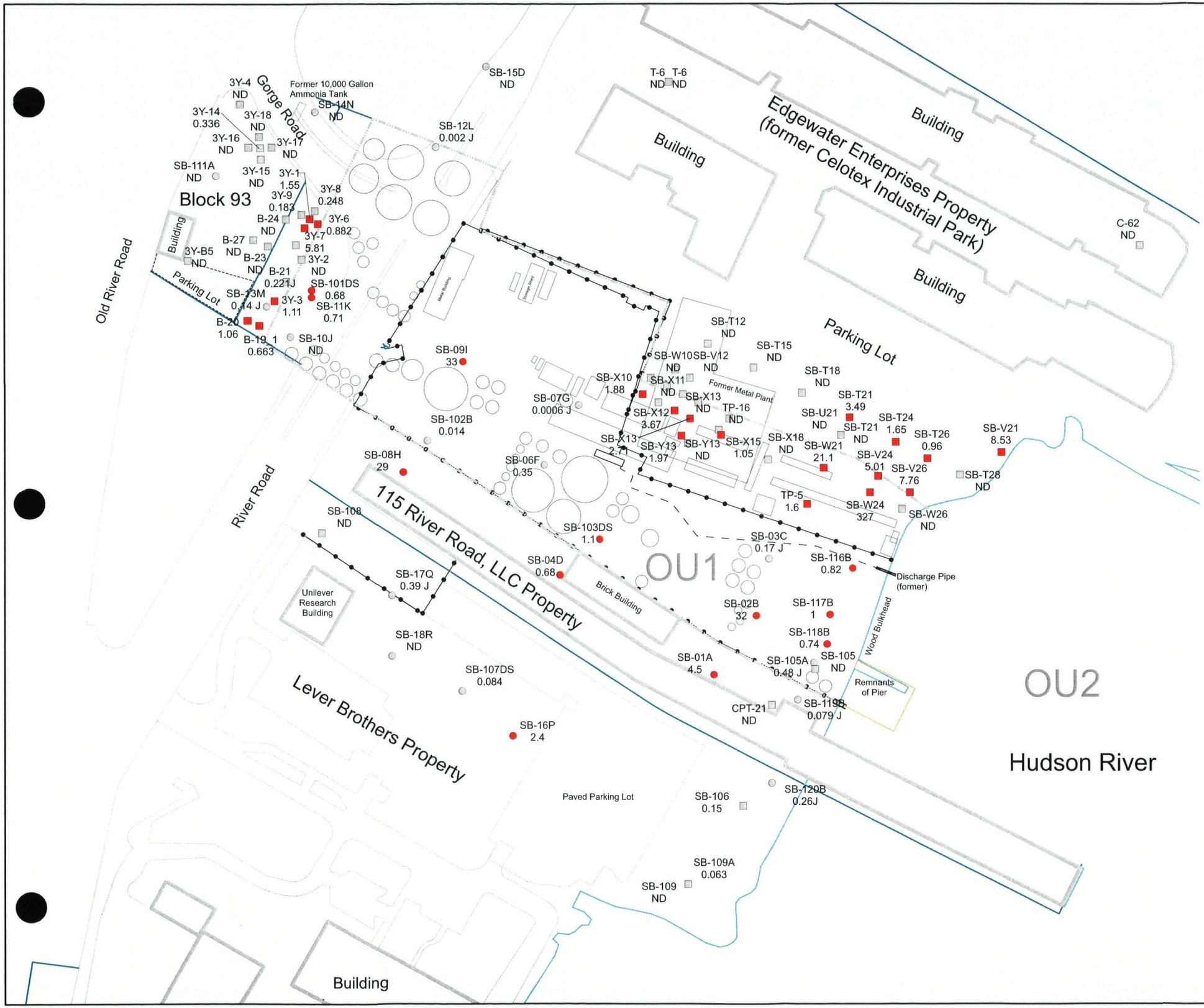
100 50 0 100 200 300 Feet

CH2MHILL

Figure 4-15
Unsaturated Soil Sampling Results
Benzene (0-4 ft. below grade)

Quanta Resources Site
Edgewater, New Jersey

February 23, 2006 | Benzene_0_4.mxd



Legend

- RI Soil Sampling Location with Result Exceeding Soil Screening Criteria[1] (mg/kg)
- Historical Soil Sampling Location with Result Exceeding Soil Screening Criteria[1] (mg/kg)
- RI Soil Sampling Location with Result Not Exceeding Soil Screening Criteria[1] (mg/kg)
- Historical Soil Sampling Location with Result Not Exceeding Soil Screening Criteria[1] (mg/kg)
- Former Quanta Property Boundary
- Storm Drain
- Chain-link Fence
- Discharge Line From Former Oil/Water Separator
- Shoreline
- Property Line - Tax
- Roadway
- Former Structures
- Existing Buildings (Approximate Location)
- Former AST

Notes:
1: Maximum detected concentration shown for each location in mg/kg.
2: Soil sampling locations in RED indicate that the sample with the highest concentration detected that exceeded the lowest of the following USEPA and New Jersey screening criteria (value is shaded):

	New Jersey			USEPA - REGION 9	
Constituent	Impact to GW	Non-Residential	Residential	Industrial	Residential
Benzene	1	13	3	1.4	0.64

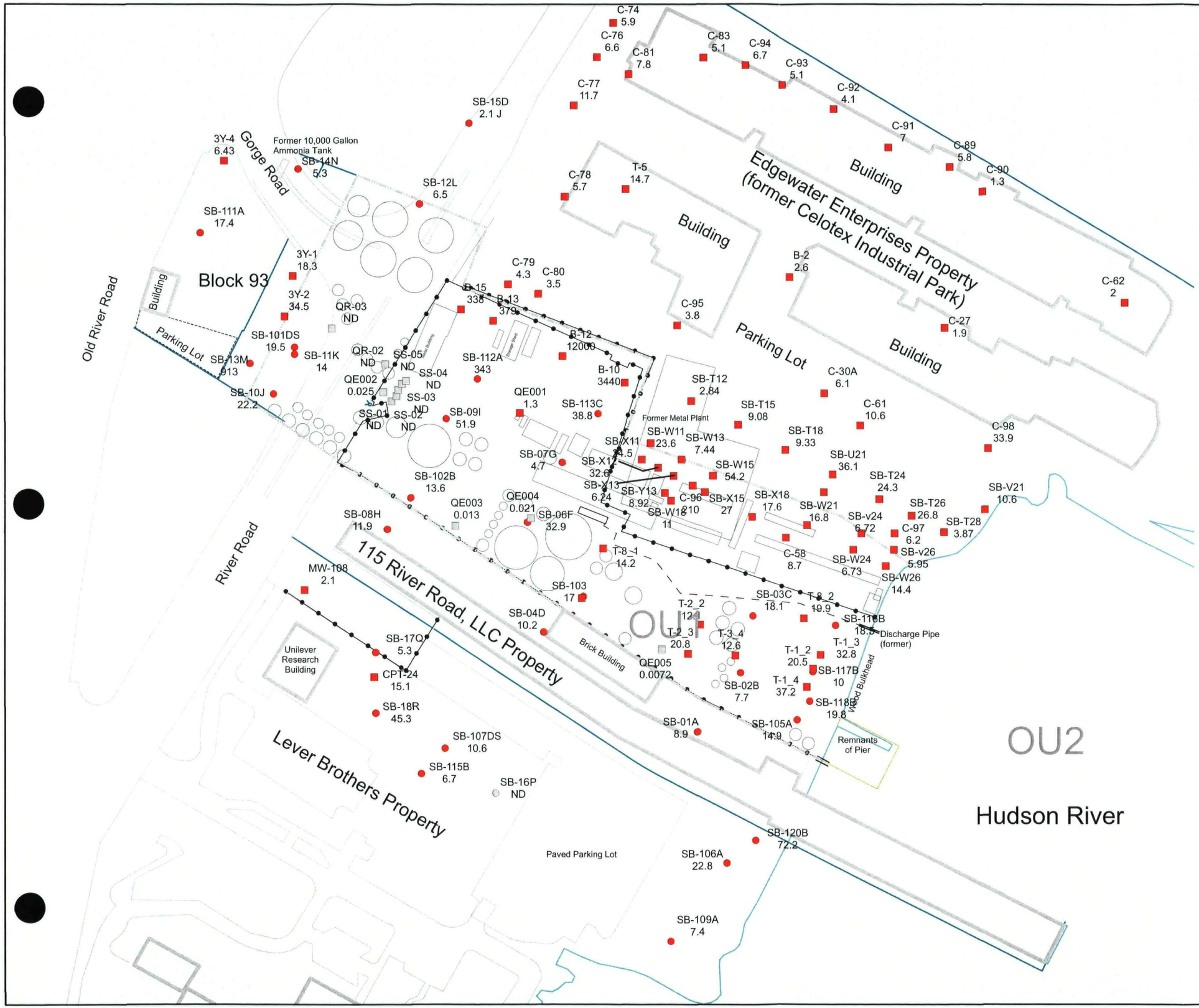
3: ND: not detected above the laboratory method detection limit
4: mg/kg: milligrams per kilogram [parts per million (ppm)]

CH2MHILL

Figure 4-16
Saturated Soil Sampling Results
Benzene (>4 ft. below grade)

Quanta Resources Site
Edgewater, New Jersey

February 23, 2006 | Benzene_4_30.mxd



Legend

- RI Soil Sampling Location with Result Exceeding Soil Screening Criteria[1] (mg/kg)
- Historical Soil Sampling Location with Result Exceeding Soil Screening Criteria[1] (mg/kg)
- RI Soil Sampling Location with Result Not Exceeding Soil Screening Criteria[1] (mg/kg)
- Historical Soil Sampling Location with Result Not Exceeding Soil Screening Criteria[1] (mg/kg)
- Former Quanta Property Boundary
- Storm Drain
- Chain-link Fence
- Discharge Line From Former Oil/Water Separator
- Shoreline
- Property Line - Tax
- Roadway
- Former Structures
- Existing Buildings (Approximate Location)
- Former AST

Notes:
1: Maximum detected concentration shown for each location in mg/kg.
2: Soil sampling locations in RED indicate that the sample with the highest concentration detected that exceeded the lowest of the following USEPA and New Jersey screening criteria (value is shaded):

Constituent	New Jersey			USEPA - REGION 9	
	Impact to GW	Non-Residential	Residential	Industrial	Residential
Arsenic		20	20	1.6	0.39

3: ND: not detected above the laboratory method detection limit
4: mg/kg: milligrams per kilogram [parts per million (ppm)]

N

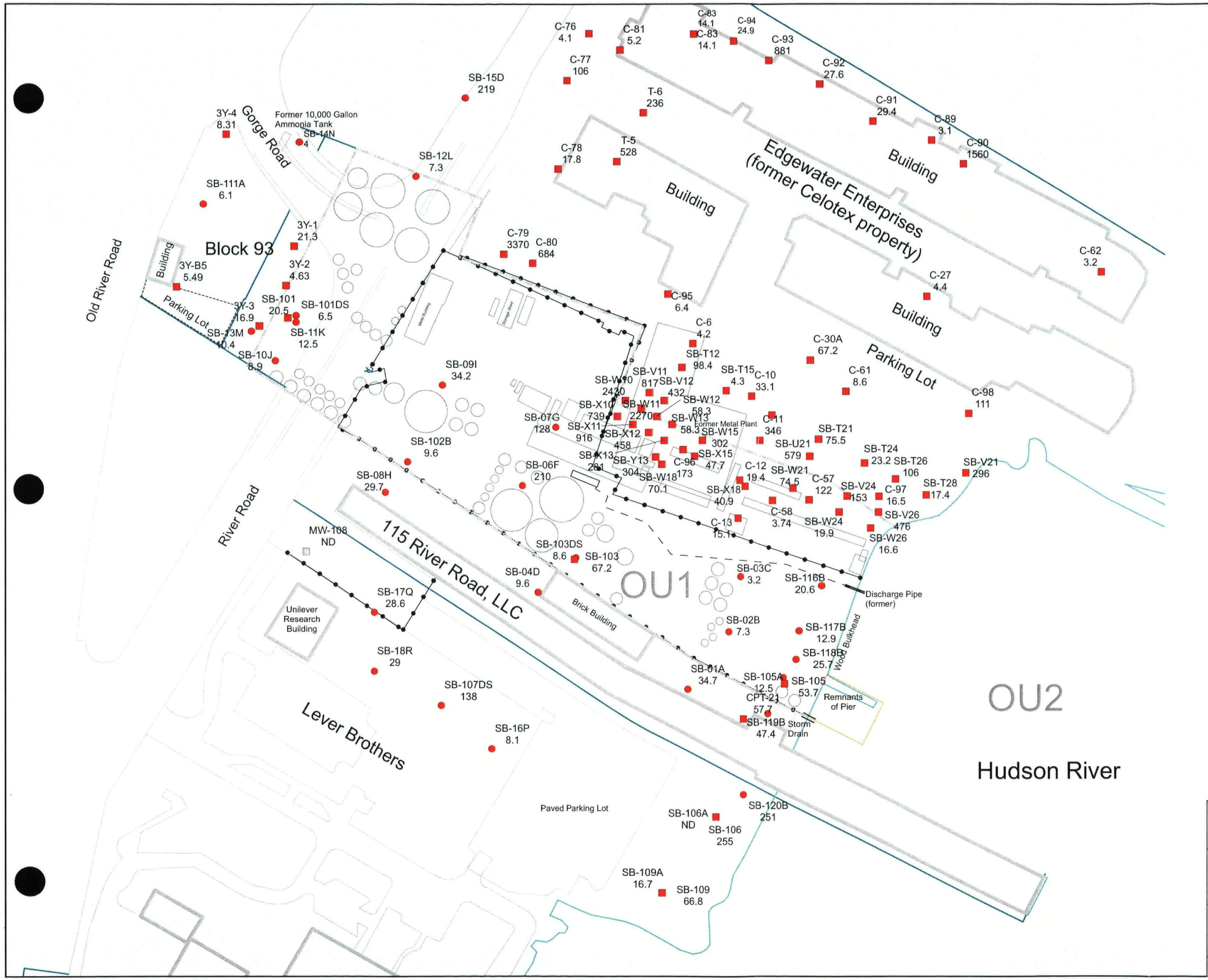
100 50 0 100 200 300 Feet

CH2MHILL

Figure 4-17
Unsaturated Soil Sampling Results
Arsenic (0-4 ft. below grade)

Quanta Resources Site
Edgewater, New Jersey

February 23, 2006 | Arsenic_0_4.mxd



Legend

- RI Soil Sampling Location with Result Exceeding Soil Screening Criteria[1] (mg/kg)
- Historical Soil Sampling Location with Result Exceeding Soil Screening Criteria[1] (mg/kg)
- RI Soil Sampling Location with Result Not Exceeding Soil Screening Criteria[1] (mg/kg)
- Historical Soil Sampling Location with Result Not Exceeding Soil Screening Criteria[1] (mg/kg)
- Former Quanta Property Boundary
- Storm Drain
- Chain-link Fence
- Discharge Line From Former Oil/Water Separator
- Shoreline
- Property Line - Tax
- Roadway
- Former Structures
- Existing Buildings (Approximate Location)
- Former AST

Notes:
1: Maximum detected concentration shown for each location in mg/kg.
2: Soil sampling locations in RED indicate that the sample with the highest concentration detected that exceeded the lowest of the following USEPA and New Jersey screening criteria (value is shaded):

	New Jersey			USEPA - REGION 9	
Constituent	Impact to GW	Non-Residential	Residential	Industrial	Residential
Arsenic		20	20	1.6	0.39

2: ND: not detected above the laboratory method detection limit
3: mg/kg: milligrams per kilogram [parts per million (ppm)]

N

100 50 0 100 200 300
Feet

CH2MHILL

Figure 4-18
Saturated Soil Sampling Results
Arsenic (>4 ft. below grade)

Quanta Resources Site
Edgewater, New Jersey

February 23, 2006 | Arsenic_4_30.mxd

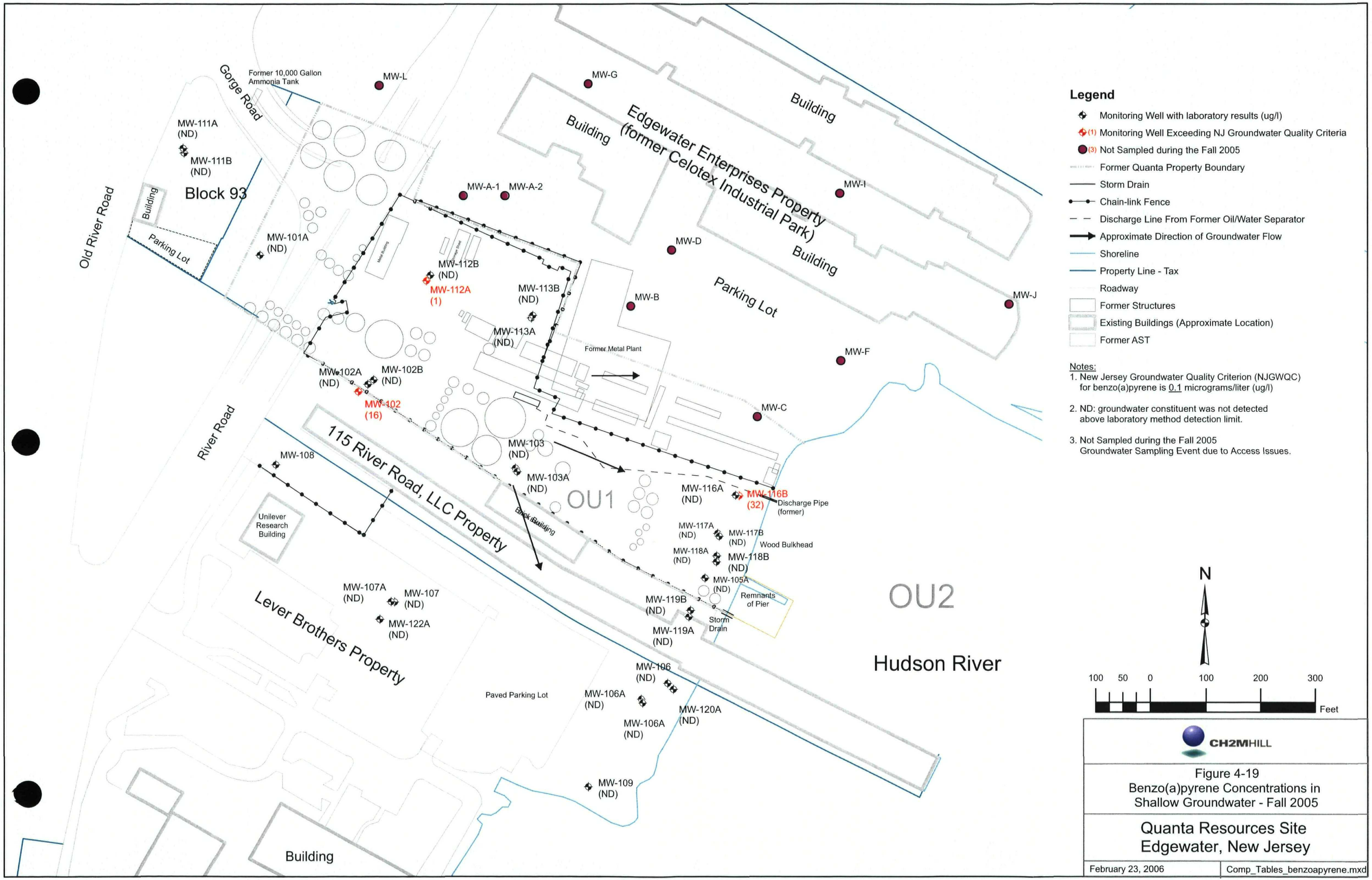


Figure 4-19
Benzo(a)pyrene Concentrations in Shallow Groundwater - Fall 2005

Quanta Resources Site
Edgewater, New Jersey

February 23, 2006 | Comp_Tables_benzoapyrene.mxd

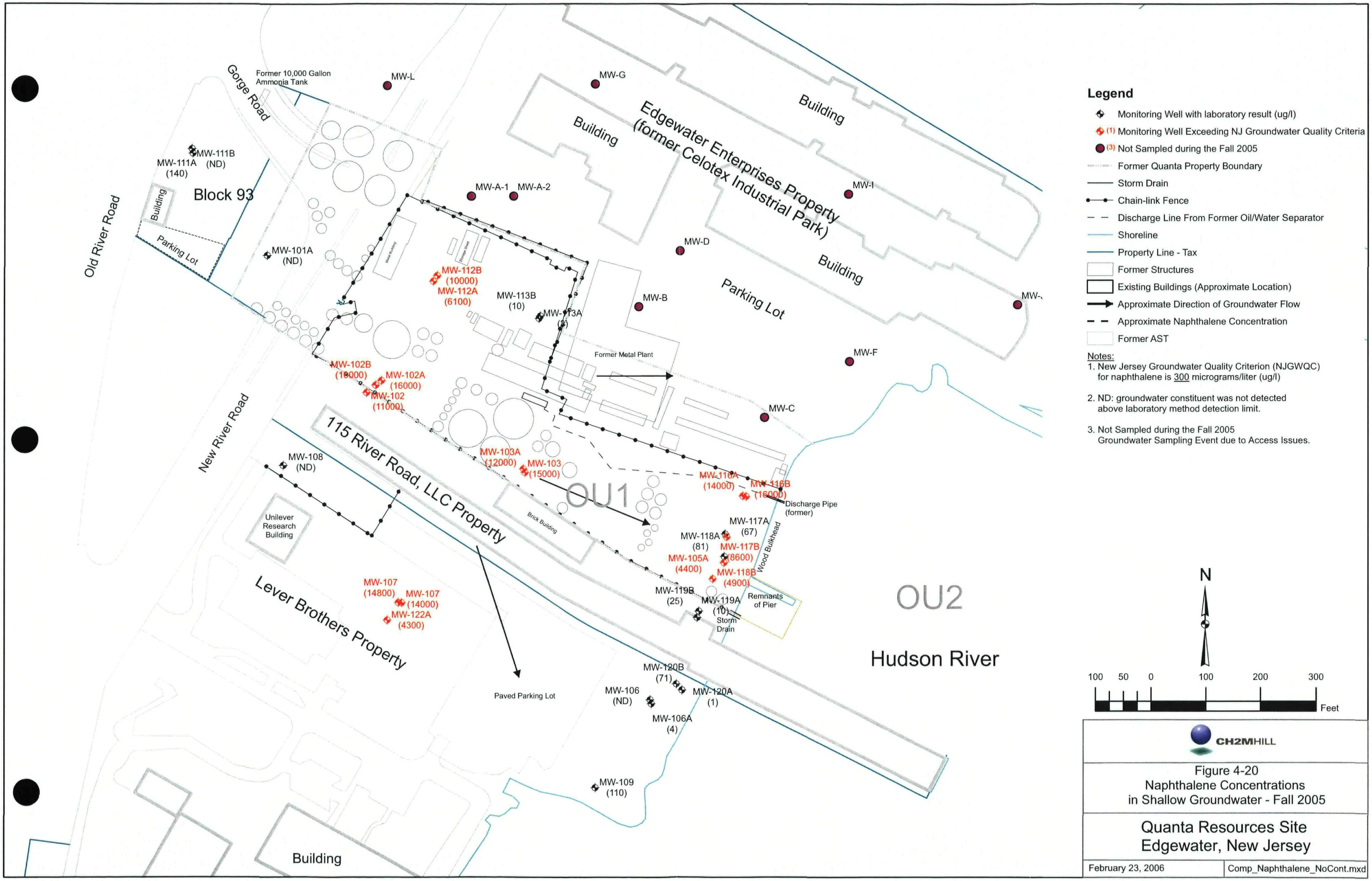
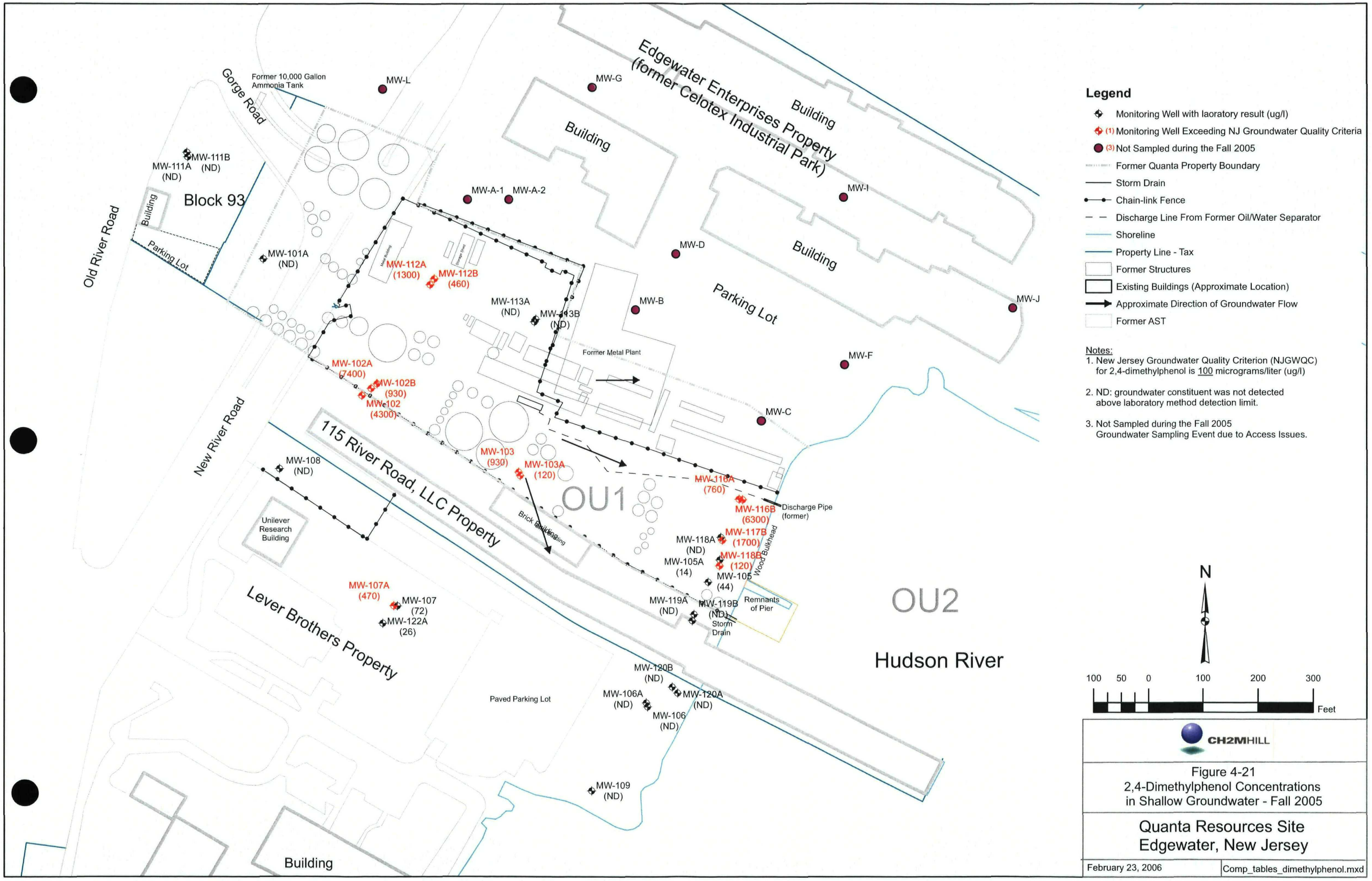


Figure 4-20
Naphthalene Concentrations in Shallow Groundwater - Fall 2005

Quanta Resources Site
Edgewater, New Jersey

February 23, 2006 | Comp_Naphthalene_NoCont.mxd


Edgewater Enterprises Property
(former Celotex Industrial Park)
Building
Building
Building
Parking Lot
Former 10,000 Gallon Ammonia Tank
Gorge Road
Old River Road
Block 93
Building
Parking Lot
New River Road
115 River Road, LLC Property
Lever Brothers Property
Unilever Research Building
Paved Parking Lot
Building
Former Metal Plant
Brick Building
OU1
OU2
Hudson River
Discharge Pipe (former)
Wood Bulkhead
Remnants of Pier
Storm Drain
MW-L
MW-G
MW-I
MW-D
MW-B
MW-J
MW-F
MW-C
MW-A-1
MW-A-2
MW-111B (ND)
MW-111A (ND)
MW-101A (ND)
MW-112A (1300)
MW-112B (460)
MW-113A (ND)
MW-113B (ND)
MW-102A (7400)
MW-102B (930)
MW-102 (4300)
MW-103 (930)
MW-103A (120)
MW-108 (ND)
MW-110A (760)
MW-116B (6300)
MW-117B (1700)
MW-118A (ND)
MW-118B (120)
MW-105A (14)
MW-105 (44)
MW-107A (470)
MW-107 (72)
MW-122A (26)
MW-119A (ND)
MW-119B (ND)
MW-120B (ND)
MW-120A (ND)
MW-106A (ND)
MW-106 (ND)
MW-109 (ND)
Legend
Monitoring Well with laoratory result (ug/l)
(1) Monitoring Well Exceeding NJ Groundwater Quality Criteria
(3) Not Sampled during the Fall 2005
Former Quanta Property Boundary
Storm Drain
Chain-link Fence
Discharge Line From Former Oil/Water Separator
Shoreline
Property Line - Tax
Former Structures
Existing Buildings (Approximate Location)
Approximate Direction of Groundwater Flow
Former AST
Notes:
1. New Jersey Groundwater Quality Criterion (NJGWQC) for 2,4-dimethylphenol is 100 micrograms/liter (ug/l)
2. ND: groundwater constituent was not detected above laboratory method detection limit.
3. Not Sampled during the Fall 2005 Groundwater Sampling Event due to Access Issues.
N
100 50 0 100 200 300
Feet
CH2MHILL
Figure 4-21
2,4-Dimethylphenol Concentrations in Shallow Groundwater - Fall 2005
Quanta Resources Site
Edgewater, New Jersey
February 23, 2006
Comp_tables_dimethylphenol.mxd

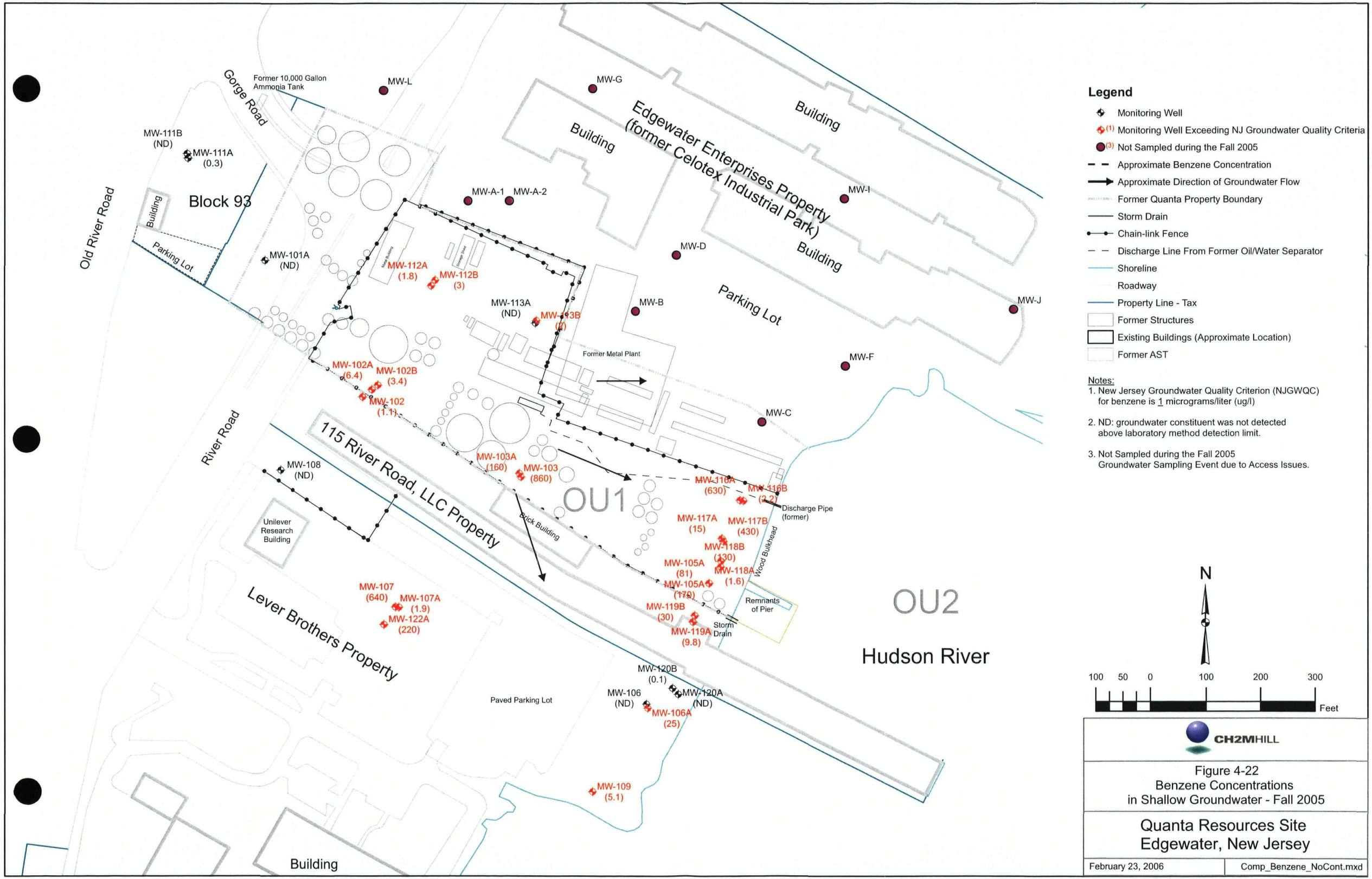
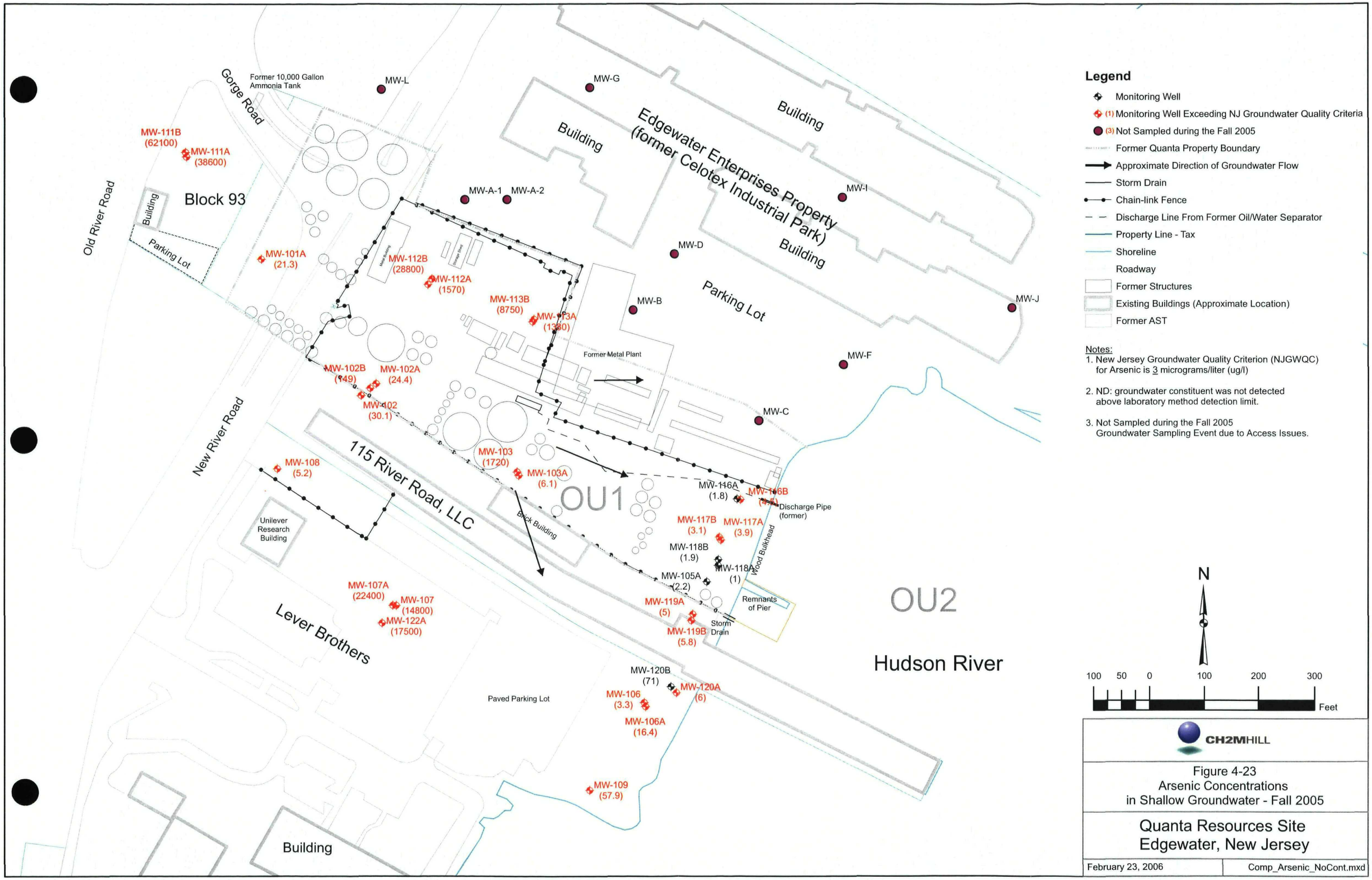
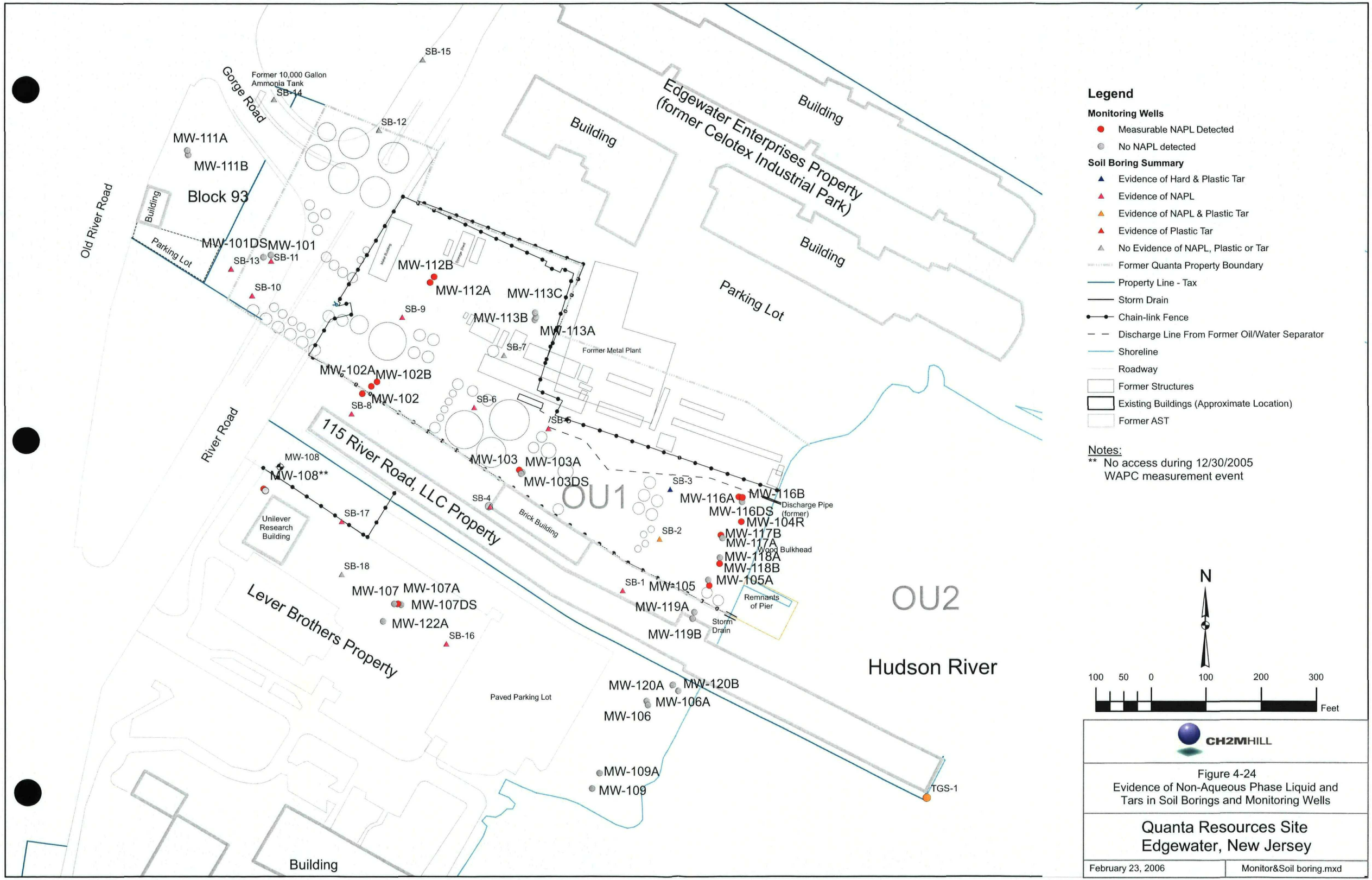


Figure 4-22
Benzene Concentrations
in Shallow Groundwater - Fall 2005

Quanta Resources Site
Edgewater, New Jersey

February 23, 2006 | Comp_Benzene_NoCont.mxd


Legend
Monitoring Well
(1) Monitoring Well Exceeding NJ Groundwater Quality Criteria
(3) Not Sampled during the Fall 2005
Former Quanta Property Boundary
Approximate Direction of Groundwater Flow
Storm Drain
Chain-link Fence
Discharge Line From Former Oil/Water Separator
Property Line - Tax
Shoreline
Roadway
Former Structures
Existing Buildings (Approximate Location)
Former AST
Notes:
1. New Jersey Groundwater Quality Criterion (NJGWQC) for Arsenic is 3 micrograms/liter (ug/l)
2. ND: groundwater constituent was not detected above laboratory method detection limit.
3. Not Sampled during the Fall 2005 Groundwater Sampling Event due to Access Issues.
N
100 50 0 100 200 300
Feet
CH2MHILL
Figure 4-23
Arsenic Concentrations
in Shallow Groundwater - Fall 2005
Quanta Resources Site
Edgewater, New Jersey
February 23, 2006
Comp_Arsenic_NoCont.mxd
Edgewater Enterprises Property
(former Celotex Industrial Park)
Building
Building
Building
Parking Lot
Former Metal Plant
Former 10,000 Gallon Ammonia Tank
Gorge Road
Old River Road
Block 93
Building
Parking Lot
New River Road
115 River Road, LLC
Unilever Research Building
Lever Brothers
Paved Parking Lot
Building
Brick Building
Wood Bulkhead
Remnants of Pier
Storm Drain
Discharge Pipe (former)
OU1
OU2
Hudson River
MW-L
MW-G
MW-I
MW-A-1
MW-A-2
MW-D
MW-B
MW-J
MW-F
MW-C
MW-111B (62100)
MW-111A (38600)
MW-101A (21.3)
MW-112B (28800)
MW-112A (1570)
MW-113B (8750)
MW-113A (1380)
MW-102B (9.49)
MW-102A (24.4)
MW-102 (30.1)
MW-108 (5.2)
MW-103 (1720)
MW-103A (6.1)
MW-116A (1.8)
MW-116B
MW-117B (3.1)
MW-117A (3.9)
MW-118B (1.9)
MW-118A (1)
MW-105A (2.2)
MW-119A (5)
MW-119B (5.8)
MW-107A (22400)
MW-107 (14800)
MW-122A (17500)
MW-120B (71)
MW-120A (6)
MW-106 (3.3)
MW-106A (16.4)
MW-109 (57.9)


Legend
Monitoring Wells
Measurable NAPL Detected
No NAPL detected
Soil Boring Summary
Evidence of Hard & Plastic Tar
Evidence of NAPL
Evidence of NAPL & Plastic Tar
Evidence of Plastic Tar
No Evidence of NAPL, Plastic or Tar
Former Quanta Property Boundary
Property Line - Tax
Storm Drain
Chain-link Fence
Discharge Line From Former Oil/Water Separator
Shoreline
Roadway
Former Structures
Existing Buildings (Approximate Location)
Former AST
Notes:
** No access during 12/30/2005 WAPC measurement event
N
100 50 0 100 200 300
Feet
CH2MHILL
Figure 4-24
Evidence of Non-Aqueous Phase Liquid and Tars in Soil Borings and Monitoring Wells
Quanta Resources Site
Edgewater, New Jersey
February 23, 2006
Monitor&Soil boring.mxd
Edgewater Enterprises Property (former Celotex Industrial Park)
Building
Building
Building
Parking Lot
Former Metal Plant
Gorge Road
Former 10,000 Gallon Ammonia Tank
SB-15
SB-14
SB-12
MW-111A
MW-111B
Block 93
Building
Old River Road
Parking Lot
MW-101DS
MW-101
SB-13
SB-11
SB-10
MW-112B
MW-112A
MW-113C
MW-113B
MW-113A
SB-9
SB-7
MW-102A
MW-102B
MW-102
SB-8
SB-6
SB-5
River Road
115 River Road, LLC Property
MW-108
MW-108**
MW-103
MW-103A
MW-103DS
OU1
SB-3
SB-4
Brick Building
MW-116A
MW-116B
Discharge Pipe (former)
MW-116DS
MW-104R
SB-2
MW-117B
MW-117A
Wood Bulkhead
MW-118A
MW-118B
MW-105A
Unilever Research Building
SB-17
SB-18
SB-1
MW-105
Remnants of Pier
MW-119A
Storm Drain
MW-119B
OU2
MW-107
MW-107A
MW-107DS
MW-122A
SB-16
Lever Brothers Property
Hudson River
MW-120A
MW-120B
MW-106A
MW-106
Paved Parking Lot
MW-109A
MW-109
TGS-1
Building

Section 5

SECTION 5

Summary and Recommendations

5.1 Geology and Hydrogeology

The evaluations performed to date as part of the RI have allowed for a more detailed understanding of groundwater flow conditions and will help in further understanding the distribution of NAPL and COIs in groundwater at the Site. In summary, the RI results to date indicate the following:

- Geology observed during RI activities was consistent with that previously observed at the Site as part of past investigations;
- Shallow groundwater flows somewhat radially in an easterly and southeasterly direction and is influenced by the presence of localized recharge in the west and central portions of the Quanta Resources property where mounding has been observed;
- Groundwater within the deep sand flows from west to east and in a more uniform manner than the shallow groundwater;
- Groundwater flow direction in both the shallow groundwater zone and deep sand unit are not tidally influenced;
- Horizontal hydraulic gradients in the shallow groundwater zone are not significantly influenced by tidal fluctuations;
- Horizontal hydraulic gradients in the deep sand unit are influenced by tidal fluctuations;
- The presence of the wooden bulkhead along the boundary of the Quanta Resources property and the Hudson River is acting as a hydraulic boundary that limits the tidal influence on wells in this area. The bulkhead and maintains an increased hydraulic head on the upland site portion of the property, which results in downward vertical hydraulic gradients adjacent to the Hudson River that otherwise would not be present;
- A number of subsurface utilities and former subsurface structures were identified at the Quanta Resources property; however shallow groundwater flow direction does not appear to be influenced by any other subsurface structures at the Site other than the wooden bulkhead. No additional preferential pathways were identified other than those previously identified prior to the development of data gap investigation;
- Hydraulic conductivities in the fill deposits are slightly higher than those measured in the unconfined native sands as well as the deep sand unit; and
- The shallow groundwater zone does not appear to be hydraulically connected as hydraulic heads in the deep sand unit are consistently higher than those in the shallow unconfined groundwater zone.

5.2 Soil

An evaluation of the data collected as part of the RI as well as available historical data for the Site and surrounding properties has refined the understanding of impacts to soil at the Site. In summary, data collected to date indicate the following:

- COIs in soil consist of SVOCs (predominantly PAHs), benzene, ethylbenzene, xylenes, lead, arsenic, low-level chlorinated solvents (TCE, PCE, and vinyl chloride) and PCBs;
- PAHs are widespread in saturated and unsaturated zone soils across all properties in exceedance of the screening criteria and are present as a result of urban fill;
- Elevated concentrations of PAHs, carbazole, phenols, and VOCs in unsaturated and saturated zone soils on the Quanta Resources property indicate the presence of coal tar;
- More soluble constituents (benzene, naphthalene, and phenols) not typically found in urban fill, are more widespread in saturated zone soils than in unsaturated zone soils due to these constituents affinity for movement via the dissolved phase in groundwater;
- The extent of VOCs and SVOCs in unsaturated soil as they relate to coal tar impacts has been defined. The presence of these constituents in Saturated soil are a function of the presence of NAPL and dissolved phase impacts and require further delineation to the southeast;
- Concentrations of lead and arsenic are widespread in saturated and unsaturated zone soils and are likely a result of the presence of urban fill throughout the area;
- Elevated concentrations of metals exist in the southern portion of the Edgewater Enterprises property. It is unclear whether this is due to heterogeneity in the urban fill or the presence of an additional source that may have existed at on the Edgewater Enterprises property at one time
- Low levels of chlorinated VOCs were observed in excess of the screening criteria in unsaturated zone soils samples collected at both the Quanta Resources and 115 River Road, LLC properties. These detections do not appear contiguous and do not appear to be related to coal tar impacts;
- Concentrations of VOCs and SVOCs in all deep sand samples collected from below the silty clay unit (aquitard) were below the applicable soil-screening criteria. These data indicate that the silty clay unit is an effective barrier to vertical migration of chemical constituents associated with the operations at the former Quanta Resources property;
- Arsenic concentrations were detected in each of the three soil samples collected from the deep sand unit above the applicable soil-screening criteria;
- PCBs were detected at low levels primarily in localized and surficial soils at the western side of the Quanta Resources property;
- The highest concentrations of PCBs in soil at the Site was detected in one deep sand sample collected at SB-101DS between 47.0 and 47.5 ft bgs. It is unlikely that the detection of PCBs in saturated soil at this depth represents actual conditions at this

depth. The presence of PCBs in one soil sample at this depth appears to be an anomaly; and

- Ammonia was not detected above laboratory method detection limits in any soil samples collected in the vicinity of the former ammonia UST.

5.3 Groundwater

An evaluation of the groundwater data collected as part of the RI as well as available historical groundwater data for the Site and surrounding properties has refined the understanding of impacts to groundwater at the Site. In summary, data collected to date indicate the following:

- COIs in groundwater consist of SVOCs (predominantly PAHs), BTEX, lead, arsenic, and chlorinated solvents (TCE, PCE, cis-1,2 DCE);
- The distribution of COIs in groundwater is consistent with groundwater flow direction;
- Of the PAHs that exceeded the GWQC, naphthalene was the most widely distributed PAH in shallow groundwater;
- The distribution of PAHs, carbazole, phenols, and VOCs in groundwater appears to be related to the presence and composition of various NAPLs and a function of the effective solubility of the various NAPL components;
- Naphthalene appears to be the most widespread COI in groundwater;
- Phenols are found at their highest concentration in monitoring well MW-102A, which is screened across the water table but does contain a measurable thickness of NAPL;
- Elevated concentrations of BTEX compounds were detected in shallow monitoring wells in exceedance of GWQC;
- In consideration of historical groundwater results from wells to the north at the Edgewater Enterprises property it is anticipated that the extent of SVOCs and VOCs in groundwater to the north will be complete once these wells can be accessed and sampled;
- Further delineation of SVOCs and VOCs is recommended to the southeast;
- Nitrobenzene and styrene were detected above standard in monitoring wells MW-120A and MW-102A, respectively. These elevated concentrations are considered to be limited in nature and extent to these two wells, and appear to be isolated occurrences;
- Exceedances of ammonia were detected in four monitoring wells located directly downgradient from a former 10,000-gallon ammonia storage tank and appear to be limited in nature and extent;
- Arsenic and lead were the only metals detected above the GWQC. These constituents appear to be related to the presence of urban fill within the saturated zone;

- 1,1- DCE, PCE, and TCE were detected in groundwater samples collected from deep monitoring wells MW-101DS and MW-103DS, in exceedance of the GWQC values. The presence of these constituents are not related to any known operations on the former Quanta Resources property. The highest concentrations of these constituents were found in the deep sand unit and are likely related to an off-site, upgradient source;
- PCBs were not detected in any groundwater sample; and
- The reducing groundwater conditions evidenced in the very low oxidation-reduction potential values measured during groundwater sampling is likely a significant factor in ongoing dissolution of metals (particularly arsenic) from soil into groundwater.

5.4 NAPL

An evaluation of the soil and groundwater data, historical and more recent NAPL observations in soil and monitoring wells, and laboratory analytical data for NAPL samples that were collected as part of the RI have refined the understanding of impacts to groundwater at the Site. In summary, data collected to date indicate the following:

- NAPL has been observed in soil borings and measured in monitoring wells at the Quanta Resources property as well as on the Lever Brothers property;
- Whether or not the presence of NAPL is contiguous between monitoring wells and borings where it has been observed at this time is unknown at this time;
- NAPL is limited to the fill material above the confining unit;
- NAPLs sampled all have characteristics of coal tar, and all five samples were found to be similar in chemical composition, but possess varying physical properties; and
- Coal tar DNAPL samples collected at the Site have densities slightly greater than water.

5.5 Recommendations

Some data gaps exist with respect to the extent of NAPL and dissolved phase constituents related to the presence of NAPL at OU1. A work plan will be submitted to the USEPA and NJDEP to finalize delineation of the NAPL and NAPL-related constituents.

The remaining soil and groundwater samples will be obtained, analyzed, and reported in accordance with the OU1 RI/FS Work Plan (Parsons, 2005) to fill data gaps for those media. In addition, the Vapor Intrusion Work Plan (CH2M HILL, 2006) previously submitted to USEPA will be implemented upon approval.

Section 6

SECTION 6

References

Advanced Applied Technology Development Facility. 1993. Technology Practices Manual for Surfactants and Cosolvents. (Updated by CH2M HILL, February 1997.) Available at http://clu-in.org/products/aatdf/toc.htm. Accessed February 2, 2006.

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, pp. 423–428.

CH2M HILL. 2005. Quality Assurance Project Plan (Revised), Operable Unit 1, Quanta Resources Site, Edgewater, New Jersey. October.

CH2M HILL. 2006. Vapor Intrusion Evaluation Work Plan, Quanta Resources Site, Edgewater, New Jersey. January.

ENVIRON International Corporation (Environ). 2005. Engineering Design Report, Coal Tar Plume Control System, City Place at the Promenade – Building 700 Area, Borough of Edgewater, Bergen County, New Jersey.

Environmental Waste Management Associates, LLC. (EWMA). 2005. Indoor Air Quality (IAQ) Investigation /Health Risk Assessment for the Property Known as: Palisades Child Care Center, 115 River Road, Edgewater, NJ 07020.

GeoSyntec Consultants (GeoSyntec). 2000. Removal Site Investigation Report—Revision 1, Quanta Resources Site, Edgewater, New Jersey. June.

GeoSyntec Consultants (GeoSyntec). 2001. Engineering Evaluation/Cost Analysis (EE/CA) Report, Quanta Resources Site, Edgewater, New Jersey. September.

New Jersey Administrative Code (NJAC). 1997. Technical Requirements for Site Remediation. Section 7:26E. (Amended July 2005.)

New Jersey Department of Environmental Protection (NJDEP). 1992. Field Sampling Procedures Manual. (Revised 2005.)

New Jersey Department of Health and Senior Services (NJDOHSS). 2002. Public Health Assessment, Quanta Resources Corporation, Edgewater, Bergen County, New Jersey. September 25.

O'Brien & Gere Engineers, Inc. 2004. Preliminary Assessment, Heagney/Frola Properties, Old River Road, Edgewater, New Jersey. August.

Parsons. 1997. Pre-Design Investigation at the Quanta Resources Site, Edgewater, New Jersey. Prepared for AlliedSignal, Inc. May.

Parsons. 1998. Data Report for Pre-Design Investigation at the Quanta Resources Site, Edgewater, New Jersey. Prepared for AlliedSignal, Inc. March.

Parsons. 1999. Summary Report, Quanta Resources Site, Edgewater, New Jersey. Prepared for AlliedSignal. May.

Parsons. 2004. Draft Remedial Investigation/Feasibility Study Work Plan, Operable Unit 1, Quanta Resources Site, Edgewater, New Jersey. January 19.

Parsons. 2005. Remedial Investigation/Feasibility Study Work Plan, Operable Unit 1, Quanta Resources Site, Edgewater, New Jersey. May.

Parsons. Various dates. Technical memoranda addressing USEPA comments to the Draft RI/FS Work Plan. December 7, 2004; December 23, 2004; January 10, 2005; January 13, 2005; February 11, 2005; April 8, 2005; and May 2, 2005.

Paulus, Sokolowski & Sartor, LLC. (PS&S). 2002. Supplemental Data Submission in Support of Containment Interim Removal Action, Quanta Resources Site. Prepared for U.S. Environmental Protection Agency on behalf of 115 River Road, LLC. September.

Sanders, Paul F. 2003. Ambient Levels of Metals in New Jersey Soils. Research Project Summary. New Jersey Department of Environmental Protection, Division of Science, Research and Technology. Trenton.

(Paulus, Sokolowski & Sartor, LLC. (USDA). 1994. Bergen Soil Survey. Natural Resources Conservation Service.

United States Environmental Protection Agency (USEPA). 1992. Ground Water Forum: Monitoring Well Development Guidelines for Superfund Project Managers.

United States Environmental Protection Agency (USEPA). 1998. Region II Groundwater Sampling Procedure, Low Stress, (Low Flow) Purging and Sampling.

United States Environmental Protection Agency (USEPA). 2004. Comments on Draft OU1 and OU2 RI/FS Work Plan, June 30.

United States Environmental Protection Agency (USEPA). 2005. Letter from Carole Petersen to Timothy Metcalf (Honeywell) r.e. conditional approval of the OU1 RI/FS Work Plan. May 2.

United States Environmental Protection Agency (USEPA). 2006. Letter from Carole Petersen to Timothy Metcalf (Honeywell) r.e. approval of the QAPP revision. January 11.

Appendix A

Appendix A
Soil Boring Logs

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
332898.QT.20.23	MW-101DS	SHEET 1 OF 2

SOIL BORING LOG

PROJECT : Quanta Resources RI/FS | DRILLING CONTRACTOR : Summit Drilling | LOCATION : Edgewater, NJ

ELEVATION : 7.10' | NORTHING: 719004.98 | EASTING: 632748.11

DRILLING METHOD AND EQUIPMENT USED : 8 1/4" (outer casing) & 4 1/4" (inner casing) Hollow Stem Auger/Spilt Spoon

WATER LEVELS 7.33' (TIC) | START : 8/30/05 @ 0810 | END : 9/1/05 @ 1330 | LOGGER : A. Harclerode

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" {N}	CORE DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppm): Breathing Zone / Headspace
	0 - 2'	16	1/SS	2, 3, 5, 8 {8}	0 - 0.3': Organic silt, some sub-ang. cobbles (OL), brown, 7.5YR, 3/4, dry 0.3 - 1.3': Fine sand with cinder/slag, crushed brick, trace asphalt/ fill, black, dry to moist with depth, obvious pet. product odor	0.0 0.4
	2 - 4'	12	2/SS	15, 30, 20, 12 {50}	3 - 4': Same as above, saturated @ ~ 4' bgs	0.5
5	4 - 6'	0	3/SS	2, 1, 1, 2 {2}	Sluff	N/A
	6 - 8'	0	4/SS	1, 1, 2, 1 {3}	Sluff	N/A
	8 - 10'	6	5/SS	2, 1, 2, 3 {3}	9.5 - 10.0': Fine to medium sand/native? (SP), very dark grey 10YR, 3/1, saturated, loose, homogenous	0.0
10	10 - 12'	0	6/SS	4, 2, 2, 3 {4}	Slough	N/A
	12 - 14'	18	7/SS	3, 2, 2, 3 {4}	12.5 - 14.0': Same as 9.5 - 10.0' above	0.0
15	14 - 16'	12	8/SS	1, 2, 1, 1 {3}	15 - 16': Same as above	0.0
	16 - 18'	22	9/SS	4, 2, 4, 3 {6}	16.2 - 18.0': Mottled, well graded sand (SW), dark grey, gley 1, 4/1, and brown, 7.5YR, 4/2, wet, loose, 3" of product stain and odor at top of spoon	2
20	18 - 20'	0	10/SS	5, 1, 2, 3 {3}	Running sand/slough	N/A
	20 - 22'	24	11/SS	2, 2, 3, 5 {5}	20 - 22': Very well graded sand (SW) brown, 7.5YR, 4/2, wet, soft/loose	0.0
	22 - 24'	24	12/SS	6, 9, 16, 29 {25}	22 - 23': Same as above 23 - 24': Silty clay (CL), brown, 7.5YR, 4/2 and very dark grey, 10YR, 3/1, moist, stiff, elastic	0.0 0.0
25	24 - 26'	16	13/SS	6, 9, 12, 16 {21}	24.3 - 26.0': Same as 23 - 24' above	0.0 0.0
	26 - 28'	16	14/SS	8, 14, 16, 20 {30}	26.3 - 28.0': Same as above but some mottling of slightly different shades of brown	0.0
30	28 - 30'	24	15/SS	4, 5, 6, 7 {11}	28 - 30': Same as 23 - 24' above	0.0
	30 - 32'	18	16/SS	2, 3, 5, 4 {8}	30.5 - 32': Same as above	0.0

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
332898.QT.20.23	MW-101DS	SHEET 2 OF 2

SOIL BORING LOG

PROJECT : Quanta Resources RI/FS DRILLING CONTRACTOR : Summit Drilling LOCATION : Edgewater, NJ

ELEVATION : 7.10' NORTHING: 719004.98 EASTING: 632748.11

DRILLING METHOD AND EQUIPMENT USED : 8 1/4" (outer casing) & 4 1/4" (inner casing) Hollow Stem Auger/Spilt Spoon

WATER LEVELS 7.3' (TIC) START : 8/30/05 @ 0800 END : 8/30/05 @ 1100 LOGGER : A. Harclerode

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" {N}	CORE DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppm): Breathing Zone Headspace
	32 - 34'	0	17/ST	N/A	Shelby Tube	N/A
35	34 - 36'	24	18/SS	2, 2, 7, 6 {9}	34.0 - 35.7': Same as 23 - 24' above 35.7 - 36': Well graded sand (SW), brown, 7.5YR, 4/2, wet, loose to medium	0.0 0.0
	36 - 38'	24	19/SS	2, 2, 7, 6 {9}	36.0 - 36.8': Same as 23 - 24' above 36.8 - 38.0': Same as 35.7 - 36' above	0.0
	38 - 40'	10	20/SS	15, 20, 26, 15 {46}	39.2 - 40': Same as 35.7 to 36' above	0.0
40	40 - 42'	24	21/SS	15, 22, 24, 18 {46}	40 - 42': Same as 35.7 to 36' above but with a 3" lense of silty sand at 41.5'	0.0
	42 - 44'	0	22/SS	37, 27, 31, 20 {58}	No recovery	N/A
45	44 - 46'	24	23/SS	10, 9, 18, 18 {27}	44 - 46': Gravelly, medium, split graded sand (SW), brown, 7.5YR, 4/2, wet, dense	0.0
	46 - 48'	12	24/SS	5, 5, 46, 100/5" {51}	47 - 48': Well graded sand, with some sub-angular to sub-rounded gravel, brown, 7.5YR, 4/2, wet, dense, bedrock @ ~48' bgs	0.0
50 55					Boring terminated @ 48' bgs	

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
332898.QT.20.23	MW-102A	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Quanta Resources RI/FS | DRILLING CONTRACTOR : Summit Drilling | LOCATION : Edgewater, NJ

ELEVATION : 6.80' | NORTHING: 718774.51 | EASTING: 632942.16

DRILLING METHOD AND EQUIPMENT USED : 6 5/8" Hollow Stem Auger/Spilt Spoon

WATER LEVELS 5.9' (TIC) | START : 7/25/05 @ 1030 | END : 7/25/05 @ 1230 | LOGGER : A. Samuel

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	CORE DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppm): Breathing Zone Above Hole
	0 - 2	12	1/SS	22, 30, 15, 8 {45}	0 - 1': Asphalt/concrete	N/A
	2 - 4'	6	2/SS	25, 20, 20, 8 {40}	3.5 - 4.0': Concrete/fill with product stain and odor, dry, dense	0.0
5	4 - 6'	4	3/SS	25, 12, 13, 4 {25}	5.7 - 6.0': Same as above but saturated, napthalene odor, saturated @ ~ 5.7' bgs	0.0
	6 - 8'	22	4/SS	2, 1, 1, 1 {2}	6.1 - 8.0': Well graded gravelly silty sand (SW), black, wet, product, product odor, and sheen	43.9
	8 - 10'	22	5/SS	4, 1, 3, 4 {4}	8.1 - 10.0': Same as above	8.7
10	10 - 12'	22	6/SS	5, 1, 1, 2 {2}	10.1 - 12.0': Gravelly, clayey, organic silt material/peat (OL/PT), very dark grey, 10YR, 3/1 wet, soft, product and sheen	8.0
					Boring terminated @ 12' bgs	
15						
20						
25						

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
332898.QT.20.23	MW-102B	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Quanta Resources RI/FS | DRILLING CONTRACTOR : Summit Drilling | LOCATION : Edgewater, NJ

ELEVATION : 6.80' | NORTHING: 718766.25 | EASTING: 632931.53

DRILLING METHOD AND EQUIPMENT USED : 6 5/8" Hollow Stem Auger/Spilt Spoon

WATER LEVELS 6.1' (TIC) | START : 7/26/05 @ 0800 | END : 7/26/05 @ 1145 | LOGGER : A. Samuel

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" {N}	CORE DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppm): Breathing Zone Headspace
	0 - 2'	14	1/SS	24, 17, 68, 75 {85}	Asphalt/concrete	19.7
	2 -4'	12	2/SS	44, 22, 12, 7 {44}	3 - 4': Gravelly sand with concrete/fill (SP), very dark grey, 10YR, 3/1, dry to saturated with depth, dense product odor and stain, saturated @ ~ 3.7' bgs	22.8
5	4 - 6'	22	3/SS	20, 25, 20, 35 {45}	4 - 5': Same as above 5 - 6': Gravel with plastic/mica-like material and wood/fill (GP), very dark grey 10YR, 3/1, saturated, dense prduct stain, odor, and sheen	23.5 23.5
	6 - 8'	24	4/SS	18, 35, 37, 25 {72}	6 - 8': Same as above	19
	8 - 10'	6	5/SS	4, 1, 1, 1 {2}	9.5 - 10': Gravelly, silty, sand with plastic/mica-like material fill (SW), very dark grey, 10YR, 3/1, loose, product odor and stain	0.4
10	10 - 12'	2	6/SS	2, 2, 2, 3 {4}	11.84 - 12.0': Gravelly, silty, sand with some peat/organic material/native (SW/PT), black, saturated, loose, product odor and stain	9.1
	12 - 14'	6	7/SS	2, 2, 1, 1 {3}	13.5 -14.0: Same as above but less peat	4.1
15	14 - 16'	10	8/SS	2, 2, 1, 3 {3}	15.2 - 16.0': Gravelly, silty, sand (SW), very dark grey, 10YR, 3/1, saturated, loose, product odor/stair	2.1
	16 - 18'	10	9/SS	2, 2, 3, 6 {5}	17.2 - 18.0': Same as above	6.7
	18 -20'	12	10/SS	2, 2, 3, 6 {5}	19 - 20': Same as above	6.7
20	20 - 22'	20	11/SS	6, 12, 17, 14 {29}	20.3 - 22.0': Same as above with prominent sheen at ~ 21'	13
	22 - 24'	24	12/SS	4, 5, 7, 9 {12}	22.0 - 23.5': Same as above 23.5 - 24: Silty clay (CL), very dark grey, 10YR, 3/1, saturated, medium stiff	3.4 3.2
25	24 - 26'	22	13/SS	5, 6, 9, 11 {15}	24.2 - 25.2': Same as 15 - 20' above 25.2 - 26.0': Same as 23.5 - 24.0' above	2.3
					Boring terminated @ 26' bgs	

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
332898.QT.20.23	MW-103A	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Quanta Resources RI/FS | DRILLING CONTRACTOR : Summit Drilling | LOCATION : Edgewater, NJ

ELEVATION : 6.60' | NORTHING: 718607.48 | EASTING: 633205.75

DRILLING METHOD AND EQUIPMENT USED : 6 5/8" Hollow Stem Auger/Spilt Spoon

WATER LEVELS 6.6' (TIC) | START : 8/19/05 @ 0800 | END : 8/19/05 @ 0845 | LOGGER : A. Harclerode

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	CORE DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppm): Breathing Zone Above Hole
	0 - 2	16	1/SS	3, 3, 4, 5 {7}	0 - 0.16': Organic silt, some leaves and roots (OL), brown, 7.5YR, 4/2, dry, loose 0.16 - 1.4': Gravel with cinder/slag, medium sand, crushed brick, and silt/fill (GP), very dark grey, 10YR, 3/1 to black, moist to wet with depth, loose, saturated @ ~ 1.7' bgs	0.7
	2 - 4'	0	2/SS	7, 9, 4, 4 {13}	Slough	N/A
5	4 - 6'	0	3/SS	2, 2, 1, 2 {3}	Slough	N/A
	6 - 8'	0	4/SS	3, 3, 4, 5 {7}	7.7 - 8.0': Coarse sand w/angular to sub-angular gravel/fill (SP), very dark brown, 10YR, 2/2, wet, loose, sheen on water	N/A
	8 - 10'	10	5/SS	5, 3, 4, 5 {N/A}	9.2 - 10.0': Medium, well sorted sand/native? (SP) black, saturated, loose, strong petroleum product odor with some black staining and slight sheer	10.3
10	10 - 12'	13	6/SS	5, 1, 3, 3 {4}	10.9 - 12.0': Same as above but with prominent sheen at black product staining @ ~ 11' bgs	10.3
	12 - 14'	10	7/SS	3, 2, 3, 3 {5}	13.2 - 14.0': Same as above but with less prominent and pervasive staining	3.6
15					Boring terminated @ 14' bgs	
20						
25						

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
332898.QT.20.23	MW-103DS	SHEET 1 OF 2

SOIL BORING LOG

PROJECT : Quanta Resources RI/FS | DRILLING CONTRACTOR : Summit Drilling | LOCATION : Edgewater, NJ

ELEVATION : 6.50' | NORTHING: 718609.96 | EASTING: 633208.63

DRILLING METHOD AND EQUIPMENT USED : 8 1/4" (outer casing) & 4 1/4" (inner casing) Hollow Stem Auger/Spilt Spoon

WATER LEVELS 6.8' (TIC) | START : 8/26/05 @ 0800 | END : 8/29/05 @ 1445 | LOGGER : A. Harclerode

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	CORE DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppm): Breathing Zone	Headspace
	0 - 2'	12	1/SS	2, 3, 21, 4 {24}	0 - 0.16': Organic silt (OL), brown, 7.5YR, 4/2, dry, soft/ loose 0.16' - 1': Coarse sand with sub-angular gravel and some crushed concrete, black, moist to wet with depth, saturated @ ~ 1.9' bgs	0.1 0.3	
	2 - 4'	12	2/SS	10, 9, 4, 10 {13}	3.0 - 3.5': Same as above but with some brick 3.5 - 4.0': Silt, trace crushed brick/fill (ML), very dark grey, 10YR, 3/1, saturated, loose, obvious product odor	0.7 6.7	
5	4 - 6'	16	3/SS	3, 3, 1, 1 {4}	4.7 - 6.0': Sandy silt with cinder/slag/fill (ML), black, moist to wet, soft, obvious product odor	67	
	6 - 8'	18	4/SS	2, 1, 2, 2 {3}	6.5 - 8.0': Medium to coarse sand/native (SP), brown, 7.5YR, 4/2, saturated, loose, product sheen	23	6.9
	8 - 10'	22	5/SS	3, 3, 2, 2 {5}	8.2 - 10.0': Same as above	18	13.6
10	10 - 12'	12	6/SS	5, 2, 2, 3 {4}	11 - 12': Fine to medium sand (SP), black, wet, loose,	17	8.2
	12 - 14'	12	7/SS	2, 2, 2, 4 {4}	13 - 14': Same as above	16	1.2
15	14 - 16'	6	8/SS	4, 2, 3, 2 {5}	15.5 - 16.0': Medium, very well sorted sand (SP), brown, 7.5YR, 4/2, wet, loose	5.2	16
	16 - 18'	18	9/SS	5, 6, 6, 5 {12}	16.5 - 18.0': Medium to coarse sand (SP), brown, 7.5YR, 4/2, saturated, loose, vertical incandescent sheen on last 2" of spoon	57	87
	18 - 20'	18	10/SS	2, 2, 4, 8 {6}	18.5 - 19.7': Same as above but with pervasive incandescent sheen/stain 19.7 - 20.0': Silty clay (CL), brown, 7.5YR, 4/2, wet, medium stiff	66 65	
20	20 - 22'	15	11/SS	4, 4, 6, 5 {10}	20.7 - 22.0': Same as above but with very obvious product odor and thick black product stain	184	
	22 - 24'	0	12/ST	N/A	Shelby Tube	N/A	
25	24 - 26'	20	13/SS	6, 7, 9, 9 {16}	24.3 - 26.0': Same as 19.7 - 20.0	20	0.1
	26 - 28'	6	14/SS	8, 4, 3, 4 {7}	27.5 - 28.0': Same as above but no visual evidence of product	15.2	13
30	28 - 30'	24	15/SS	4, 4, 3, 5 {7}	28 - 30': Same as above but with faint laminations evidenced by slightly different shades of brown	5.2	
	30 - 32'	0	16/SS	11, 8, 8, 7 {16}	No recovery	N/A	

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
332898.QT.20.23	MW-103DS	SHEET 2 OF 2

SOIL BORING LOG

PROJECT : Quanta Resources RI/FS | DRILLING CONTRACTOR : Summit Drilling | LOCATION : Edgewater, NJ

ELEVATION : | NORTHING: | EASTING:

DRILLING METHOD AND EQUIPMENT USED : 8 1/4" (outer casing) & 4 1/4" (inner casing) Hollow Stem Auger/Spilt Spoon

WATER LEVELS 6.8' (TIC) | START : 8/26/05 @ 0800 | END : 8/29/05 @ 1445 | LOGGER : A. Harclerode

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" {N}	CORE DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppm): Breathing Zone / Headspace
	32 - 34'	18	17/SS	6, 4, 4, 4 {8}	32.5 - 34.0': Same as 28' to 30' but no laminations visible	1.4
35	34 - 36'	0	18/SS	4, 2, 4, 2 {6}	Slough	N/A
	36 - 38'	4	19/SS	5, 5, 4, 4 {9}	37.7 - 38.0': Same as 32.5 to 34.0 but wetter and softer	0.2
	38 - 40'	24	20/SS	5, 4, 3, 7 {7}	38 - 40': Same as 28 - 30'	0.2
40	40 - 42'	0	21/SS	9, 5, 10, 10 {15}	Slough	0.3
	42 - 44'	2	22/SS	22, 24, 25, 35 {49}	43.84 - 44.0': Same as 38 to 40'	
45	44 - 46'	12	23/SS	30, 16, 16, 20 {32}	45 - 46': Well graded sand (SW), brown, 7.5YR, 4/2, moist to wet, dense	0.0 / 0.2
	46 - 48'	18	24/SS	20, 20, 15, 16 {35}	46.5 - 48': Same as above but split graded (no silty sand)	0.0
	48 - 50'	14	25/SS	28, 16, 11, 16 {27}	48.8 - 50': Gravelly, silty clay (CL), brown, 7.5YR, 4/2, wet, elastic, stiff to very stiff	0.0
50	50 - 52'	12	26/SS	20, 70, 20, 11 {90}	51 - 52': Same as 45 - 46' above but very well graded with fractured shale in bottom of spoon	0.0
	52 - 54'	12	27/SS	55, 40, 52, 100/3" {92}	53 - 54': Same as above but with sub-rounded cobbles and fractured shale in the bottom of the spoon, bedrock @ ~ 53' bgs	0.0
55					Boring terminated @ 54'	

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
332898.QT.20.23	MW-104R	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Quanta Resources RI/FS | DRILLING CONTRACTOR : Summit Drilling | LOCATION : Edgewater, NJ

ELEVATION : 6.20' | NORTHING: 718519.79 | EASTING: 633611.94

DRILLING METHOD AND EQUIPMENT USED : 4 1/4" Hollow Stem Auger/Spilt Spoon

WATER LEVELS 6.7' (TIC) | START : 7/21/05 @ 1100 | END : 7/21/05 @ 1230 | LOGGER : A. Harclerode

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" {N}	CORE DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppm): Breathing Zone	Above Hole
	0 - 2	12	1/SS	10, 14, 9, 13 {23}	0 - 0.5': Coarse gravel/fill, (GP), black, dry, loose, some slag/cinder material 0.5 - 1': Gravelly silt/fill, (MP), reddish brown, dry to moist, elastic, loose/soft	1.2 0.7	
	2 - 4'	12	2/SS	4, 6, 100/5" {106}	2 - 2.5': Silty clay/fill, (CL), brown, 5 YR, 2/2, dry, firm, 2.5' - 3': Wood (railroad tie?). Augered to 5' to penetrate obstruction	1.5 N/A	
5							
	5 - 7'	12	3/SS	7, 12, 8, 9 {20}	5 - 5.2': Stained gravelly silt/fill, (MP), brown, 5 YR, 2/2, dry, stiff, slight product odor 5.2' - 6': Silty clay/fill (CL), bluish gray, 5PB, 5/2, dry, stiff	2.3	
	7 - 9'	24	4/SS	9, 14, 11, 12 {25}	7' - 9': Silty, fine sand with fractured rock and soft tar/fill (SP), black, moist to wet, highly plastic Saturated at 7' bgs	5.0	0.7
10	9 - 11'	2	5/SS	50, 17, 11, 10 {28}	9.8 - 10': Fine - medium sand/fill, (SP), grey, moist - wet, medium density,	5.1	
	11 - 13'	24	6/SS	5, 4, 8, 9 {12}	Silty clay/native, (CL), very dark grey, 10 YR, 3/1, dry - moist, stiff, elastic. Wood at very end of spoon	2.9	
					Boring terminated @ 13' bgs		
15							
20							
25							

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
332898.QT.20.23	MW-105A	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Quanta Resources RI/FS | DRILLING CONTRACTOR : Summit Drilling | LOCATION : Edgewater, NJ

ELEVATION : 5.90' | NORTHING: 718414.17 | EASTING: 633552.17

DRILLING METHOD AND EQUIPMENT USED : 6 5/8" Hollow Stem Auger/Spilt Spoon

WATER LEVELS 6.6' (TIC) | START : 8/22/05 @ 1230 | END : 8/22/05 @ 1330 | LOGGER : A. Harclerode

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	CORE DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppm): Breathing Zone Above Hole
	0 - 2	4	1/SS	26, 20, 14, 6 {34}	asphalt/gravel	0.0
	2 - 4'	6	2/SS	3, 2, 1, 1 {3}	3.5 - 4.0': Sub-angular gravel with crushed brick and cinder/slag, some soft tar, black, dry to saturated with depth, loose, saturated @ ~ 3.9' bgs	0.6
5	4 - 6'	2	3/SS	6, 2, 6, 6 {8}	5.84 - 6.0': Same as above	3.7
	6 - 8'	6	4/SS	3, 1, 2, 1 {3}	7.5 - 8.0': Coarse sub-angular gravel with sub-angular cobbles/fill (GP), black, saturated, loose, product staining	7.9
	8 - 10'	12	5/SS	6, 2, 2, 3 {4}	8 - 9': Same as above but w/ more prominent staining	42
10	10 - 12'	0	6/SS	8, 4, 3, 4 {7}	No recovery	N/A
	12 - 14'	0	7/SS	veight of hamme N/A	No recovery	N/A
15	14 - 16'	0	8/SS	5, 3, 1, 1 {4}	No recovery	N/A
	16 - 18'	14	9/SS	1, 1, 1, 1 {2}	16.8 - 18.0': Silty clay/native (CL), very dark grey 10YR, 3/1, moist, soft, homogenous, elastic	1.2
20					Boring terminated @ 18' bgs	
25						

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
332898.QT.20.23	MW-106A	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Quanta Resources RI/FS DRILLING CONTRACTOR : Summit Drilling LOCATION : Edgewater, NJ

ELEVATION : 7.1' NORTHING: 718187.85 EASTING: 633438.50

DRILLING METHOD AND EQUIPMENT USED : *6 5/8" Hollow Stem Auger/Spilt Spoon*

WATER LEVELS 5.70' (TIC) START : 11/9/05 @ 0900 END : 11/18/05 @ 1315 LOGGER : D. Blitzer

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	CORE DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppm): Breathing Zone	Head Space
	0 - 2	18	1/SS	3, 6, 10, 5 {16}	0 - 0.5': Organic silty/clay, some roots (ML/OL), dark brown, 10YR, 3/3, dry, medium density 0.5 - 1.5': Sandy silt, with angular gravel, brick, trace roots/fill (ML), dark brown, 10YR, 2/1, dry, medium density	0.0	
	2 - 4	12	2/SS	2, 2, 3, 3 {5}	3 - 4': Same as above but black	0.0	
5	4 - 6	18	3/SS	3, 2, 1, 1 {3}	4.5 - 6.0': Silty clay/silt/native? (CL/ML), dark grey, 10YR, 3/1 to black, slightly moist, low density, laminae consisiting of 1/4" gray silty	0.0	0.3
	6 - 8	N/A	4/SS	1, 1, 1, 1 {2}	No recovery	N/A	
	8 - 10	6	5/SS	2, 2, 3, 4 {5}	9.5 - 10.0': Same as 4.5 to 6.0 above but stained with product	24	
10	10 - 12	24	6/SS	2, 2, 6, 7 {8}	10 -12': Same as above, sticky	119	
	12 - 14'	24	7/SS	13, 5, 5, 4 {10}	12 - 13': Same as above 13-14': Medium gravel, with wood (GP), brown, 10YR, 3/3, saturated, medium density, product sheen and staining	126 126	
15	14 - 15'	N/A	N/A	N/A	Auger to 15'		
	15 - 17'	N/A		6, 4, 1, 1 {5}	No recovery/slough	N/A	
	17 - 19'	20	8/SS	Weight of Hammer	17.25 - 19': Silty clay (CL), black, very soft, saturated, obvious sulfur odor, moderate plasticity	0.0	
20					Boring terminated @ 19' bgs		
25							

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
332898.QT.20.23	MW-107A	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Quanta Resources RI/FS | DRILLING CONTRACTOR : Summit Drilling | LOCATION : Edgewater, NJ

ELEVATION : 7.5' | NORTHING: 718371.31 | EASTING: 632973.74

DRILLING METHOD AND EQUIPMENT USED : 6 5/8" Hollow Stem Auger/Spilt Spoon

WATER LEVELS 3.64' (TIC) | START : 11/8/05 @ 0820 | END : 11/8/05 @ 0935 | LOGGER : D. Blitzer

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	CORE DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppm): Breathing Zone / Head Space
	0 - 2	20	1/SS	3, 3, 10, 10 {13}	0 - 1': Organic silty sand, with rounded gravel (SP/OL), dark brown, 7.5YR, 3/2, dry, loose 1.0 - 1.75': Angular gravel, some silty sand and wood/fill (GP), 5YR, 4/3, dry, loose	0.0
	2 - 4	12	2/SS	16, 16, 10, 20 {16}	3 - 4': Silt with brick/fill (ML), reddish brown, 10YR, 4/6, dry medium density	0.0
5	4 - 6	2	3/SS	1, 2, 2, 3 {4}	Slough	0.0
	6 - 8	18	4/SS	3, 1, 1, 1 {2}	6 - 7': Silt with brick/fill (ML), black, dry, loose 7.0 - 7.5': Silty clay with organic matter (CL), black, moist medium dense	0.5
	8 - 10	N/A	5/SS	2, 1, 1, 1 {2}	No recovery	N/A
10	10 - 12	N/A	6/SS	4, 4, 5, 8 {9}	No recovery. Wood, roots, and organic matter in shoe	N/A
	12 - 14'	24	7/SS	6, 6, 3, 5 {9}	12 - 13': Silty, fine sand/native? (SM), dark brown, 7.5YR, 3/2, saturated, medium dense 13 - 14': Same as above but cleaner (SP) with a yellow band at bottom of spoon, 5Y, 8/8	1.1 1.1
15					Boring terminated @ 14' bgs	
20						
25						

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
332898.QT.20.23	MW-107DS	SHEET 1 OF 2

SOIL BORING LOG

PROJECT : Quanta Resources RI/FS | DRILLING CONTRACTOR : Summit Drilling | LOCATION : Edgewater, NJ

ELEVATION : 7.6' | NORTHING: 718369.21 | EASTING: 632986.22

DRILLING METHOD AND EQUIPMENT USED : 10" rolling air rotary bit, 8 1/4" (outer casing) & 4 1/4" (inner casing) Hollow Stem Auger/Spilt Spoon

WATER LEVELS 2.71' (TIC) | START : 11/16/05 @ 0810 | END : 11/17/05 @ 1455 | LOGGER : A. Harclerode

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" {N}	CORE DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppm): Breathing Zone	Headspace
	0 - 2'	6	1/SS	2, 3, 5, 8 {8}	0 - 0.5': Organic silty sand, some rounded gravel (OL), brown, 7.5YR, 4/2, dry, soft/loose	0.0	
	2 - 4'	6	2/SS	5, 9, 12, 16 {21}	3.5 - 4.0': Same as above with crushed brick, and wood, dry to moist with depth	0.1	0.0
5	4 - 13'	N/A	N/A	N/A	Air rotary drilled through obstructions	N/A	
10							
	13 - 15'	N/A	3/SS	6, 8, 6, 8 {14}	No recovery/slough	N/A	
15	15 - 17'	24	4/SS	6, 9, 9, 9 {18}	15 - 16.5': Medium/coarse sand, some fractured mudstone? (SP), very dark grey, 10YR, 3/1, saturated, loose 16.5 - 17.0': Silty sand with some fibrous wood (SP), very dark grey, 10YR, 3/1 to black, saturated, soft/loose	0.0 1.3	
	17 - 19'	18	5/SS	1, 1, 2, 2 {3}	17.5 - 19.0': Same as 15 - 16.5'	0.0	
20	19 - 21'	24	6/SS	4, 4, 10, 14 {14}	19 - 20.75: Same as 15 - 16.5 but with less fractured mudstone 20.75 - 21.0: Same as above but darker grey	2.0 - 7.0 1.7	
	21 - 23'	18	7/SS	5, 6, 6, 10 {12}	21.5 - 22.0': Same as 19.0 - 20.75' 22.0 - 23.0': Sandy, silty, clay (CL), olive/dark grey, 5Y, 3/2 to to brown, 7.5YR, 3/2, moist/saturated, soft, elastic	0.0 1.3	
25	23 - 25'	18	8/SS	3, 6, 9, 7 {15}	23.5 - 25.0': Same as above but dark yellowish brown, 10YR, 4/4	0.3	
	25 - 27'	18	9/SS	3, 6, 7, 9 {13}	25.5 - 27.0': Same as above	0.0	
	27 - 28'	N/A	N/A	N/A	Augered through		
30	28 - 30'	24	10/SS	10, 18, 22, 27 {40}	28 - 30': Same as 23.5 to 25.0 but very stiff and very dark grey, 10YR, 3/1, moist	0.0	0.0
	30 - 32'	12	11/SS	6, 6, 8, 11 {14}	30.5 - 32': Same as above but very dark brown, 10YR, 3/2 soft to very stiff with depth	0.0	0.0

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
332898.QT.20.23	MW-107DS	SHEET 2 OF 2

SOIL BORING LOG

PROJECT : Quanta Resources RI/FS | DRILLING CONTRACTOR : Summit Drilling | LOCATION : Edgewater, NJ

ELEVATION : 7.6' | NORTHING: 718369.21 | EASTING: 632986.22

DRILLING METHOD AND EQUIPMENT USED : 10" rolling air rotary bit, 8 1/4" (outer casing) & 4 1/4" (inner casing) Hollow Stem Auger/Spilt Spoon

WATER LEVELS 2.71' (TIC) | START : 11/16/05 @ 0810 | END : 11/17/05 @ 1455 | LOGGER : A. Harclerode

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" {N}	CORE DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppm): Breathing Zone	Headspace
	32 - 34'	N/A	12/SS	5, 5, 5, 5 {10}	No recovery	N/A	
35	34 - 36'	20	13/SS	3, 7, 8, 10 {15}	34.25 - 36.0': Silty clay, trace fine sand (CL), strong brown, 7.5YR, 4/4, medium stiff, saturated	0.0	0.0
	36 - 38'	12	14/SS	5, 7, 7, 9 14}	37.0 - 37.75: Same as above 37.75 - 38.0': Medium, well sorted sand (SP), brown, 7.5YR 4/4, saturated, loose	0.0 0.0	0.0
	38 - 40'	N/A	15/SS	10, 12, 19, 8 {31}	No recovery	N/A	
40	40 - 42'	9	16/SS	12, 16, 18, 21 {34}	41.25 - 42.0': Same as 34.25 - 36.0	0.0	0.0
	42 - 44'	24	17/SS	4, 4, 6, 6 {10}	42 - 44': Same as above	0.0	
45	44 - 46'	24	18/SS	8, 6, 11, 12 {17}	44 - 46': Same as above but with laminae of brown silty sand 7.5YR, 4/4 to dark grey, 10YR, 3/1, moist, soft to stiff with depth	0.0	
	46 - 48'	20	19/SS	3, 3, 5, 11 {8}	46.25 - 48.0': Same as above but less pronounced laminae, soft to medium stiff with depth	0.0	0.0
50	48 - 50'	12	20/SS	4, 7, 9, 14 {16}	49 - 50': Same as above but soft and saturated	0.0	
	50 - 52'	24	21/SS	8, 11, 15, 21 {26}	50 - 52': Same as above but alternating layers of soft to stiff in approx. 6" layers	0.0	
	52 - 54'	24	22/SS	4, 6, 8, 9 {14}	52 - 54': Same as above but laminae very faint	0.0	
55	54 - 56'	24	23/SS	7, 12, 15, 24 {27}	54 - 56': Same as above but some fine sand and more pronounced laminae	0.0	
	56 - 58'	24	24/SS	19, 27, 30, 100/2"	56 - 58': Same as above but 2" of silty sand at bottom of spoon	0.0	
	58 - 60'	24	25/SS	3, 4, 6, 6 {10}	58 - 60': Same as above	0.0	
60	60 - 62'	18	26/SS	12, 19, 100/4" {19}	60.5- 62.0': Same as above to bedrock @ ~ 62' bgs	0.0	
					Boring terminated at 62' bgs		

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
332898.QT.20.23	MW-109A	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Quanta Resources RI/FS | DRILLING CONTRACTOR : Summit Drilling | LOCATION : Edgewater, NJ

ELEVATION : 4.9' | NORTHING: 718064.11 | EASTING: 633349.26

DRILLING METHOD AND EQUIPMENT USED : 10" rolling air rotary bit

WATER LEVELS : 4.7' (TIC) | START : 11/15/05 @ 0900 | END : 11/15/05 @ 0920 | LOGGER : A. Harclerode

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	CORE DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppm): Breathing Zone / Headspace
	0 - 12'	N/A	N/A	N/A	Drilled 0 - 12' bgs by air rotary rig due to pervasive obstructions. Air rotary refusal @ ~ 12' bgs	N/A / 0.1
5						
10						
					Boring terminated @ 12' bgs	
15						
20						
25						
30						

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
332898.QT.20.23	MW-111A	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Quanta Resources RI/FS | DRILLING CONTRACTOR : Summit Drilling | LOCATION : Edgewater, NJ

ELEVATION : 8.30' | NORTHING: 719195.22 | EASTING: 632596.28

DRILLING METHOD AND EQUIPMENT USED : 6 5/8" Hollow Stem Auger/Spilt Spoon

WATER LEVELS 4.3' (TIC) | START : 8/3/05 @ 1245 | END : 8/4/05 @ 1100 | LOGGER : A. Harclerode

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	CORE DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppm): Breathing Zone	Headspace
	0 - 2'	4	1/SS	22, 23, 26, 28 {49}	Asphalt/gravel intermixed	0.1	
	2 - 4'	3	2/SS	18, 16, 15, 16 {31}	3.7 - 4.0': Sandy gravel/fill (GP), black, dry, loose to medium density	0.1	
5	4 - 6'	6	3/SS	10, 7, 8, 9 {15}	5.5 - 6.0': Medium to coarse sand w/crushed brick, sub-angular cobbles, and cinder/slag/fill (SP), various colors depending on consituent, wet, loose, Cardboard/cloth-like absorbent material @ 6' bgs saturated @ ~ 4' bgs	2.3 14	
	6 - 8'	3	4/SS	5, 6, 14, 7 {20}	7.8 - 8.0': Sheety, fibrous, cardboard-like material with product staining and obvious petroleum product odor	15	
	8 - 10'	6	5/SS	7, 8, 8, 8 {16}	9.5 - 10.0': Organic silty clay with roots and fibrous wood/native (OL), very dark gray, 10YR, 3/1, moist, elastic, homogeneous matrix	1.8	
10	10 - 12'	16	6/SS	2, 2, 2, 2 {4}	10.7 - 12.0': Same as above	0.2	
	12 - 14'	2	7/SS	21, 11, 3, 1 {14}	13.8 -14.0': Same as above but with trace organic matter	0.7	0.4
15	14 - 16'	0	8/SS	11, 9, 3, 1 {12}	Slough	N/A	
	16 - 18'	14	9/SS	2, 2, 2, 3 {4}	16.8 - 18': Peaty, organic, silty clay w/ some wooc native (PT/OL), very dark reddish brown, 5 YR, 3/2, moist, soft, suflur odor. Medium - coarse sand lense @ ~ 17' bgs (approx. 2" thick)	0.0	2.4
20	18 - 20'	12	10/SS	12, 9, 3, 2 {12}	19.0 - 19.2': Soft, wet fibrous wood 19.2 - 20': Same as 16.8 -18' but brown, 10YR, 2/2	0.0	4.0
	20 - 22'	24	11/SS	5, 4, 3, 3 {7}	20 - 21': Same as above 21 - 21.25': Silty clay, some sub-rounded gravel and cobbles/native (CL), greenish-gray, gley 1, 3/1, wet, soft 21.25 - 22': Organic silty clay/native (OL), some mottling, bluish grey, gley 1, 3/1 to light brown, 10 YR, 4/4, moist, soft	0.0	6.4
25	22 - 24'	12	12/SS	17, 18, 18, 10 {36}	23 - 24': Same as above but reddish brown, 7.5 YR, 4/3, trace fine to medium sand in clay at 19.5' to 19.7'	0.1	3.2
	24 - 26'	8	13/SS	6, 15, 12, 16 {27}	25.3 - 26': Same as above but without the sand lense and with some mottling of lighter and darker shades of brown	0.0	5.4
	26 - 28'	18	14/SS	8, 9 , 10 , 20 {19}	26.5 - 28': Same as above	0.0	6.3
30	28 - 30'	12	15/SS	6, 9, 9, 10 {19}	29 - 30': Same as above	0.0	
					Boring terminated @ 30' bgs		

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
332898.QT.20.23	MW-111B	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Quanta Resources RI/FS | DRILLING CONTRACTOR : Summit Drilling | LOCATION : Edgewater, NJ

ELEVATION : 8.40' | NORTHING: 719186.92 | EASTING: 632597.85

DRILLING METHOD AND EQUIPMENT USED : 6 5/8" Hollow Stem Auger/Spilt Spoon

WATER LEVELS 4.6' (TIC) | START : 8/1/05 @ 1300 | END : 8/1/05 @ 1430 | LOGGER : A. Harclerode

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	CORE DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppm): Breathing Zone Above Hole
	0 - 1'	0	N/A	N/A N/A	Augered through asphalt	N/A
	1 - 2'	12	1/SS	50, 35 {85}	1.0 - 1.2': Concrete cobbles and crushed concrete 1.2 - 2.0': Silty sand with sub-angular gravel/fill (SM), black, dry, medium dense to dense, intermixed	0.0
	2 - 4'	6	2/SS	20, 15, 9, 15 {26}	3.5 - 4.0': Same as above with sub-angular to sub-rounded cobbles, dry to moist with depth	0.0
5	4 - 6'	12	3/SS	20, 18, 15, 15 {33}	5.0 - 5.2': Crushed red brick, wet, saturated at 5' bgs 5.2 - 6.0': Silty sand, some cobbles and cinder/ slag/, some cloth/cardboard-like material w/ obvious product odor/fill (SM), black	0.0
	6 - 8'	12	4/SS	15, 12, 6, 6 {18}	7.0 - 8.0': Same as above but without cloth-like material	0.0
	8 - 10'	7	5/SS	7, 8, 8, 8 {16}	9.4 - 10.0': Organic silty clay with roots and fibrous wood (OL), very dark gray, 10YR, 3/1, moist, elastic, homogeneous matrix	0.2
10	10 - 12'	12	6/SS	3, 3, 2, 2 {5}	11.0 - 12.0': Same as above	0.0
					Boring terminated at 12' bgs	
15						
20						
25						

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
332898.QT.20.23	MW-112A	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Quanta Resources RI/FS | DRILLING CONTRACTOR : Summit Drilling | LOCATION : Edgewater, NJ

ELEVATION : 6.80' | NORTHING: 718954.83 | EASTING: 633038.93

DRILLING METHOD AND EQUIPMENT USED : 8" rolling air rotary bit

WATER LEVELS : 7.1' (TIC) | START : 8/15/05 @ 1215 | END : 8/15/05 @ 1245 | LOGGER : A. Harclerode

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	CORE DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppm): Breathing Zone Headspace
	0 - 10'	N/A	N/A	N/A	Drilled 0 - 12' bgs by air rotarty rig due to pervasive sub-surface obstructions at 2' bgs. Could not auger past 10' bgs due to an impenetrable obstruction	N/A
5						
10						
					Boring terminated @ 10' bgs	
15						
20						
25						
30						

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
332898.QT.20.23	MW-112B	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Quanta Resources RI/FS | DRILLING CONTRACTOR : Summit Drilling | LOCATION : Edgewater, NJ

ELEVATION : 6.80' | NORTHING: 718965.16 | EASTING: 633046.35

DRILLING METHOD AND EQUIPMENT USED : 6 5/8" Hollow Stem Auger/Spilt Spoon

WATER LEVELS : 5.9' (TIC) | START : 7/27/05 @ 0930 | END : 7/27/05 @ 1300 | LOGGER : A. Samuel

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	CORE DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppm): Breathing Zone / Headspace
	0 - 3'	N/A	N/A	N/A	Augered through asphalt and boulder	N/A
	3 - 5'	12	1/SS	9, 12, 13, 15 {25}	4.0 - 4.2': Intermixed gravel and cinder/slag, very dark grey, 10YR, 3/1, dry, medium dense, product stair 4.2 - 5.0': Silty sand with gravel/fill (SW), various colors, saturated, medium dense, product stain	1.4 1.4
5	5 - 7'	18	2/SS	6, 10, 9, 11 {19}	5.5 - 7.0': Same as above	120
	7 - 9'	24	3/SS	16, 12, 14, 14 {26}	7.0 - 8.9': *Same as above* 8.9 - 9.0': Organic, peaty, silty clay/native (OL, PT), very dark grey, 10YR, 3/1, wet, stiff	22.9 22.9
10	9 - 11'	2	4/SS	10, 10, 18, 10 {28}	10.84 - 11.0': Same as above	20.2
	11 - 13'	20	5/SS	5, 2, 2, 3 {4}	11.4 - 12.0': Peaty sand, some gravel (PT/SP), brown, 7.5YR, 4/2, wet, soft/loose 12 - 13': Silty clay (CL), brown, 7.5YR, 4/2, wet, soft	11.5 11.5
	13 - 15'	24	5/SS	2, 2, 2, 2 {4}	13 - 14': Well graded sand (SW), brown, 7.5YR, 4/2, wet, very loose 14 - 15': Same as 8.9 - 9.0' above	5.0 5.0
15	15 - 17'	24	6/SS	1, 1, 1, 3 {2}	15 - 16': Same as 13 - 14' above 16 - 17': Same as 14 - 15'/8.9 - 9.0' above	5.3 5.3
					Boring terminated @ 17' bgs	
20						
25						

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
332898.QT.20.23	MW-113A	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Quanta Resources RI/FS DRILLING CONTRACTOR : Summit Drilling LOCATION : Edgewater, NJ

ELEVATION : 7.00' NORTHING: 718887.05 EASTING: 633231.50

DRILLING METHOD AND EQUIPMENT USED : 8" rolling air rotary bit, 6 5/8" Hollow Stem Auger/Spilt Spoon

WATER LEVELS : 6.6' (TIC) START : 8/15/05 @ 0820 END : 8/15/05 @ 0900 LOGGER : A. Harclerode

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	CORE DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppm): Breathing Zone / Headspace
	0 - 8'	N/A	N/A	N/A	Drilled 0 - 8' bgs by air rotarty rig due to pervasive obstructions beginning at 2' bgs	N/A
5						
	8 - 10'	3	1/SS	2, 2, 2, 5 {4}	9.75 - 10.0': Medium to coarse sand, trace crushed brick and angular gravel/fill? (SP), brown, 7.5 YR, 4/3, saturated, very loose to loose	0.0 / 0.0
10						
	10 - 12'	14	2/SS	4, 4, 7, 11 {11}	10.8 - 12.0': Same as above	0.0
	12 - 14'	22	3/SS	6, 11, 15, 11 {26}	13.2 -14.0': Same as above but last 1" of spoon grades into a very dark grey silty clay, 10YR, 3/1	0.0
15					Boring terminated @ 14' bgs	
20						
25						
30						

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
332898.QT.20.23	MW-113B	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Quanta Resources RI/FS DRILLING CONTRACTOR : Summit Drilling LOCATION : Edgewater, NJ

ELEVATION : 7.00' NORTHING: 718891.63 EASTING: 633233.93

DRILLING METHOD AND EQUIPMENT USED : 6 5/8" Hollow Stem Auger/Spilt Spoon

WATER LEVELS 6.6' (TIC) START : 8/16/05 @ 0745 END : 8/16/05 @ 0930 LOGGER : A. Harclerode

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" {N}	CORE DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppm): Breathing Zone / Headspace
	0 - 8	N/A	N/A	N/A	Drilled 0 - 8' bgs by air rotarty rig due to pervasive sub-surface obstructions at 2' bgs.	N/A
5						
	8 - 10'	4	1/SS	3, 3, 3, 4 {6}	9.7 - 10': Medium to coarse sand, trace wood fibers/ native? (SP), brown, 7.5 YR, 4/3, saturated, very loose to loose	0.1 / 0.0
10	10 - 12'	18	2/SS	4, 6, 8, 10 {14}	10.5 - 12.0': Same as above but w/o wood	0.0 / 0.9
	12 - 14'	20	3/SS	4, 8, 12, 14 {20}	12.3 - 14.0': Same as above but with trace rounded cobbles at 14' and 1" of very dark grey silty clay at 14.3'	0.0 / 1.3
15	14 - 16'	12	4/SS	4, 14, 13, 12 {27}	15 - 15.4': Silty sand/native (SM), mottled brown, 7.5YR, 4/3 to strong brown, 7.5 YR, 4/6, saturated, loose to medium density, 2" of crushed cobbles (mudstone?) at ~ 15.4' 15.6 - 16': Fine sand/native (SP), mottle reddish brown, 2.5 YR, 4/4 to brown, 7.5YR, 4/3, saturated, loose to med.	0.0 0.0
	16 -18'	3	5/SS	14, 15, 16, 20 {31}	17.75 -18.0': Same as above	
20	18 -20'	12	6/SS	5, 7, 9, 12 {16}	19 - 20': Silty clay/native (CL), reddish brown, 2.5YR, 4/3, moist, homogenous, firm to stiff, elastic	0.0 / 4.7
					Boring terminated @ 20' bgs	
25						

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
332898.QT.20.23	MW-113C	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Quanta Resources RI/FS DRILLING CONTRACTOR : Summit Drilling LOCATION : Edgewater, NJ

ELEVATION : 7.2' NORTHING: 718899.82 EASTING: 633232.35

DRILLING METHOD AND EQUIPMENT USED : 10" rolling air rotary bit, 6 5/8" Hollow Stem Auger/Spilt Spoon

WATER LEVELS 6.9' (TIC) START : 11/21/05 @ 0850 END : 11/21/05 @ 1110 LOGGER : A. Harclerode

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	CORE DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppm): Breathing Zone	Headspace
	0 - 13'	N/A	N/A	N/A	Air rotary drilled through obstructions	N/A	
5							
10							
	13 - 15'	9	1/SS	8, 10, 12, 14 {22}	14.25 - 15.0': Well graded fine to coarse sand, trace cobbles native (SW), brown, 7.5YR, 4/3, saturated, dense	0.0	0.0
15							
	15 - 17'	9	2/SS	3, 4, 12, 16 {22}	16.25 - 17.0': Silty to very fine sand (SM/SP), brown, 7.5YR, 4/3, moist/saturated, dense	0.0	0.0
	17 - 19'	24	3/SS	18, 21, 26, 28 {47}	17 - 18.5': Medium sand, some sub-rounded to rounded gravel, trace rounded cobbles (SP), brown, 7.5YR, 3/2, moist, very dense	0.0 0.0	0.0
20	19 -21'	9	4/SS	3, 4, 9, 11 {13}	20.25 - 21.0': Silty clay (CL), reddish brown, 5YR, 4/4, moist, stiff/very stiff	0.0	0.0
	21 - 23'	9	5/SS	8, 15, 18, 21 {33}	22.25- 23.0': Same as above	0.0	0.0
25	23 - 25'	12	6/SS	3, 5, 18, 42 {23}	24 - 25': Silty to fine sand, some rounded gravel (SM/SP), reddish brown, 5YR, 4/4, moist/saturated, very dense	0.0	0.0
	25 - 27'	18	7/SS	5, 16, 26, 27 {42}	25.5 - 26.75': Silty/clayey, fine sand with some rounded gravel (SC/SP), split graded, reddish brown, 5YR, 4/4, moist/saturated, very dense/stiff 26.75 - 27.0': Gravelly, medium sand with rounded cobbles fractured rock (SP/GP), brown, 7.5YR, 4/2, wet, very dense	0.0	0.0
	27 - 29'	6	8/SS	16, 100/4" {23}	27.5- 28.0': Same as above, split spoon refusal at 28' bgs	0.0	0.0
30	28 - 30'	N/A	N/A	N/A	Auger through cobble/gravel lense. HSA refusal at 30' bgs	N/A	
					Boring terminated at 30' bgs		

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
332898.QT.20.23	MW-114A	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Quanta Resources RI/FS DRILLING CONTRACTOR : SGS Environmental Services, Inc. LOCATION : Edgewater, NJ

ELEVATION : NORTHING: EASTING:

DRILLING METHOD AND EQUIPMENT USED : 6 5/8" Hollow Stem Auger

WATER LEVELS : START : 1/14/06 @ 1600 END : 1/14/06 @ 1630 LOGGER : A. Harclerode

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	CORE DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppm): Breathing Zone Above Hole
					See MW-114B for soil boring log	
5						
10						
15					Boring terminated @ 14' bgs	
20						
25						

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
332898.QT.20.23	MW-114B	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Quanta Resources RI/FS DRILLING CONTRACTOR : SGS Environmental Services, Inc. LOCATION : Edgewater, NJ

ELEVATION : NORTHING: EASTING:

DRILLING METHOD AND EQUIPMENT USED : 6 5/8" Hollow Stem Auger/Spilt Spoon

WATER LEVELS START : 1/14/06 @ 0920 END : 1/14/05 @ 1400 LOGGER : A. Harclerode

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" {N}	CORE DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppm): Breathing Zone	Head Space
	0 - 1'	N/A	N/A	N/A	Augered through asphalt/concrete	N/A	
	1 - 3'	12	1/SS	23, 23, 13, 20 {36}	1 - 2': Sandy silt with crushed brick, some cinder/slag/fill, (ML) black, dry to saturated with depth, medium dense, saturated @ ~ 2.0' bgs	0.1	0.0
	3 - 5'	N/A	2/SS	50/2"	No recovery. Auger to 5' bgs.	N/A	
5	5 - 7'	10	3/SS	22, 25, 23, 13 {48}	6.2 - 7.0': Sandy silt with gravel and some cinder/slag/fill (ML), black, moist, medium density	0.0	
	7 - 9'	24	4/SS	25, 14, 15, 20 {29}	7 - 9': Sandy gravel (GP), brown, 7.5YR, 4/3, saturated, medium dense, staining @ 8.5 to 9.0'	0.6 to 4.9	0.0
10	9 - 11'	9	5/SS	2, 2, 2, 2 {4}	10.25 - 10.50': Same as above with staining 10.50 - 11.0': Peat/native (PT), very dark brown, 7.5YR, 2.5/2, moist, very soft to soft	53.0 0.0	43.4
	11 - 13'	N/A	6/SS	WOH, 3, 4 {3}	Slough	N/A	
	13 - 15'	15	7/SS	8, 5, 8, 8 {13}	13.75 - 15.0': Fine to medium sand, well sorted, some roots/native (SP), brown, 7.5YR, 3/4, saturated, loose to medium dense	0.0	
15	15 - 17'	15	8/SS	7, 6, 5, 9 {11}	15.75 - 16.5': Same as 10.50 to 11.0' above 16.5 - 17.0': Fine, silty sand (SP), brown, 7.5YR, 5/3, saturated, medium dense	5.1 5.1	1.0
	17 - 19'	N/A	9/SS	15, 11, 13, 18 {24}	Slough	N/A	
20	19 - 21'	9	10/SS	10, 11, 13, 18 {24}	20.25 - 21.0': Same as 16.5 to 17.0' above	2.3	5.4
	21 - 23'	21	11/SS	12, 12, 13, 4 {25}	21.25 - 23.0': Same as above with running sand	2.5	0.0
25	23 - 25'	10	12/SS	14, 12, 10, 16 {22}	24.2 - 25.0': Silty, gravelly clay (CL), very dark grey to brown, 10YR, 3/1 to 7.5YR, 5/6, stiff, moist to saturated	0.0	
	25 - 27'	3	13/SS	10, 21, 37, 41 {58}	26.75 - 27.0': Same as above but 7.5YR, 5/6 only	0.0	
	27 - 29'	N/A	14/ST	N/A	Shelby Tube		
30					Boring terminated @ 29'		

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
332898.QT.20.23	MW-116A	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Quanta Resources RI/FS | DRILLING CONTRACTOR : Summit Drilling | LOCATION : Edgewater, NJ

ELEVATION : 6.10' | NORTHING: 718564.88 | EASTING: 633607.66

DRILLING METHOD AND EQUIPMENT USED : 6 5/8" Hollow Stem Auger/Spilt Spoon

WATER LEVELS 6.7' (TIC) | START : 7/22/05 @ 0830 | END : 7/22/05 @ 0930 | LOGGER : A. Harclerode

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	CORE DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppm): Breathing Zone Above Hole
	0 - 2	12	1/SS	20, 50, 75, 25 {125}	0 - 1.0': Silty sand w/ angular gravel and cobbles/fill (SM), various colors depending on grain size, dry, loose to medium density	0.3
	2 - 4'	18	2/SS	40, 30, 22, 30 {52}	2.5 - 3.0': Silty sand w/ angular gravel/fill (SM), brown, 2.5YR, 2/2, dry, loose to medium density 3.0 - 4.0': Gravelly sand/fill (SP), brown, 2.5YR, 2/2 dry, loose to medium density, product staining	1.2
5	4 - 6'	6	3/SS	10, 15, 20, 10 {35}	5.5 - 6.0': Fine to medium sand w/ cobbles and sub-angular gravel/fill (SP), brown, 2.5 YR, 2/2, dry loose to medium density, obvious product odor	1.7
	6 - 8'	4	4/SS	8, 4, 2, 2 {6}	7.7 - 8.0': Coarse sand w/angular to sub-angular gravel/fill (SP), very dark brown, 10YR, 2.2, wet, loose, sheen on water, saturated at approx. 7' bgs	1.9
	8 - 10'	6	5/SS	35, 100/1" {N/A}	8.5 - 9.0': Same as above w/ refusal at 8.7'	1.8
10	10 - 12'	0	6/SS	15, 2, 2, 1 {4}	Slough	N/A
	12 - 14'	24	7/SS	2, 1, 1, 1 {3}	Silty clay/native (CL), very dark grey, 10YR, 3/1, moist, soft, homogenous, low - moderate plasticity	0.7
15					Boring terminated @ 14' bgs	
20						
25						

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
332898.QT.20.23	MW-116B	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Quanta Resources RI/FS DRILLING CONTRACTOR : Summit Drilling LOCATION : Edgewater, NJ

ELEVATION : 6.30' NORTHING: 718564.00 EASTING: 633614.00

DRILLING METHOD AND EQUIPMENT USED : 6 5/8" Hollow Stem Auger/Spilt Spoon

WATER LEVELS 4.51' START : 8/16/05 @ 1115 END : 8/16/05 @ 1300 LOGGER : A. Harclerode

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" {N}	CORE DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppm): Breathing Zone / Headspace
	0 - 2'	3	1/SS	2, 5, 8, 4 {13}	Organic silt, some crushed brick, sub-angular cobbles, and cinder/slag/fill (OL), various colors, dry, loose	0.0
	2 - 4'	0	2/SS	100/2" N/A	No recovery, augered to 3' bgs, saturated at 2.5 to 3.0' bgs	N/A
	3 - 5'	12	3/SS	3, 9, 10, 30 {19}	4.0 - 5.0': Silty sand with hardened pitch tar, cinder/slag, and crushed brick/fill (SM), various colors, saturated, medium to dense, obvious tar odor and prominent sheen	21.6
5	5 - 7'	6	4/SS	2, 5, 34, 4 {39}	5.5 - 6.0': Hardened pitch tar with cinder/slag and fibrous/ cardboard material that cleaves into flat sheets, trace crushed brick, black, moist, obvious petroleum product odor and slight sheen	7.9
	7 - 9'	0	5/SS	21, 6, 3, 2 {9}	Slough	N/A 0.1
10	9 -11'	0	6/SS	5, 2, 2, 6	Slough	N/A
	11 - 13'	0	7/SS	7, 1, 1, 1	Slough	N/A
15	13 - 15'	22	8/SS	8, 4, 3, 2 {7}	13.2 - 15.0': Silty clay, trace mollusk shells/native (CL), very dark grey, 10YR, 3/1, moist, soft to firm, homogenous, obvious petroleum product odor	
					Boring terminated @ 15' bgs	
20						
25						

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
332898.QT.20.23	MW-116DS	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Quanta Resources RI/FS | DRILLING CONTRACTOR : Summit Drilling | LOCATION : Edgewater, NJ

ELEVATION : 6.10' | NORTHING: 718555.99 | EASTING: 633613.65

DRILLING METHOD AND EQUIPMENT USED : 8 1/4" (outer casing) & 4 1/4" (inner casing) Hollow Stem Auger/Spilt Spoon

WATER LEVELS 5.4' (TIC) | START : 8/24/05 @ 0800 | END : 8/25/05 @ 1100 | LOGGER : A. Harclerode

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" {N}	CORE DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppm): Breathing Zone / Headspace
	0 - 1'	N/A	N/A	N/A	Augered through brick/cobbles	N/A
	1 - 3'	6	1/SS	15, 28, 30, 20 {58}	2.5 - 3.0': Gravel intermixed with fine sand and cinder/ slag/fill (GP), black, moist to wet with depth, saturated @ ~ 3' bgs	0.3
	3' - 5'	0	2/SS	15, 6, 3, 2 {9}	Slough	N/A
5	5 - 7'	0	3/SS	10, 3, 2, 2 {5}	Slough	N/A
	7 - 9'	0	4/SS	2, 4, 1, 1 {5}	Slough	N/A
10	9 - 11'	0	5/SS	2, 1, 1, 8 {2}	Slough	N/A 0.0
	11 - 13'	0	6/SS	9, 7, 3, 2 {10}	Slough	N/A
15	13 - 15'	2	7/SS	6, 3, 1, 1 {4}	14.84 - 15.0': Silty clay/native (CL), very dark grey, 10YR, 3/1, moist, soft, homogenous, moderate plasticity	4.5
	15 - 17'	4	8/SS	21, 6, 2, 2, {8}	16.7 - 17.0': Same as above	4.3
	17 - 19'	4	9/SS	7, 2, 2, 3 {4}	18.7 - 19.0': Same as above w/ trace mollusk shells	2.7
20	19 - 21'	0	10/SS	6, 1, 10, 12 {11}	No recovery	N/A
	21 - 23'	12	11/SS	21, 40, 40, 53 {80}	22.0 - 22.3': Cobbles coated with silty clay w/ some fibrous wood (GP), very dark grey 10YR, 3/1, wet, dense 22.3 - 23.0': Medium sand (SP), brown, 7.5YR, 4/2, moist to wet, dense	12.1 12.0
25	23 - 25'	12	12/SS	53, 100/5" N/A	24 - 25': Same as above but with product staining and trace fractured rock	23
	25 - 27'	12	13/SS	22, 40, 40, 41 {80}	26 - 27': Mottled medium to coarse sand (SP), grey, gley 1, 5/1, to brown 7.5 YR, 4/2, saturated, very dense	2.1
	27 - 29'	4	14/SS	22, 100/2" N/A	28.7 - 29': Same as 22.3 - 23' above with no evidence of product and with some sub-angular to sub-rounded gravel, bedrock/boulder @ 29' bgs	0.3
					Boring terminated @ 29' bgs	

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
332898.QT.20.23	MW-117A	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Quanta Resources RI/FS | DRILLING CONTRACTOR : Summit Drilling | LOCATION : Edgewater, NJ

ELEVATION : 6.80' | NORTHING: 718495.51 | EASTING: 633575.22

DRILLING METHOD AND EQUIPMENT USED : 6 5/8" Hollow Stem Auger/Spilt Spoon

WATER LEVELS 6.7' (TIC) | START : 7/26/05 @ 1330 | END : 7/26/05 @ 1430 | LOGGER : A. Harclerode

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" {N}	CORE DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppm): Breathing Zone Above Hole
	0 - 2	6	1/SS	10, 20, 20, 25 {40}	Fine to medium silty sand/fill, (SM) with cobbles and cinder/slag, various colors depending on grain size, dry, loose to medium density	1.7
	2 - 4'	0	2/SS	100/5" {N/A}	Sluff. Refusal at 2.4' - auger to 5' through unknown obstruction.	N/A
5	5 - 7'	12	3/SS	12, 20, 20, 26 {40}	6.0 - 7.0': Silty sand with cinder/slag/fill (SM), black, dry - wet with depth, loose to medium density, product stain, saturated @ ~ 6.5' bgs	2.3
	7 - 9'	0	4/SS	48, 37, 20, 12 {57}	No recovery/slough	N/A
10	9 - 11'	5	5/SS	6, 5, 4, 5 {9}	9.6 - 10': Coarse gravel w/ cinder/slag/fill (GP), black, saturated, obvious napthalene odor with sheen	0.2
	11 - 13'	0	6/SS	3, 3, 3, 3 {6}	No recovery/slough	N/A
	13 - 15'	0	7/SS	1, 1, WOH {N/A}	No recovery/slough	N/A
15	15 - 17'	0	8/SS	1, 1, 1, WOH {2}	No recovery/slough	N/A
					Boring terminated @ 17' bgs	
20						
25						

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
332898.QT.20.23	MW-117B	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Quanta Resources RI/FS | DRILLING CONTRACTOR : Summit Drilling | LOCATION : Edgewater, NJ

ELEVATION : 6.30' | NORTHING: 718490.38 | EASTING: 633577.94

DRILLING METHOD AND EQUIPMENT USED : 6 5/8" Hollow Stem Auger/Spilt Spoon

WATER LEVELS 8.0' (TIC) | START : 7/26/05 @ 1000 | END : 7/26/05 @ 1150 | LOGGER : A. Harclerode

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" {N}	CORE DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppm): Breathing Zone / Above Hole
	0 - 2	6	1/SS	4, 6, 20, 25 {26}	Fine to medium silty sand/fill, (SM) with cobbles and cinder/slag, various colors depending on grain size, dry, loose to medium density	1.7
	2 - 4'	0	2/SS	25, 19, 4, 2 {23}	Slough	N/A
5	4 - 6'	8	3/SS	16, 20, 26, 35 {46}	5.3 - 6': Same as 0 -2' but black with napthalene odor, moist to saturated with depth. Saturated @ 5.5' bgs	2.5
	6 - 8'	20	4/SS	19, 8, 8, 7 {16}	6.25 - 8': Same as above with some soft tar-like product, obvious napthalene/ammonia odor	2.7
	8 - 10'	20	5/SS	5, 5, 5, 5 {10}	8.25 - 10': Coarse gravel/fill, (GP) with cinder/slag and medium sand, black, saturated, obvious napthalene odor	3.2 / 2.0
10	10 - 12'	3	6/SS	3, 3, 4, 10 {7}	11.75 - 12': Same as above with some soft tar-like product	2.7
	12 - 14'	1	7/SS	11, 5, 4, 1 {9}	13.9 - 14': Same as above with incandescent sheen	2.6
15	14 - 16'	12	8/SS	1, 1, 1, 1 {2}	15 - 16': Silty clay/native, (CL), very dark grey, 10 YR 3/1, very soft, moist, homogenous, low to moderate plasticity	3.1
	16 -18'	4	9/SS	1, 1, 1, 1 {2}	17.7 - 18': Same as above	3.2
20					Boring terminated @ 18' bgs	
25						

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
332898.QT.20.23	MW-118A	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Quanta Resources RI/FS | DRILLING CONTRACTOR : Summit Drilling | LOCATION : Edgewater, NJ

ELEVATION : 6.10' | NORTHING: 718454.55 | EASTING: 633573.47

DRILLING METHOD AND EQUIPMENT USED : 6 5/8" Hollow Stem Auger/Spilt Spoon

WATER LEVELS 7.1' (TIC) | START : 7/25/05 @ 1040 | END : 7/25/05 @ 1150 | LOGGER : A. Harclerode

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" {N}	CORE DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppm): Breathing Zone Above Hole
	0 - 2	6	1/SS	4, 8, 18, 32 {26}	Organic gravelly silt (OL), brown, 2.5 YR, 2/2, dry, loose, angular to sub-angular gravel	0.2
	2 - 4'	12	2/SS	29, 23, 10, 11 {33}	3' - 4': Fine to medium silty sand/fill and crushed brick and cinder/slag, (SM), black, dry-moist, napthalene odor. Refusal at 4' (unknown obstruction) - auger to 5'.	0.8
5	5 - 7'	6	3/SS	1, weight of hammer (WOH) {N/A}	6.5 - 7': Running gravel and cinder/slag/fill, (GP), black,saturated, heavy sheen on water with obvious product odor, saturated @ 6' bgs.	0.9
	7 - 9'	8	4/SS	6, 5, 5, 3 {10}	8.4 - 9': Same as above but with some sheety/plastic/ mica-like material	1.0
10	9 - 11'	18	5/SS	1, 1, WOH, 12 {1}	9.5 - 11': Same as above but with less sheety/plastic/ mica-like material. Trace silty clay (CL), very dark grey 10YR, 3/1	1.5
	11 - 13'	24	6/SS	3, 3, 3, 3 {6}	11 - 13': Same as above	1.7
15	13' - 15'	24	7/SS	1, 1, 1, 1	13 - 15': Silty clay/native, (CL), very dark grey, 10 YR, 3/1, moist, soft, moderate plasticity.	1.7
					Boring terminated at 15' bgs	
20						
25						

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
332898.QT.20.23	MW-118B	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Quanta Resources RI/FS | DRILLING CONTRACTOR : Summit Drilling | LOCATION : Edgewater, NJ

ELEVATION : 6.80' | NORTHING: 718443.68 | EASTING: 633572.98

DRILLING METHOD AND EQUIPMENT USED : 6 5/8" Hollow Stem Auger/Spilt Spoon

WATER LEVELS 7.4' (TIC) | START : 7/25/05 @ 1330 | END : 7/25/05 @ 1515 | LOGGER : A. Harclerode

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" {N}	CORE DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppm): Breathing Zone Above Hole
	0 - 2	18	1/SS	15, 16, 48, 100/5 {64}	Fine gravelly sand/fill, (SP) with concrete and fractured cobbles, dark brown, 10 YR, 2/2, Dry, loose. Refusal at 2' - auger to 5' bgs.	0.2
5	5 - 7'	6	2/SS	2, 1, 2, 1 {3}	6.5 - 7': Fine to medium gravelly sand/fill, (SP), black, moist to saturated with depth, loose. product staining, saturated at approx. 6' bgs	2.1
	7 - 9'	8	3/SS	4, 4, 4, 4 {8}	8.4 - 9': Same as above but with some cinder/slag-like material, obvious napthalene odor and some staining	1.9
10	9 - 11'	3	4/SS	2, 2, 3, 2 {5}	9.75 - 11': Same as above	2.3
	11 - 13'	1	5/SS	2, 2, 2, 2 {4}	12.9 - 13': Same as above but with angular cobbles and saturated with prominent sheen and strong napthalene odor	2.1
	13' - 15'	3	6/SS	2, 1, 1, 1 {2}	14.75 - 15': Silty clay/native, (CL), very dark grey, 10 YR, 3/1, moist, soft, moderate plasticity	3.1
15	15 - 17'	12	7/SS	3, 4, 4, 5 {8}	16 - 17': Same as above	2.0
					Boring terminated @ 17' bgs	
20						
25						

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
332898.QT.20.23	MW-119A	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Quanta Resources RI/FS DRILLING CONTRACTOR : Summit Drilling LOCATION : Edgewater, NJ

ELEVATION : 6.20' NORTHING: 718343.86 EASTING: 633523.03

DRILLING METHOD AND EQUIPMENT USED : 6 5/8" Hollow Stem Auger/Spilt Spoon

WATER LEVELS 4.3' (TIC) START : 10/8/05 @ 1300 END : 10/8/05 @ 1335 LOGGER : A. Harclerode

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	CORE DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppm): Breathing Zone Above Hole
	0 -4'	N/A	N/A	N/A	Augered through asphalt/concrete pad	N/A
5	4 - 6'	24	1/SS	4, 2, 2, 2 {20}	4 - 6': Gravelly, sand with crushed brick, cinder/slag, crushed concrete/fill (SP), various colors, saturated, medium density, saturated @ ~ 4' bgs	N/A malfunction)
	6 - 8'	12	2/SS	7, 2, 2, 1 {4}	7.0 - 7.5': Same as above 7.5 - 8.0': Same as above but with black product in pore space and prominent incandescent sheen	N/A malfunction)
	8 - 10'	2	3/SS	1, 1, WOH {N/A}	9.84 - 10': Same as above	N/A malfunction)
10	10 - 12'	1	4/SS	1, 1, 1, 1 {2}	11.9 - 12': Same as above but with less product/sheen	N/A malfunction)
	12 - 14'	1	5/SS	WOH N/A	13.9 - 14': Same as above	N/A malfunction)
15					Boring terminated @ 14' bgs	
20						
25						

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
332898.QT.20.23	MW-119B	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Quanta Resources RI/FS *DRILLING CONTRACTOR : Summit Drilling* *LOCATION : Edgewater, NJ*

ELEVATION : 6.40' NORTHING: 718355.51 EASTING: 633526.26

DRILLING METHOD AND EQUIPMENT USED : 6 5/8" Hollow Stem Auger/Spilt Spoon

WATER LEVELS 4.2' (TIC) START : 10/8/05 @ 0820 END : 10/8/05 @ 1120 LOGGER : A. Harclerode

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" {N}	CORE DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppm): Breathing Zone Above Hole
	0 -4'	N/A	N/A	N/A	Augered through asphalt/concrete pad	N/A
5	4 - 6'	24	1/SS	3, 10, 10, 4 {20}	4 - 6': Gravelly, sand with crushed brick, cinder/slag, crushed concrete/fill (SP), various colors, saturated, medium density	N/A malfunction)
	6 - 8'	12	2/SS	3, 2, 2, 1 {4}	7.0 - 7.5': Same as above 7.5 - 8.0': Same as above but with black product in pore space and prominent incandescent sheen	N/A malfunction)
	8 - 10'	10	3/SS	11, 3, 3, 2 {6}	9.2 - 10': Same as above	N/A malfunction)
10	10 - 12'	12	4/SS	5, 2, 1, 2 {3}	11 - 12': Same as above but with less product/sheen	N/A malfunction)
	12 - 14'	24	5/SS	1, 1, 1, 1 {2}	12 - 13': Same as above 13 - 14': Silty clay (CL), very dark grey 10YR, 3/1, soft. homogenous, low plasticity, obvious product odor	N/A malfunction)
15	14 - 16'	12	6/SS	1, 1, 1, 1 {2}	14 - 16': Same as above	N/A malfunction)
20					Boring terminated @ 16' bgs	
25						

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
332898.QT.20.23	MW-120A	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Quanta Resources RI/FS | DRILLING CONTRACTOR : Summit Drilling | LOCATION : Edgewater, NJ

ELEVATION : 7.1' | NORTHING: 718212.64 | EASTING: 633495.32

DRILLING METHOD AND EQUIPMENT USED : 6 5/8" Hollow Stem Auger/Spilt Spoon

WATER LEVELS 5.75' (TIC) | START : 11/7/05 @ 0910 | END : 11/7/05 @ 1010 | LOGGER : A. Harclerode

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	CORE DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppm): Breathing Zone	Head Space
	0 - 2	6	1/SS	2, 20, 21 {20}	0 - 0.5': Silty sand (SP), dark brown, 7.5YR, 3/2, dry to moist, loose, some roots/organic matter	N/A	
					Refusal @ ~ 1.5 bgs - auger to 3' bgs through obstruction	N/A	
	3 - 5	6	2/SS	2, 6, 14, 7 {20}	4.5 - 5.0': Same as 0 to 0.5 but with some angular to sub-angular gravel and fractured concrete/fill, less roots/ organic matter	N/A	
5	5 - 7	6	3/SS	2, 3, 3, 1 {6}	6.5 - 7.0': Silty, clayey sand (SC/SM), dark brown, 7.5YR 3/2, moist, medium dense	N/A	0.8
	7 - 9	12	4/SS	2, 2, 2, 2 {4}	8 - 9': Gravelly, clayey sand (SP), dark brown, 7.5YR, 3/2, saturated @ ~ 8.0' bgs, medium dense to dense	N/A	1
10	9 - 11	8	5/SS	2, 2, 1, 1 {3}	10.25 - 11.0': Same as above but with trace fibrous wood	N/A	1.3
	11 - 13	12	6/SS	3, 2, 2, 3 {4}	12 - 13': Sandy gravel with some sub-rounded cobbles, trace crushed brick and wood/fill (GP), dark brown, 7.5YR, saturated, medium dense	N/A	0.6
	13 - 15	5	7/SS	4, 3, 2, 1 {5}	14.6 - 15': Same as above but 2" of faint dark staining at bottom of spoon, sub-rounded to rounded cobbles	N/A	1.1
15					Boring terminated @ 15' bgs		
20							
25							

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
332898.QT.20.23	MW-120B	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Quanta Resources RI/FS | DRILLING CONTRACTOR : Summit Drilling | LOCATION : Edgewater, NJ

ELEVATION : 6.78' | NORTHING: 718223.61 | EASTING: 633484.97

DRILLING METHOD AND EQUIPMENT USED : 6 5/8" Hollow Stem Auger/Spilt Spoon

WATER LEVELS 5.75' (TIC) | START : 11/11/05 @ 0810 | END : 11/11/05 @ 1025 | LOGGER : A. Harclerode

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" {N}	CORE DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppm): Breathing Zone / Head Space
	0 - 2'	9	1/SS	3, 4, 5, 8 {9}	0 - 0.4': Organic silty sand (OL), dark brown, 7.5YR, 3/3, dry, loose 0.4 - 0.75': Crushed concrete	0.0 / 0.0
	2 - 4'	12	2/SS	3, 3, 6, 10	3.0 - 3.16': Crushed concrete 3.16 - 4.0': Clayey silt with cinder/slag and some rounded to sub-rounded cobbles/fill, (ML), dark brown, 7.5 YR, 3/3 to black moist, soft	0.0 0.0 / 0.0
5	4 - 6'	9	3/SS	1, 1, 1, 1 {2}	5.25 - 5.70': Silty, fine sand, some gravel/fill (SP) brown, 7.5YR, 3/2. moist to saturated @ ~ 5.3' bgs, loose 5.7 - 6.0': Same as above but black with some cinder/slag	0.0 / 0.0
	6 - 8'	20	4/SS	3, 4, 4, 4 {8}	6.25 - 7.70': Silt with some sub-angular gravel/fill (ML), black, soft, moist 7.70 - 8.0': Sandy gravel (GP), dark brown, 7/5YR, 3/3 to black, saturated, loose to medium dense	0.0 0.0
	8 - 10'	2	5/SS	1, 1, 1, 12 {2}	9.84 - 10.0': Crushed cobbles, some gravel and silty sand (GP/SP), brown 7.5YR, 3/2, saturated, loose	0.0
10	10 - 12'	N/A	6/SS	100/1" {N/A}	No recovery, refusal at 10' - auger through wood to 13' bgs	N/A
	13 - 15'	N/A	7/SS	3, 5, 5, 7 {10}	No recovery	N/A
15	15 - 17'	N/A	8/SS	3, 5, 5, 7 {10}	No recovery	N/A
	17 19'	18	9/SS	1, 1, 1, 1 {2}	17.5 - 19.0': Silty clay/native (CL), black, moist/saturated, soft, moderate plasticity	0.0
20					Boring terminated @ 19' bgs	
25						

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
332898.QT.20.23	MW-121B	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Quanta Resources RI/FS | DRILLING CONTRACTOR : SGS Environmental Services, Inc. | LOCATION : Edgewater, NJ

ELEVATION : | NORTHING: | EASTING:

DRILLING METHOD AND EQUIPMENT USED : Pressurized water knife, 6 5/8" hollow stem auger/spilt spoon

WATER LEVELS | START : 1/15/06 @ 1110 | END : 1/15/05 @ 1430 | LOGGER : A. Harclerode

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	CORE DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppm): Breathing Zone / Head Space
	0 - 4'	N/A	N/A	N/A	Cleared with pressurized water knife	N/A 0.0
5	4 -6'	N/A	1/SS	5, 25, 50/3" {25}	Slough	N/A
	6 - 8'	N/A	N/A	N/A	Auger through interval of large cobbles	N/A
	8 - 10'	N/A	2/SS	N/A	Slough	N/A
10	10 -12'	4	3/SS	9, 8, 9, 9 {17}	10.67 - 11.0': Medium sand/native? (SP), brown, 7.5YR, 4/4, saturated, medium dense	0.7
	12 - 14'	12	4/SS	13, 13, 14, 20 {27}	13 - 14': Same as above	0.6
15	14 - 16'	N/A	5/SS	17, 16, 17, 14 {33}	No recovery	N/A
	16 - 18'	10	6/SS	16, 20, 45, 36 {65}	17.2 - 18.0': Gravelly sand (SP), dark grey, 10YR, 4/1, saturated, dense to very dense, sub-rounded gravel	0.7
20	18 - 20'	12	7/SS	10, 14, 12, 15 {26}	19 - 20': Same as above but with some wood, stained from 19. to 20.0'	N/A malfunction)
	20 - 22'	12	8/SS	7, 16, 13, 15 {29}	21 - 22': Silty clay (CL), brown, 7.5YR, 5/6, stiff to very stiff, moist, low plasticity, staining in clay	N/A malfunction)
	22 - 24'	12	9/SS	25, 25, 20, 18 {45}	23 - 24': Same as above with staining in clay	N/A malfunction)
25	24 - 26'	N/A	10/ST	N/A	Shelby Tube	N/A
30					Boring terminated @ 26'	

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
332898.QT.20.23	MW-122A	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Quanta Resources RI/FS | DRILLING CONTRACTOR : Summit Drilling | LOCATION : Edgewater, NJ

ELEVATION : 7.6' | NORTHING: 718339.41 | EASTING: 632953.13

DRILLING METHOD AND EQUIPMENT USED : 6 5/8" Hollow Stem Auger/Spilt Spoon

WATER LEVELS 3.61' (TIC) | START : 11/7/05 @ 1125 | END : 11/7/05 @ 1330 | LOGGER : A. Harclerode

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	CORE DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppm): Breathing Zone / Headspace
	0 - 2	24	1/SS	2, 12, 16, 27 {28}	0 - 2': Silty, organic sand (OL/SP), dark brown, 7.5YR, 3/3, moist, loose, some roots/organic matter and crushed concrete	0.0
					Refusal @ ~ 2' bgs - auger to 3' bgs through obstruction	
	3 - 5	8	2/SS	5, 4, 7, 8 {11}	4.25 - 5.0': Sandy gravel (GP), brown, 7.5YR, 3/3, dry to saturated with depth, saturated @ ~ 5' bgs, medium dense	0.1 / 1.2
5	5 - 7	8	3/SS	5, 4, 4, 6 {8}	6.25 - 7.0': Fine sand with crushed brick and concrete and cinder/ slag/fill, dry to saturated with depth, loose to medium dense	0.2 / 2.0
	7 - 9	N/A	4/SS	4, 2, 1, 5 {3}	No recovery	N/A / 0.0
10	9 - 11	4	5/SS	10, 4, 6, 7 {10}	10.7 - 11.0': Clayey gravel with sub-rounded cobbles/native? (GP), very dark grey 10YR, 3/1, saturated, loose	0.1
	11 - 13	24	6/SS	5, 3, 4, 6 {7}	11 - 13': Fine to medium, well sorted sand/native? (SP), moist to saturated, dense, obvious petroleum product odor	0.1 / 4.0
15	13 - 15	5	7/SS	4, 3, 2, 1 {5}	14.6 - 15': Same as above but 2" of faint dark staining at bottom of spoon, sub-rounded to rounded cobbles	N/A / 1.4
					Boring terminated @ 15' bgs	
20						
25						

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
332898.QT.20.23	SB-1	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Quanta Resources RI/FS | DRILLING CONTRACTOR : SGS Environmental Services, Inc. | LOCATION : Edgewater, NJ

ELEVATION : 7.4' | NORTHING: 718395.13 | EASTING: 633391.71

DRILLING METHOD AND EQUIPMENT USED : Track-mounted macrocore

WATER LEVELS : ~ 1.5' | START : 12/11/05 @ 0835 | END : 12/11/05 @ 0915 | LOGGER : A. Harclerode

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	CORE DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppm): Breathing Zone / Headspace
	0 - 5'	48	1/MC	N/A	0 - 1': Asphalt/gravel/crushed concrete 1 - 4': Gravelly silty sand with wood, cinder/slag/fill (SP), very dark brown, 7.5YR 2.5/2 to black, moist/saturated, medium dense, saturated @ ~ 1.5' bgs	0.0 0.1
5	5 - 10'	45	2/MC	N/A	6.25 - 10.0': Sandy gravel (GP), black, saturated, medium dense, very heavily impacted by moderate to high viscosity black product with moderated incandescent sheen and obvious product odor	18.3
10	10 - 15'	30	3/MC	N/A	12.5 - 15': Clay/silty clay, some mollusk shells (CL), very dark grey 10YR, 3/1 to black moist/saturated, very soft to soft, sticky with low to moderate plasticity	4.2 - 11.3
15	15 - 20'	36	4/MC	N/A	17 - 20': Peaty, silty clay (OL/OH), dark grey, 7.5YR, 4/1, very soft, moist, moderate plasticity	7.2 - 30.2
20					Boring terminated @ 20' bgs	

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
332898.QT.20.23	SB-2	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Quanta Resources RI/FS | DRILLING CONTRACTOR : Summit Drilling | LOCATION : Edgewater, NJ

ELEVATION : 7.2 | NORTHING: 718488.76 | EASTING: 633460.53

DRILLING METHOD AND EQUIPMENT USED : 8" rolling air rotary bit, 4 1/4" Hollow Stem Auger/Spilt Spoon

WATER LEVELS 3.5' bgs | START : 8/18/05 @ 1315 | END : 8/18/05 @ 1510 | LOGGER : A. Harclerode

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" {N}	CORE DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppm): Breathing Zone / Headspace
	0 - 2'	12	1/SS	35, 25, refusal {N/A}	0 - 0.3': Organic silt with angular to sub-angular gravel, some cinder/slag/fill (OL), brown, 7.5YR, 4/2, moist, loose 0.3 - 1.0': Concrete, tar, and gravel, flowing moderately viscous tar	0.1 4.5
	2 - 8'	N/A	N/A	N/A	Air rotary drilled through concrete pad/wood, viscous tar ejected from bore hole during drilling	N/A
5						
	8 - 10'	12	2/SS	5, 4, 17, 12 {21}	9 - 10': Medium to coarse sand with crushed brick, wood, and cinder/slag/fill, some soft tar (SP), various colors, saturated, loose to medium, strong petroleum and napthalene odor	140
10						
	10 - 12'	14	3/SS	11, 11, 21, 8 {32}	10.8 - 12.0': Same as above with staining	54.0
	12 - 14'	0	4/SS	7, 3, 2, 2 {5}	Slough	N/A
	14 - 16'	0	5/SS	10, 2, 2, 2 {4}	Wood in shoe of split spoon	N/A
15						
	16 -18'	0	6/SS	10 , 2, 4, 5 {6}	No recovery	N/A
	18 - 20'	0	7/SS	5, 3, 1, 2 {4}	No recovery	N/A
20						
	20 - 22'	0	8/SS	N/A (3" spoon) N/A	Slough	N/A
	22 - 24'	0	9/SS	2, 1, 1, 2 {2}	Slough	N/A
	24 - 26'	0	10/SS	3, 3, 3, 2 {6}	Slough	N/A 0.0
25						
	26 - 28'	6	11/SS	6, 3, 4, 2 {7}	27.5 - 28.0': Silty clay/native (CL), very dark grey. 10YR, 3/1, moist, soft to firm, homogenous	1.2
	28 - 30'	3	12/SS	5, 6, 5, 5 {11}	29.75 - 30.0': Same as above but brown, 7.5YR, 4/2	1.1
30						
					Boring terminated @ 30' bgs	

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
332898.QT.20.23	SB-3	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Quanta Resources RI/FS | DRILLING CONTRACTOR : Summit Drilling | LOCATION : Edgewater, NJ

ELEVATION : 6.0 | NORTHING: 718578.89 | EASTING: 633480.43

DRILLING METHOD AND EQUIPMENT USED : 8" rolling air rotary bit, 4 1/4" Hollow Stem Auger/Spilt Spoon

WATER LEVELS ~ 4' bgs | START : 8/22/05 @ 0830 | END : 8/22/05 @ 1030 | LOGGER : A. Harclerode

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" {N}	CORE DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppm): Breathing Zone	Headspace
	0 - 1'	N/A	N/A	N/A {N/A}	Augured through concrete pad	N/A	
	1 - 3'	24	1/SS	4, 6, 8, 16 {14}	1 - 3': Gravel with cinder/slag, and tar/fill (GP), black, dry, soft and plastic (due to viscous tar) to stiff/dense and elastic (hardened pitch tar), strong product odor	47	
	3 -5'	15	2/SS	24, 26, 18, 20 {44}	3.7 - 5.0': Same as above but moist to wet with depth, saturated @ ~ 4' bgs	37	
5	5 - 8'	N/A	N/A	N/A N/A	5 - 8': Air rotary drilled through concrete/rebar/wood	N/A	
	8 - 10'	2	3/SS	20, 2, 2, 6 {4}	9.8 - 10.0': Coarse sand and hardened pitch tar (SP), black, saturated, loose, obvious petroleum product odor	10.6	
10	10 - 12'	18	4/SS	12, 20, 3, 3 {23}	10.5 - 12.0': Medium to coarse, moderately sorted sand/ native? (SP), brown, 7.5YR, 4/2, saturated, medium dense, 3" of hardened pitch tar @ ~ 11' bgs	4.7	
	12 - 14'	18	5/SS	2, 2, 3, 4 {5}	12.5 - 14.0': Well graded sand/native (SW), brown, 7.5YR, 4/2, saturated, loose	0.0	2.7
15	14 - 16'	10	6/SS	10, 4, 6, 6 {10}	15.2 - 16.0': Silty sand (SM), brown, 7.5YR, 4/2, saturated, medium dense, 2" of fractured mudstone? @ ~ 15.6' bgs	0.2	
	16 -18'	24	7/SS	6, 6, 5, 6 {11}	16 - 18': Same as 12.5 to 14.0' above	0.0	
	18 - 20'	12	8/SS	10, 3, 5, 7 {8}	19 - 20': Silty clay (CL), brown, 7.5YR, 4/2, moist, soft to medium stiff, homogenous	0.0	3.1
20	20 - 22'	10	9/SS	9, 10, 14, 16 {24}	21.2 - 22.0': Same as above but stiff	0.0	
					Boring terminated @ 22' bgs		
25							
30							

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
332898.QT.20.23	SB-4	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Quanta Resources RI/FS | DRILLING CONTRACTOR : SGS Environmental Services, Inc. | LOCATION : Edgewater, NJ

ELEVATION : 8.4' | NORTHING: 718553.53 | EASTING: 633145.04

DRILLING METHOD AND EQUIPMENT USED : Track-mounted macrocore

WATER LEVELS ~ 3.5' | START : 12/10/05 @ 0840 | END : 12/10/05 @ 1145 | LOGGER : A. Harderode

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	CORE DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppm): Breathing Zone	Headspace
	0 - 5'	60	1/MC	N/A	0 - 0.5': Asphalt/gravel 0.5 - 1.0': Crushed concrete 1.0 - 3.5': Silty to coarse sand with cinder/slag and angular gravel/fill (SW) black, dry, medium dense 3.5 - 5.0': Crushed brick, moist	0.1	0.0
5	5 - 10'	48	2/MC	N/A	6.0 - 6.4': Gravelly clay (CL), dark brown, 7.5YR, 3/3, saturated, very soft, incandescent sheen 6.4 - 8.0': Clayey sand with angular gravel and crushed brick/fill (SC/SP), dry to saturated with depth, soft to dense with depth 8 - 10': Silty fine sand (SM), black, moist to saturated with depth, soft/loose, product in pore space	4.2 2.3 6.7	17.2
10	10 - 15'	60	3/MC	N/A	10 - 15': Well graded sand/native (SW), brown, 7.5YR, 4/2, saturated, medium density, low viscosity product in pore space with incandescent sheen and obvious product odor	2.1	21.9
15	15 - 20'	60	4/MC	N/A	15 - 19.5': Same as above but reverse graded 19.5 - 20.0': Same as above but brown, 7.5YR, 4/3	13.9	0.0 94.1
20	20 - 25	30	5/MC	N/A	22.5 - 25': Same as above but no product/sheen present	4.3	31.2
25	25 - 30'	14	6/MC	N/A	28.8 - 30.0': Silty clay (CL), brown, 7.5YR, 5/3, moist/saturated, medium stiff	1.2	7.1
30					Boring terminated @ 30' bgs		

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
332898.QT.20.23	SB-5	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Quanta Resources RI/FS | DRILLING CONTRACTOR : Summit Drilling | LOCATION : Edgewater, NJ

ELEVATION : 6.3' | NORTHING: 718689.60 | EASTING: 633256.88

DRILLING METHOD AND EQUIPMENT USED : 4 1/4" Hollow Stem Auger/Spilt Spoon

WATER LEVELS 3' bgs | START : 7/28/05 @ 0805 | END : 7/28/05 @ 1330 | LOGGER : A. Harclerode

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" {N}	CORE DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppm): Breathing Zone Above Hole
	0 - 3'	0	0	N/A	Augered through concrete pad	
	3 - 5'	16	1/SS	5, 7, 11, 15 {16}	3.75 - 5.0': Silty sand w/angular to sub-angular gravel and cinder/slag/fill (SM), various colors depending on grain size, saturated, loose, black staining with obvious napthalene odor	48.7
5	5 - 7'	12	2/SS	7, 9, 7, 8 {16}	6.0 - 7.0': Silty sand/fill? (SM), brown, 10YR, 2/2, wet, loose, obvious napthalene odor	2.3
	7 - 9'	12	3/SS	13, 14, 11, 14 {25}	8.0' - 9.0': Same as above with prominent, circular incandescent stain from 8.5' to 9.0'	4.1
10	9 - 11'	7	4/SS	13, 14, 11, 14 {25}	9.5 - 10.0': Sandy sub-rounded to sub-angular gravel w/ trace sub-rounded to sub-angular cobbles (GW), very dark grey, 10 YR, 3/1, saturated, obvious napthalene odor. One foot of hole caved in.	68.5
	10 - 12'	8	5/SS	28, 36, 27, 35 {63}	11.4 - 12.0': Same as 6.0 - 7.0' described above, prominent incandescent sheen	18.1
	12 - 14'	5	6/SS	100/5" N/A	13.5 - 14.0': Same as above with trace black product and obvious napthalene odor	42
15	14 - 16'	12	7/SS	7, 10, 8, 11 {18}	15.0 - 16.0': Same as above with more abundant black product and more prominent sheen in pore space	45
	16 -18'	14	8/SS	9, 11, 8, 11 {19}	16.8 - 18.0': Same as above with banded black product stain and very strong product odor	102
	16 - 18'	20	9/SS	7, 7, 6, 4 {13}	16.2 - 18.0': Same as above but with less prominent black product banding and trace sub-rounded cobbles (sampled twice due to bore hole heaving)	87
20	18 - 20'	18	10/SS	7, 9, 9, 7 {18}	18.5 - 20.0': Same as above product banding more faint, trace sub-angular gravel	101
	20 - 22'	10	11/SS	6, 5, 7, 11 {12}	21.1 - 22.0': Silty clay (CL), light brown, 7.5 YR, 3/2, moist to saturated, soft to medium stiff, some mottling with lenses of black product and obvious napthalene odor, low plasticity	51.5
	22 - 24'	10	12/SS	5, 7, 9, 11	23.1 - 24.0': Same as above but without product stain	12.5
25					Boring terminated @ 24' bgs	

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
332898.QT.20.23	SB-6	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Quanta Resources RI/FS DRILLING CONTRACTOR : Summit Drilling LOCATION : Edgewater, NJ

ELEVATION : 6.1' NORTHING: 718727.69 EASTING: 633119.09

DRILLING METHOD AND EQUIPMENT USED : 4 1/4" Hollow Stem Auger/Spilt Spoon

WATER LEVELS 3.5' bgs START : 8/2/05 @ 0925 END : 8/2/05 @ 1400 LOGGER : A. Harclerode

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" {N}	CORE DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppm): Breathing Zone	Headspace
	0 - 2'	24	1/SS	6, 14, 10, 11 {24}	0 - 1.2': Sandy, organic silt (OL), light brown, 10 YR, 5/3, dry, loose 1.2 - 2.0': Crushed brick, viscous tar, and cinder/slag/fill w/ some coarse sand, moist, napthalene odor	0.0 0.0 5.8	7.0
	2 - 4'	8	2/SS	20, 25, 20, 50 {45}	3.3 - 4.0': Fine to medium sand w/ some gravel/fill (SP), black, wet, medium dense to dense, obvious petroleum product odor, saturated @ ~ 3.5' bgs	90	240
5	4 - 6'	3	3/SS	30, 50, 100/1" N/A	4.7 - 5.0': Same as 1.6 - 2.0' above	5.6	100
	6 - 8'	0	4/SS	27, 17, 7, 4 {24}	Slough	N/A	
	8 - 10'	6	5/SS	6, 5, 6, 4 {11}	9.5 - 10.0': Medium to coarse sand/native (SP), brown, 7.5 YR, 3/2, wet, loose, homogenous/ very well sorted	2.1	11.2
10	10 - 12'	14	6/SS	10, 5, 2, 4 {7}	10.8 - 12.0': Same as above with a lense of black product staining and odor at ~ 11.8' bgs	2.1	5.3
	12 - 14'	18	7/SS	5, 6, 5, 3 {11}	12.5 - 14.0': Same as above but w/o staining/odor	0.3	4.2
15	14 - 16'	24	8/SS	30, 27, 17, 15 {44}	14.0 - 16.0': Same as above but w/ a lense of black product staining and odor @ ~ 14.5', slight sheen on water	6.0	18.2
	16 -18'	24	9/SS	15, 18, 15, 6 {33}	16.0 - 18.0': Same as above but w/o product stain, slight product odor, trace very well rounded gravel	0.5	6.7
20	18 - 20'	10	10/SS	52, 16, 17, 15 {33}	19.2 - 19.6': Same as above but coarse sand 19.6 - 20.0': Same as 14 - 16' but with black laminiations of petroleum product and obvious napthalene odor	34 0.1 67	
	20 - 22'	14	11/SS	32, 27, 17, 15 {44}	20.9 - 21.7': Same as above 9.5 - 10.0' w/ mottled black product staining and obvious napthalene odor, staining streaks both horizontally and vertically 21.7 - 22': Mottled silty clay (CL), greenish grey, gley 1, 6/1 to brown, 7.5 YR, 4/6, dry to moist, soft to medium stiff, elastic	94 36	
	22 - 24'	12	12/SS	9, 11, 15, 18 {26}	23 - 24': Same as above	28	
25					Boring terminated @ 24' bgs		

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
332898.QT.20.23	SB-7	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Quanta Resources RI/FS | DRILLING CONTRACTOR : Summit Drilling | LOCATION : Edgewater, NJ

ELEVATION : 6.6' | NORTHING: 718822.50 | EASTING: 633174.56

DRILLING METHOD AND EQUIPMENT USED : 8" rolling air rotary bit, 4 1/4" Hollow Stem Auger/Spilt Spoon

WATER LEVELS : 3.5' bgs | START : 8/17/05 @ 1035 | END : 8/17/05 @ 1200 | LOGGER : A. Harclerode

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" {N}	CORE DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppm): Breathing Zone	Headspace
	0 - 10'	N/A	N/A	N/A	Drilled 0 - 10' bgs by air rotarty rig due to pervasive sub-surface obstructions at 2' bgs.	N/A	
5							
10	10 - 12'	3	1/SS	2, 2, 2, 2 {4}	11.7 - 12.0': Medium, well sorted sand, trace very well rounded gravel/native (SP), dark brown, 7.5 YR, 3/3, saturated, loose	0.0	
	12 - 14'	5	2/SS	4, 3, 3, 3 {6}	13.6 - 14.0': Same as above	0.0	5.5
15	14 - 16'	12	3/SS	5, 6, 7, 9 {13}	15.0 - 16.0': Same as above	0.0	1.2
	16 -18'	22	4/SS	7, 7, 8, 9 {15}	16.2 - 18.0': Same as above	0.0	6.2
	18 - 20'	8	5/SS	5, 6, 5, 7 {11}	19.25 - 20.0': Silty clay/native, brown, 7.5 YR, 4/2, moist, soft to firm, tight, homogenous, elastic	0.0	
20	20 - 22'	3	6/SS	6, 4, 7, 8 {11}	21.75 - 22.0': Same as above	0.0	
	22 - 24'	12	7/SS	N/A (3" spoon)	23 - 24': Same as above	0.0	
25					Boring terminated @ 24' bgs		

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
332898.QT.20.23	SB-8	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Quanta Resources RI/FS | DRILLING CONTRACTOR : Summit Drilling | LOCATION : Edgewater, NJ

ELEVATION : 6.8 | NORTHING: 718716.50 | EASTING: 632894.53

DRILLING METHOD AND EQUIPMENT USED : 4 1/4" Hollow Stem Auger/Spilt Spoon

WATER LEVELS : ~ 3.0' bgs | START : 10/9/05 @ 1000 | END : 10/9/05 @ 1140 | LOGGER : A. Harclerode

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" {N}	CORE DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppm): Breathing Zone	Headspace
	0 - 1'	N/A	N/A	N/A	Augered through asphalt/concrete	N/A 0.0	
	1 - 3'	6	1/SS	44, 100/2"	1.0 - 1.5': Fine sand, trace angular gravel (SP), dark brown,	2.0	
	2 - 3'	N/A	N/A	N/A	Augered through obstruction	N/A	
	3 - 5'	24	2/SS	15, 25, 25, 14 {50}	3.0 - 3.5': Fine, silty sand, some angular gravel/fill (SM), very dark brown, 10YR, 2/2, moist to wet, medium dense 3.5 - 5.0': Gravelly sand, some angular cobbles/fill (GP), black, medium dense, saturated @ ~ 4' bgs	0.0 0.0	
5	5 - 7'	20	3/SS	12, 7, 4, 2 {11}	5.3 - 7.0': Same as 3.0 - 3.5' but saturated	0.0	
	7 - 9'	12	4/SS	2, 4, 4, 5 {8}	8 - 9': Same as above but with black product staining, sheen, and obvious odor	40.2	235
10	9 - 11'	18	5/SS	6, 2, 1, 1 {3}	9.5 - 10.5': Same as 3.5 - 5.0' 10.5 - 11.0': Peat/native (PT), very dark brown, 10YR, 2/2, moist, very soft, obvious sulfur and product odor	0.0 0.0 38	
	11 - 13'	24	6/SS	WOH N/A	11 - 13': Same as above	37	330
	13 - 15'	12	7/SS	2, 1, 1, 1 {2}	14 - 15': Well graded sand (SW), dark grey, 10YR, 4/1, saturated, loose, some product and sheen, some organic matter	32	
15	15 - 17'	20	8/SS	1, 1, 1, 1 {2}	15.3 - 17.0': Same as above	32	130
	17 - 19'	24	9/SS	1, 1, 5, 5 {6}	17 - 19': Fine, very well sorted sand, grayish brown, 10YR, 4/2, saturated, loose, trace sheen	0.1	22
20	19 - 21'	24	10/SS	2, 1, 1, 4 {2}	19 - 21': Same as above	0.0	42
	21 - 23'	24	11/SS	6, 10, 12, 21 {22}	21 - 22': Same as above 22 - 23': Clayey sand, well graded (SC), mottled yellowish brown, 10YR, 5/6 to grey, 7.5 YR, 5/1, moist, stiff	0.0	
	23 - 25	12	12/SS	7, 6, 10, 2 {16}	24 - 25': Silty clay (CL), strong brown, 10YR, 5/6, moist, stiff	0.0	
25	25 - 27	12	13/SS	6, 5, 9, 12 {14}	26 - 27': Same as above	0.0	
					Boring terminated @ 27' bgs		

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
332898.QT.20.23	SB-9	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Quanta Resources RI/FS DRILLING CONTRACTOR : Summit Drilling LOCATION : Edgewater, NJ

ELEVATION : 6.3 NORTHING: 718891.74 EASTING: 632988.39

DRILLING METHOD AND EQUIPMENT USED : 8" rolling air rotary bit, 4 1/4" Hollow Stem Auger/Split Spoon

WATER LEVELS 3.5' bgs START : 8/18/05 @ 0800 END : 8/18/05 @ 1110 LOGGER : A. Harclerode

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" {N}	CORE DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppm): Breathing Zone / Headspace
	0 - 8'	N/A	N/A	N/A	Drilled 0 - 8' bgs by air rotarty rig due to pervasive sub-surface obstructions at 2' bgs.	N/A
5						
	8 - 10'	12	1/SS	2, 1, 1, 1 {2}	9 - 10': Peaty, organic silt with roots/native (PT/OL), brown, 7.5 YR, 4/2, saturated, very loose, very strong petroleum product odor and sulfur odor, prominent sheen	104
10						
	10 - 12'	N/A	2/SS	1, 1, 1, 1 {2}	Slough	N/A
	12 - 14'	N/A	3/SS	1, 1, 1, 1 {2}	Slough	N/A / 0.1
15	14 - 16'	3	4/SS	1, 1, 2, 1 {3}	15.6' - 16.0': Coarse, well sorted sand (SP), greenish black, gley 1, 10Y, 2.5/1, saturated, loose, homogenous	16.1
	16 -18'	12	5/SS	4, 4, 5, 10 {9}	16.2 - 18.0': Same as above but w/ petroleum product odor	5.8
20	18 - 20'	18	6/SS	6, 4, 10, 12 {14}	19.5 - 20.0': Same as above but w/ a 2" silty sand lense @ 19.6'	6.2
	20 - 22'	18	7/SS	7, 7, 9, 5 {16}	20.5 - 22.0': Same as 16' - 18' above but w/ obvious petroleum product odor and black product staining	13.7
	22 - 24'	22	8/SS	7, 5, 4, 5 {9}	22.2 - 23.2': Same as above 23.2 - 24': Same as above but with obvious petroleum product odor, heavy sheen, and prominent black product stain	22.0 / 0.0 102
25	24 - 26'	6	9/SS	3, 3, 4, 14 {7}	25.5 - 26.0': Silty clay (CL), brown, 7.5 YR, 4/2, moist, firm to stiff, homogenous, tight, obvious petroleum product odor	11.2
	26 - 28'	12	10/SS	7, 6, 11, 14 {17}	27 - 28': Same as above	15
					Boring terminated @ 28' bgs	

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
332898.QT.20.23	SB-10	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Quanta Resources RI/FS | DRILLING CONTRACTOR : Summit Drilling | LOCATION : Edgewater, NJ

ELEVATION : 5.4 | NORTHING: 718931.19 | EASTING: 632714.57

DRILLING METHOD AND EQUIPMENT USED : 4 1/4" Hollow Stem Auger/Spilt Spoon

WATER LEVELS ~ 1.5' bgs | START : 8/23/05 @ 1215 | END : 8/23/05 @ 1440 | LOGGER : A. Harclerode

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	CORE DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppm): Breathing Zone / Headspace
	0 - 2'	24	1/SS	5, 7, 5, 4 {12}	0 - 0.8': Organic silt, some sub-angular gravel (OL), brown, 7.5YR, 4/2, dry, loose 0.8 - 2.0': Sub-angular gravel with crushed brick, cinder/slag, and some fine sand/fill (GP), black, moist to wet with depth, saturated @ ~ 1.5' bgs, product stain and obvious odor	0.2 32
	2 - 4'	12	2/SS	4, 3, 2, 2 {5}	3 - 4': Same as above	67
5	4 - 6'	4	3/SS	6, 4, 7, 9 {11}	5.7 - 6.0': Same as above	12
	6 - 8'	14	4/SS	1, 4, 2, 12 {6}	6.8 - 8.0': Clay with sheey fibrous paper/plastic-like material/fill?, white, 10YR, 8/1, fat, saturated, soft to firm, moderately plastic, obvious product odor	8.2
	8 - 10'	0	5/SS	7, 5, 3, 2 {8}	No recovery	N/A
10	10 - 12'	0	6/SS	2, 1, 1, 1 {2}	Slough	N/A
	12 - 14'	0	7/SS	1, 1, 1, 1 {2}	Slough	N/A
15	14 - 16'	0	8/SS	1, 1, 1, 1 {2}	Slough	N/A
	16 -18'	0	9/SS	1, 1, 1, 1 {2}	Slough	N/A
	18 - 20'	24	10/SS	1, 1, 1, 1 {2}	18 - 19.7': Peaty, organic silt (PT/OL), dark brown, 10YR, 3/1, moist to wet, soft, obvious sulfur odor and product odor 19.7 - 20.0': Clayey sand (SC), grey, 10YR, 5/1, saturated, soft, homogenous	42 7.2
20	20 - 22'	18	11/SS	1, 3, 5, 4 {8}	20.5 - 21.25': Same as 18 - 19.7' above 21.25 - 22': Same as 19.7 - 20.0' above	52 4
	22 - 24'	12	12/SS	6, 6, 10, 10 {16}	21 - 22': Silty clay (CL), greyish brown, 10YR, 4/2 moist, tight, homogenous	0.8
25	24 - 26'	6	13/SS	7, 9 , 12, 14 {21}	25.5 - 26.0': Mottled, silty clay (CL), dusky red, 10R, 3/3, to brown, 10YR, 4/3, stiff, moist, elastic	0.2
					Boring terminated @ 26' bgs	

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
332898.QT.20.23	SB-11	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Quanta Resources RI/FS | DRILLING CONTRACTOR : Summit Drilling | LOCATION : Edgewater, NJ

ELEVATION : 7.2' | NORTHING: 718994.03 | EASTING: 632748.25

DRILLING METHOD AND EQUIPMENT USED : 4 1/4" Hollow Stem Auger/Spilt Spoon

WATER LEVELS ~ 2.5' bgs | START : 8/23/05 @ 0855 | END : 8/23/05 @ 1100 | LOGGER : A. Harclerode

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" {N}	CORE DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppm): Breathing Zone / Headspace
	0 - 2'	12	1/SS	30, 50, 40, 45 {90}	0 - 1': Coarse sub-angular gravel with sub-angular cobbles, cinder/slag, and some fine sand/fill (GP), black, dry, dense, slight product odor	0.7 / 0.0 / 13.7
	2 - 4'	10	2/SS	3, 6, 9, 3 {15}	3.2 - 4.0': Same as above but saturated with obvious product odor and prominent staining, 2" of sheety, fibrous, cardboard-like product saturated material at 3.7' bgs, saturated @ ~ 2.5' bgs	90
5	4 - 6'	6	3/SS	8, 5, 4, 8 {9}	5.5 - 6.0': Same as above but w/o fibrous material	1.5
	6 - 8'	0	4/SS	5, 8, 10, 3 {18}	Slough	N/A
	8 - 10'	12	5/SS	5, 1, 1, 1 {2}	9.0 - 9.5': Same as 4 - 6' above 9.5 - 10.0': Clayey sand/native (SC), brown. 7.5 YR, 4/2, wet, soft, homogenous	1.2 / 0.0 0.7
10	10 - 12'	0	6/SS	4, 2, 1, 2 {3}	No recovery	N/A
	12 - 14'	24	7/SS	2, 2, 2, 2 {4}	12 - 14': Same as above but very dark grey, 10YR, 3/1	0.1 / 11.8
15	14 - 16'	3	8/SS	5, 2, 3, 3 {5}	15.75 - 16.0': Same as above	0.1
	16 -18'	24	9/SS	2, 1, 1, 3 {2}	16.0 - 17.6': Same as above 17.6 - 18.0': Mottled silty, sandy, clay (CL), brown, 7.5YR, 4/2 to dark greenish gray, gley 1, 4/1, saturated, soft	0.1 / 6.2
	18 - 20'	12	10/SS	3, 2, 2, 3 {4}	19 - 20': Silty clay (CL), brown, 7.5YR, 4/2, saturated, soft, homogenous	0.1
20	20 - 22'	6	11/SS	3, 3, 4, 6 {7}	21.5 - 22.0': Same as above	0.1
	22 - 24'	10	12/SS	6, 6, 10, 10 {16}	23.2 - 24.0': Same as above but grey, 10YR, 5/1, and medium stiff to stiff	0.1
25					Boring terminated @ 24' bgs	

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
332898.QT.20.23	SB-12	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Quanta Resources RI/FS DRILLING CONTRACTOR : Summit Drilling LOCATION : Edgewater, NJ

ELEVATION : 11.5' NORTHING: 719231.90 EASTING: 632945.15

DRILLING METHOD AND EQUIPMENT USED : Macrocore

WATER LEVELS ~ 1.5' bgs (inferred) START : 10/25/05 @ 1135 END : 10/25/05 @ 1215 LOGGER : A. Harclerode

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	CORE DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppm): Breathing Zone	Headspace
	0 - 5'	30	1/MC	N/A	0 - 2.5': Gravelly sand with crushed brick and concrete/fill (SP), various colors, moist, medium dense	0.0	0.0
5	5 - 10'	36	2/MC	N/A	7 - 9': Very well graded sand/native? (SW), very dark grey, 10YR, 3/1, saturated, dense 9 - 10': Sandy gravel/native? (GP), very dark grey, 10YR, 3/1, saturated, dense, product staining with prominent incandescent sheen and obvioı product odor	0.0 6.6	0.0
10	10 - 15'	24	3/MC	N/A	13 - 15': Very sorted sand/native (SP), yellowish brown, 10 YR, 5/4, saturated, loose to medium dense, product staining with prominent incandescent sheen, and obvious product odor	1.7	
15	15 - 20'	30	4/MC	N/A	17.5 - 20': Same as above	0.4	0.0
20	20 - 25	36	5/MC	N/A	22 - 25': Same as above	7.7	
25	25 - 30'	30	6/MC	N/A	27.5 - 30.0': Clay/silty clay (CL), slightly mottle yellowish brown to brown, 10YR, 5/4 to 7.5YR, 4/4 fades into dark grey, 10YR, 3/1, moist, stiff, low plasticity, homogenous	0.0	
30					Boring terminated @ 30' bgs		

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
332898.QT.20.23	SB-13	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Quanta Resources RI/FS | DRILLING CONTRACTOR : Summit Drilling | LOCATION : Edgewater, NJ

ELEVATION : 5.6 | NORTHING: 718979.58 | EASTING: 632676.38

DRILLING METHOD AND EQUIPMENT USED : 4 1/4" Hollow Stem Auger/Spilt Spoon

WATER LEVELS 4.0' bgs | START : 8/3/05 @ 0950 | END : 8/3/05 @ 1100 | LOGGER : A. Harclerode

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" {N}	CORE DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppm): Breathing Zone Headspace
	0 - 2'	0	1/SS	40, 35, 32, 33 {67}	Slough	N/A
	2 - 4'	16	2/SS	15, 18, 22, 25 {40}	2.7 - 4.0': Coarse sand w/ cinder/slag/fill (SP), black, dry to wet with depth, medium dense, layered cardboard-like material mixed with tar-like product @ 3.0 to 3.5' with obvious petroleum product odor, saturated @ 4' bgs	0.2
5	4 - 6'	6	3/SS	8, 12, 9, 7 {21}	5.5 - 6.0': Gravelly sand w/ crushed brick and concrete/fill (SP), various colors, wet, loose	1.0 0.0
	6 - 8'	12	4/SS	22, 16, 8, 7 {24}	7 - 8': Same as above	1.1
	8 - 10'	10	5/SS	5, 7, 3, 2 {10}	9.2 - 10.0': Peaty, organic, silty clay (PT/OL), very dark grey, 10 YR, 3/1, moist/wet, soft, elastic, some fibrous wood	0.5
10	10 - 12'	12	6/SS	4, 5, 4, 5 {9}	11 - 12': Same as above	0.3
					Boring terminated @ 12' bgs	
15						
20						
25						

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
332898.QT.20.23	SB-14	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Quanta Resources RI/FS DRILLING CONTRACTOR : Summit Drilling LOCATION : Edgewater, NJ

ELEVATION : 12.5' NORTHING: 719288.13 EASTING: 632753.49

DRILLING METHOD AND EQUIPMENT USED : Macrocore

WATER LEVELS : ~ 1.5' bgs START : 10/24/05 @ 1030 END : 10/24/05 @ 1215 LOGGER : A. Harclerode

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	CORE DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppm): Breathing Zone	Headspace
	0 - 5'	24	1/MC	N/A	0 - 2.0': Gravelly sand with crushed brick and concrete/fill (SP), various colors, moist to saturated with depth, medium dense, saturated @ ~ 1.5' bgs	0.0	0.0
5	5 - 10'	36	2/MC	N/A	7 - 9': Same as above 9 - 10': Sandy gravel, some angular pebbles/fill (GP), black, moist to wet, dense	0.0 0.0	
10	10 - 15'	15	3/MC	N/A	13.75 - 15.0': Very well sorted fine to medium sand/native? (SP), brown, 7.5 YR, 4/4, saturated, loose to medium dense	0.0	0.0
15	15 - 20'	48	4/MC	N/A	16 - 20': Same as above	0.0	0.0
20	20 - 25	48	5/MC	N/A	21 - 25': Silty clay, some silty sand (in two discete lenses)/native (CL), slightly mottled yellowish brown to brown, 10 YR, 5/4 to 7.5YR, 4/4, stiff to very stiff, moist, low to moderate plasticity	0.0	0.0
25					Boring terminated @ 25' bgs		

CH2MHILL

PROJECT NUMBER 332898.QT.20.23

BORING NUMBER SB-15

SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Quanta Resources RI/FS | DRILLING CONTRACTOR : Summit Drilling | LOCATION : Edgewater, NJ

ELEVATION : 12.2' | NORTHING: 719360.51 | EASTING: 633025.42

DRILLING METHOD AND EQUIPMENT USED : Macrocore

WATER LEVELS ~ 1.5' bgs (inferred) | START : 10/25/05 @ 1015 | END : 10/25/05 @ 1130 | LOGGER : A. Harclerode

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST, RESULTS 6"-6"-6"-6" (N)	CORE DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppm): Breathing Zone	Headspace
	0 - 5'	N/A	N/A	N/A	Air knifed through aspalt and fill due to possibility of subsurface utilities	N/A	
5	5 - 10'	60	1/MC	N/A	5.0 - 7.5': Gravelly sand/fill (SP), brown, 7.5 YR, 4/4, moist - wet, dense 7.5 - 10.0': Organic clayey silt/native (OL), dark brown 10YR, 3/2, moist, stiff - very stiff	0.0 0.0	0.0 0.0
10	10 - 15'	36	2/MC	N/A	12 - 15': Very well graded sand/native (SW), yellowish brown, 10 YR, 5/4, saturated, loose to medium dense	0.0	0.0
15	15 - 20'	36	3/MC	N/A	17 - 20': Very well sorted, fine to medium sand (SP), yellowish brown, 10YR, 5/4, saturated, loose to medium dense	0.0	0.0
20	20 - 25	36	4/MC	N/A	22 - 25': Same as above	0.0	0.0
25	25 - 30'	42	5/MC	N/A	26.5 - 30.0': Clay/silty clay (CL), slightly mottled yellowish brown to brown, 10YR, 5/4 to 7.5YR, 4/4, moist, stiff, low plasticity, homogenous	0.0	0.0
30					Boring terminated @ 30' bgs		

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
332898.QT.20.23	SB-16	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Quanta Resources RI/FS DRILLING CONTRACTOR : Summit Drilling LOCATION : Edgewater, NJ

ELEVATION : 7.4' NORTHING: 718298.40 EASTING: 633068.54

DRILLING METHOD AND EQUIPMENT USED : 10" rolling air rotary bit, 4 1/4" Hollow Stem Auger/Spilt Spoon

WATER LEVELS 4.0' bgs START : 11/15/05 @ 1315 END : 11/15/05 @ 1445 LOGGER : A. Harclerode

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	CORE DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppm): Breathing Zone	Headspace
	0 - 13'	N/A	N/A	N/A	Air rotary drilled through obstructions	N/A 0.1	
5							
10							
	13 - 15'	24	1/SS	4, 4, 6, 6 (10)	13 - 15': Medium, very poorly graded sand/native (SP), very dark grey, 10YR, 3/1, saturated, loose	3.2	40.3
15							
	15 - 17'	12	2/SS	3, 3, 4, 5 (7)	16.0 - 16.5': Medium to coarse, well graded sand/native (SW), very dark grey, 10 YR, 3/1, saturated, loose 16.5 - 17.0': Fine sand (SP), brown, 7.5YR, 4/2 to black, saturated, loose, staining and incandescent sheen @ 16.7'	7.3	
	17 - 19'	9	3/SS	4, 3, 3, 4 (6)	18.25 - 19.0': Same as above but with more prominent incandescent sheen and black staining in the pore space of the sand	82	51
20	19 - 21'	24	4/SS	3, 5, 6, 7 (11)	19.0 - 20.6': Same as above, but very abundant incandescent sheen with viscous black product in sand pore space 20.6 - 21.0': Silty clay (CL), mottled dark olive grey, 5YR, 3/2 to very dark grey, 10YR, 3/1, moist, soft, faint laminations visible	220 - 513 53.0	0.2 2,366
	21 - 23'	9	5/SS	5, 5, 7, 7 (12)	22.25 - 23.0': Silty, sandy, clay (CL), olive, 5Y, 4/3, moist, soft, elastic	6.8	
	23 - 25'	12	6/SS	6, 9, 14, 18 (23)	24 - 25': Well graded silty to coarse sand (SW), olive, 5Y, 3/2 to very dark grey, saturated, moderated amount of black product staining and incandescent sheen	48 - 217	
25	25 - 27'	18	7/SS	8, 12, 16, 19 (28)	25.5 - 27.0': Silty clay (CL), brown, 7.5YR, 4/3, moist, medium stiff to stiff, elastic	7.0 - 17	
					Boring terminated @ 27' bgs		

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
332898.QT.20.23	SB-17	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Quanta Resources RI/FS | DRILLING CONTRACTOR : SGS Environmental Services, Inc. | LOCATION : Edgewater, NJ

ELEVATION : 6.6' | NORTHING: 718520.83 | EASTING: 632876.49

DRILLING METHOD AND EQUIPMENT USED : Track-mounted macrocore

WATER LEVELS ~ 5.0' | START : 12/10/05 @ 1220 | END : 12/10/05 @ 1420 | LOGGER : A. Harclerode

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	CORE DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppm): Breathing Zone	Headspace
	0 - 5'	30	1/MC	N/A	0 - 0.3': Asphalt/gravel 0.3 - 2.5': Gravelly sand (SP), brown, 7.5YR, 3/3, dry to saturated with depth, medium dense, saturated @ ~ 5.0' bgs	0.0 0.0	5.0
5	5 - 10'	48	2/MC	N/A	6 - 7': Same as above but dry/moist 7 - 10': Sandy angular gravel (GP), dark brown, 7.5YR, 3/2, saturated, medium dense, incandenscent sheen and low viscosity product staining, some peat at bottor of spoon	10.1	25.2
10	10 - 15'	48	3/MC	N/A	11 - 15': Clayey peat/native (PT/OH), dark brown, 7.5YR, 3/2, moist, very soft to soft, obvious sulfur odor	62 - 89	285.0
15	15 - 20'	54	4/MC	N/A	15.5 - 20.0': Silty, fine sand (SM/SP), Gley 1, 6/1, greenish grey, moist to saturated with depth, loose to medium dense	3.2 - 19.4	24.5
20	20 - 25	~ 48	5/MC	N/A	~ 21 - 25': (Sample fell out of liner during extraction) Same as above but more fines - clayey/silty sand (SC/SM)	N/A 0.0	
25	25 - 30'	60	6/MC	N/A	25 - 30': Clay/silty clay (CL/CH), reddish brown, 5YR, 4/4, moist, stiff, moderate plasticity	0.1	
30					Boring terminated @ 30' bgs		

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
332898.QT.20.23	SB-18	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Quanta Resources RI/FS | DRILLING CONTRACTOR : Summit Drilling | LOCATION : Edgewater, NJ

ELEVATION : 7.5' | NORTHING: 718424.75 | EASTING: 632876.34

DRILLING METHOD AND EQUIPMENT USED : 10" rolling air rotary bit, 4 1/4" Hollow Stem Auger/Spilt Spoon

WATER LEVELS ~ 4.0' bgs | START : 11/18/05 @ 1000 | END : 11/18/05 @ 1110 | LOGGER : A. Harclerode

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" {N}	CORE DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppm): Breathing Zone / Headspace
	0 - 13'	N/A	N/A	N/A	Air rotary drilled through subsurface obstructions	N/A / 0.1
5						
10						
	13 - 15'	N/A	1/SS	1, 1, 1, 1 {2}	No recovery/slough	N/A
15						
	15 - 17'	24	2/SS	1, 1, 1, 3 {2}	15 - 16': Peat/native (PT), dark brown, 7.5YR, 3/2, saturated, soft, obvious sulfur odor 16 - 17': Fine/medium, well sorted sand (SP), dark grey, 7.5YR, 3/1, saturated, loose	0.0 / 0.0 / 11.4
	17 - 19'	18	3/SS	4, 4, 5, 6 {9}	17.5 - 19.0': Same as above but more sand and less peat	0.0 / 1.3
20	19 - 21'	18	4/SS	5, 7, 8, 10 {15}	19.5 - 21.0': Same as above	0.0 / 0.0
	21 - 23'	24	5/SS	4, 4, 6, 6 {10}	21 - 23': Same as 16 - 17'	0.0 / 1.1
	23 - 25'	15	6/SS	3, 4, 5, 6 {9}	23.75 - 24.0': Silty clay (CL), yellowish brown, 10YR, 4/6, moist-saturated, soft to medium stiff, elastic	0.0
25	25 - 27'	24	7/SS	2, 4, 6, 7 {10}	25 - 27: Same as above	0.0
					Boring terminated @ 27' bgs	

Appendix B

Appendix B
Monitoring Well Construction Diagrams

CH2MHILL	PROJECT NUMBER 332898.QT.20.23	BORING NUMBER MW-101DS	SHEET 1 OF 1

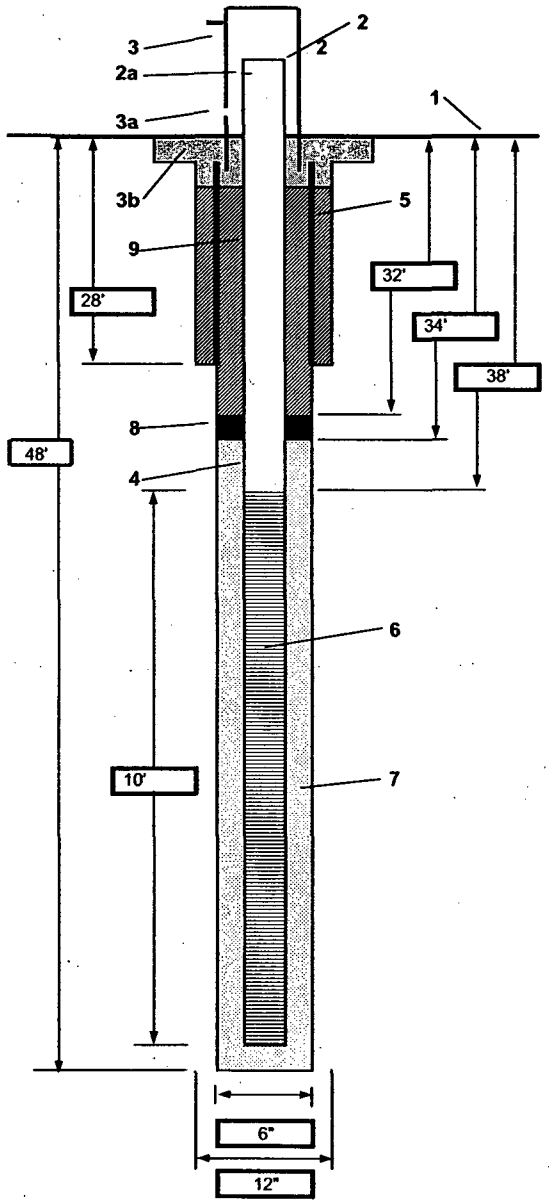
WELL COMPLETION DIAGRAM

PROJECT : Quanta Resource RI/FS — LOCATION : Edgewater, NJ

ELEVATION : 7.10' — DRILLING CONTRACTOR : Summit Drilling

DRILLING METHOD AND EQUIPMENT USED : 8 1/4" HSA (outer casing), 4 1/4" HSA (inner casing)

WATER LEVELS : 7.33' (TIC) — START : 9/1/05 @ 1330 — END : 9/1/05 @ 1500 — LOGGER : A Harclerode



1- Ground elevation at well	7.10' MSL
2- Top of casing elevation	10.45' MSL
a) vent hole?	N/A
3- Wellhead protection cover type	Steel standpipe, vent cap, and pad lock
a) weep hole?	N/A
b) concrete pad dimensions	24" x 24"
4- Diameter/type of well casing	2" Schedule 40 PVC
5- Diameter/type of surface casing	6" steel outer casing
6- Type/slot size of screen	2" schedule 40 wire wrap PVC/20 slot
7- Type screen filter	Ricci Brothers Sand
a) Quantity used	(1) 50 lb. bag of 00 (sugar) and (5) 50 lb bags of #2
8- Type of seal	Bentonite
a) Quantity used	(2) 50 lb. bags
9- Grout	
a) Grout mix used	Lehigh Type 1 Portland Cement and Bentonite
b) Method of placement	Tremie pipe
c) Quantity of well casing grout	1881 lbs.
Development method	Whale pump
Development time	2.5 hours
Estimated purge volume	140 gallons

Comments

CH2MHILL	PROJECT NUMBER 332898.QT.20.23	BORING NUMBER MW-102A	SHEET 1 OF 1

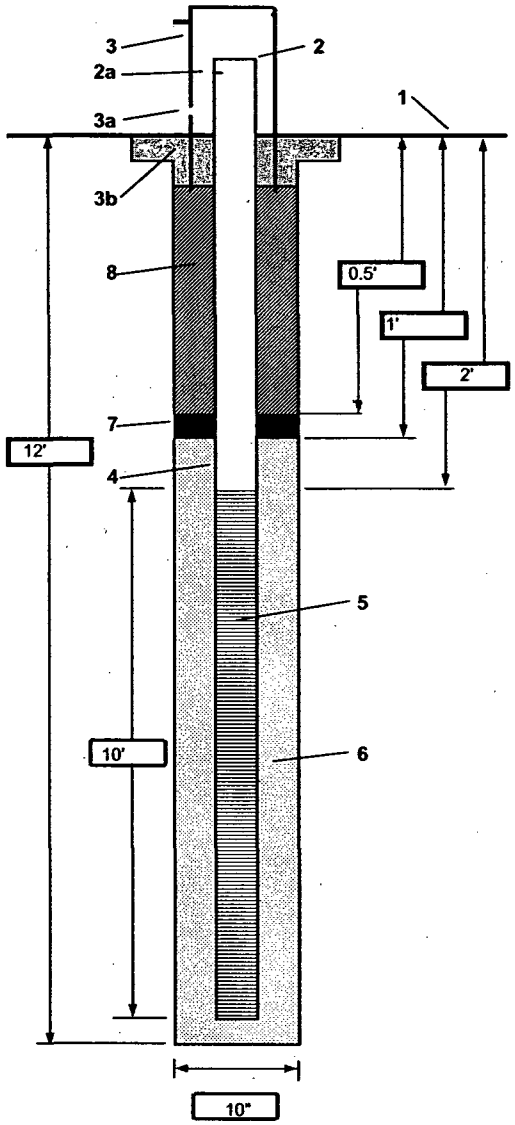
WELL COMPLETION DIAGRAM

PROJECT : Quanta Resources RI/FS — LOCATION : Edgewater, NJ

ELEVATION : 6.80' — DRILLING CONTRACTOR : Summit Drilling

DRILLING METHOD AND EQUIPMENT USED : 6 5/8" Hollow stem auger

WATER LEVELS : 5.9' (TIC) — START : 7/25/05 @ 1330 END : 7/25/05 @ 1530 LOGGER : A. Samuel



1- Ground elevation at well	6.80' MSL
2- Top of casing elevation	9.72' MSL
a) vent hole?	N/A
3- Wellhead protection cover type	Steel standpipe, vent cap, and lock
a) weep hole?	N/A
b) concrete pad dimensions	6" diameter
4- Diameter/type of well casing	4" schedule 40 PVC
5- Type/slot size of screen	4" schedule 40 PVC/20 slot
6- Type screen filter	Ricci Brothers #2 sand
a) Quantity used	(9) 50 lb. bags
7- Type of seal	Bentonite
a) Quantity used	(2) 50 lb. bags
8- Grout	
a) Grout mix used	Bentonite/Lehigh Type 1 Portland mix
b) Method of placement	Gravity feed
c) Quantity of well casing grout	99 lbs.
Development method	Whale pump
Development time	3 purges @ ~ 10 minutes
Estimated purge volume	60 gallons

Comments: Thick black product emitted throughout development purges

CH2MHILL	PROJECT NUMBER 332898.QT.20.23	BORING NUMBER MW-102B	SHEET 1 OF 1

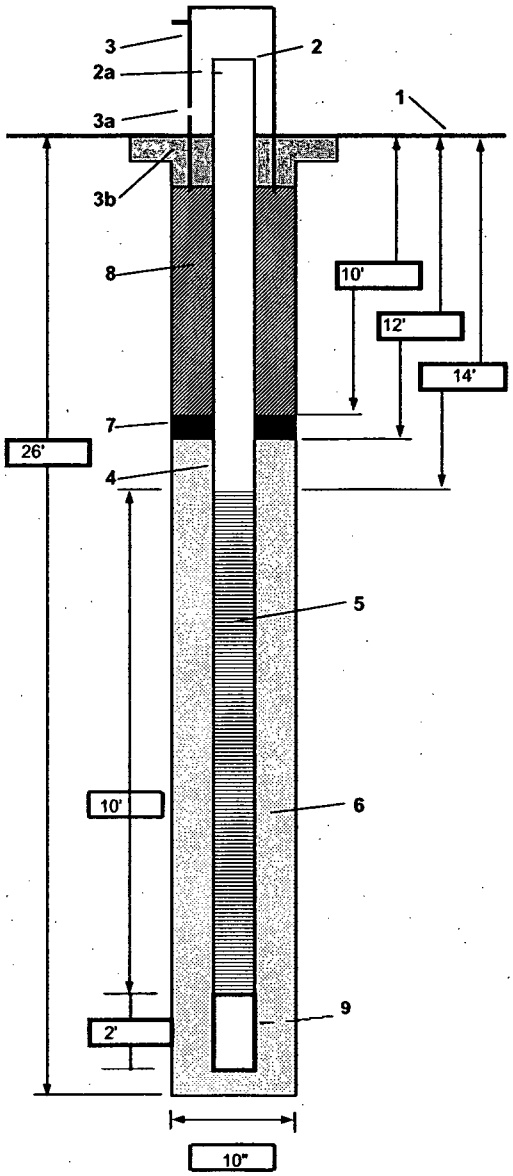
WELL COMPLETION DIAGRAM

PROJECT : Quanta Resources RI/FS — LOCATION : Edgewater, NJ

ELEVATION : 6.80' — DRILLING CONTRACTOR : Summit Drilling

DRILLING METHOD AND EQUIPMENT USED : 6 5/8" Hollow stem auger

WATER LEVELS : 6.1' (TIC) — START : 7/26/05 @ 1200 END : 7/26/05 @ 1330 LOGGER : A. Samuel



1- Ground elevation at well	6.80' MSL
2- Top of casing elevation	9.64' MSL
a) vent hole?	N/A
3- Wellhead protection cover type	Steel standpipe, vent cap, and pad lock
a) weep hole?	N/A
b) concrete pad dimensions	6" diameter
4- Diameter/type of well casing	4" schedule 40 PVC
5- Type/slot size of screen	4" schedule 40 PVC/20 slot
6- Type screen filter	Ricci Brothers #2 Sand
a) Quantity used	(9) 50 lb. bags
7- Type of seal	Bentonite
a) Quantity used	(2) 50 lb. bags
8- Grout	
a) Grout mix used	Lehigh Type 1 Portland Cement and Bentonite
b) Method of placement	Tremie pipe
c) Quantity of well casing grout	297 lbs.
9- Well sump material	4" schedule 40 PVC capped riser pipe
Development method	Whale pump
Development time	30 minutes
Estimated purge volume	75 gallons

Comments

CH2MHILL	PROJECT NUMBER 332898.QT.20.23	BORING NUMBER MW-103A	SHEET 1 OF 1

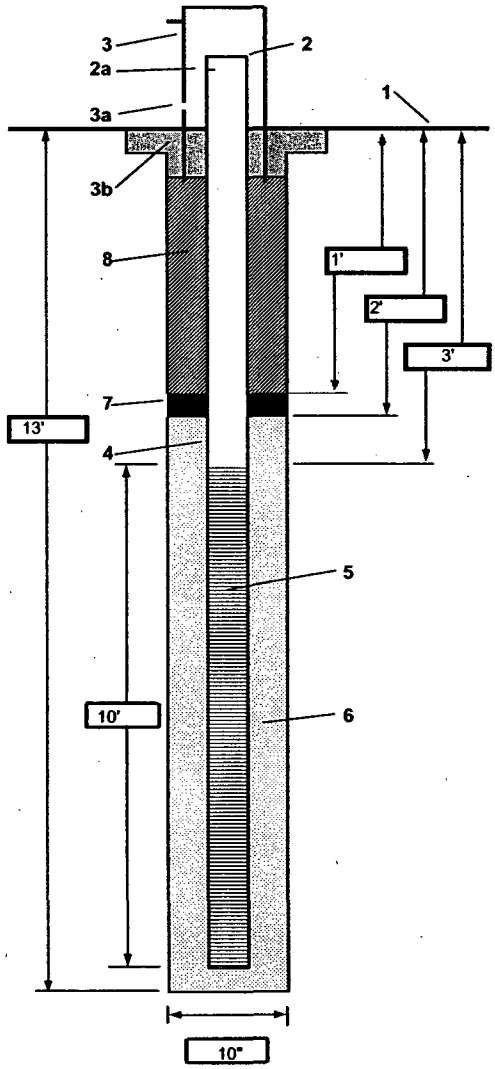
WELL COMPLETION DIAGRAM

PROJECT : Quanta Resources RI/FS — LOCATION : Edgewater, NJ

ELEVATION : 6.60' — DRILLING CONTRACTOR : Summit Drilling

DRILLING METHOD AND EQUIPMENT USED : 6 5/8" Hollow stem auger

WATER LEVELS : 6.6' (TIC) — START : 8/19/05 @ 0905 END : 8/19/05 @ 0945 — LOGGER : A. Harclerode



1- Ground elevation at well	6.60' MSL
2- Top of casing elevation	10.03' MSL
a) vent hole?	N/A
3- Wellhead protection cover type	Steel standpipe, vent cap, and lock
a) weep hole?	N/A
b) concrete pad dimensions	24" x 24"
4- Diameter/type of well casing	4" schedule 40 PVC
5- Type/slot size of screen	4" schedule 40 PVC/20 slot
6- Type screen filter	Ricci Brothers #2 Sand
a) Quantity used	(5) 50 lb. bags
7- Type of seal	Bentonite
a) Quantity used	(1) 50 lb. bag
8- Grout	
a) Grout mix used	Bentonite/Lehigh Type 1 Portland mix grout
b) Method of placement	Gravity feed
c) Quantity of well casing grout	99 lbs.
Development method	Whale pump
Development time	50 minutes
Estimated purge volume	110 gallons

Comments

CH2MHILL	PROJECT NUMBER 332898.QT.20.23	BORING NUMBER MW-103DS	SHEET 1 OF 1

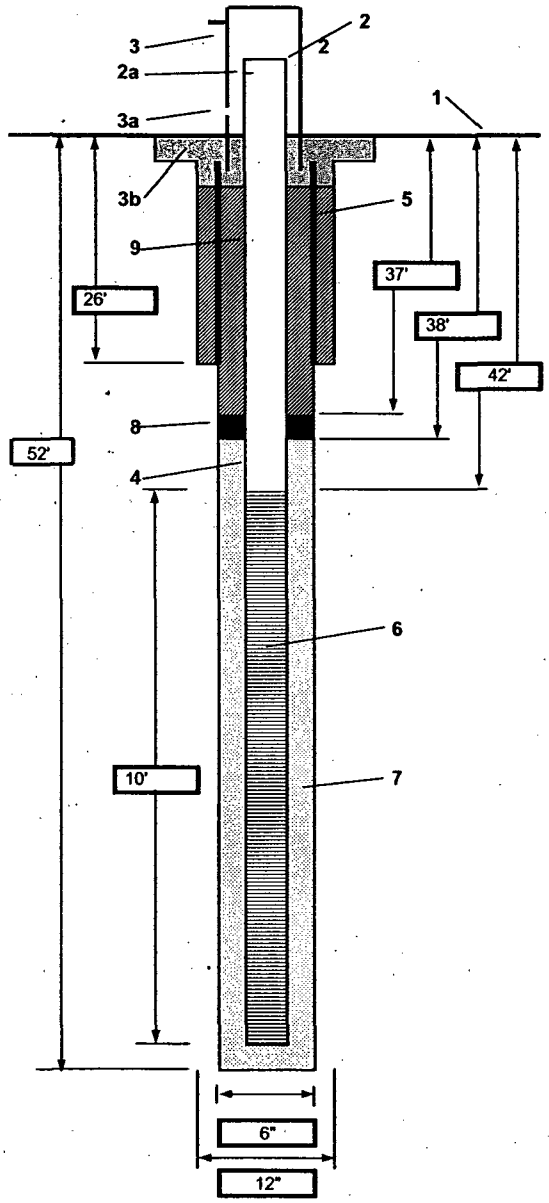
WELL COMPLETION DIAGRAM

PROJECT : Quanta Resource RI/FS — LOCATION : Edgewater, NJ

ELEVATION : 6.50' — DRILLING CONTRACTOR : Summit Drilling

DRILLING METHOD AND EQUIPMENT USED : 8 1/4" HSA (outer casing), 4 1/4" HSA (inner casing)

WATER LEVELS : 6.8' (TIC) — START : 8/29/05 @ 1445 END : 8/29/05 @ 1515 LOGGER : A Harclerode



1- Ground elevation at well	6.50' MSL
2- Top of casing elevation	10.13' MSL
a) vent hole?	N/A
3- Wellhead protection cover type	Steel standpipe, vent cap, and pad lock
a) weep hole?	N/A
b) concrete pad dimensions	24" x 24"
4- Diameter/type of well casing	2" Schedule 40 PVC
5- Diameter/type of surface casing	6" steel outer casing
6- Type/slot size of screen	2" schedule 40 wire wrap PVC/20 slot
7- Type screen filter	Ricci Brothers #2 sand, # 00 sand (neck)
a) Quantity used	(5) 50 lb bags and (1) 50 lb bag
8- Type of seal	Bentonite
a) Quantity used	(1) 50 lb. bag
9- Grout	
a) Grout mix used	Lehigh Type 1 Portland Cement and Bentonite
b) Method of placement	Tremie pipe
c) Quantity of well casing grout	1881 lbs.
Development method	Whale pump
Development time	2.25 hours
Estimated purge volume	330 gallons

Comments

CH2MHILL	PROJECT NUMBER 332898.QT.20.23	BORING NUMBER MW-104R	SHEET 1 OF 1

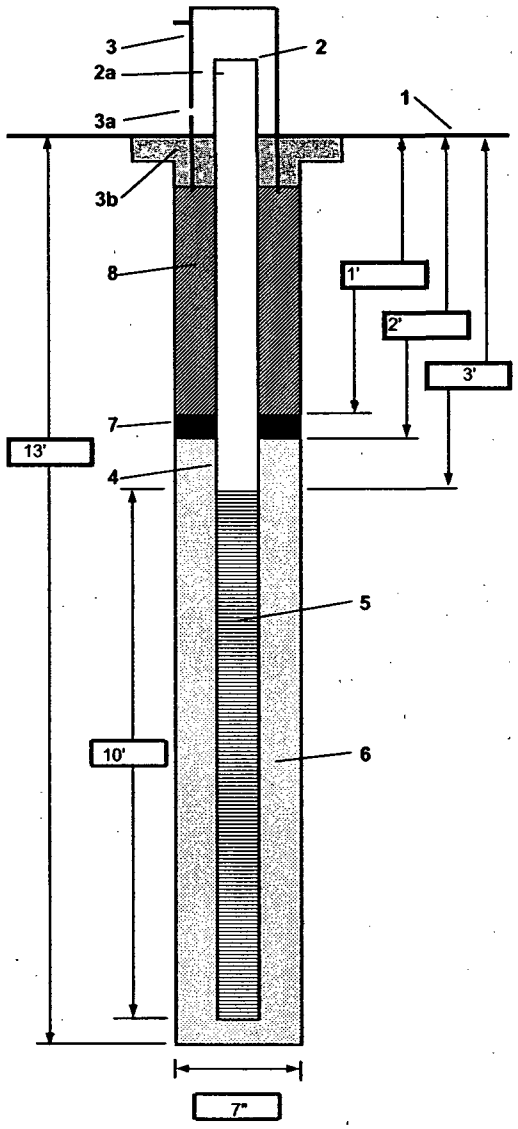
WELL COMPLETION DIAGRAM

PROJECT : Quanta Resources RI/FS — LOCATION : Edgewater, NJ

ELEVATION : 6.20' — DRILLING CONTRACTOR : Summit Drilling

DRILLING METHOD AND EQUIPMENT USED : 4 1/4" Hollow stem auger

WATER LEVELS : 6.7' (TIC) — START : 7/21/05 @ 1400 END : 7/21/05 @ 1500 LOGGER : A. Harclerode



1- Ground elevation at well	6.20' MSL
2- Top of casing elevation	9.11' MSL
a) vent hole?	N/A
3- Wellhead protection cover type	Steel standpipe, vent cap, and lock
a) weep hole?	N/A
b) concrete pad dimensions	8" diameter
4- Diameter/type of well casing	2" schedule 40 PVC
5- Type/slot size of screen	2" schedule 40 PVC/20 slot
6- Type screen filter	Ricci Brothers #2 Sand
a) Quantity used	(8) 50 lb. bags
7- Type of seal	Bentonite
a) Quantity used	(1) 50 lb bag
8- Grout	
a) Grout mix used	Bentonite/Lehigh Type 1 Portland mix
b) Method of placement	Gravity feed
c) Quantity of well casing grout	N/A
Development method	Whale pump
Development time	3 purges @ approx. 10 minutes each
Estimated purge volume	25 gallons

Comments: Very poor water productivity. After initial strong water flow, flow becomes intermittent with mostly airated water being discharged. Each purge produces approx. 10 gallons.

CH2MHILL	PROJECT NUMBER 332898.QT.20.23	BORING NUMBER MW-105A	SHEET 1 OF 1

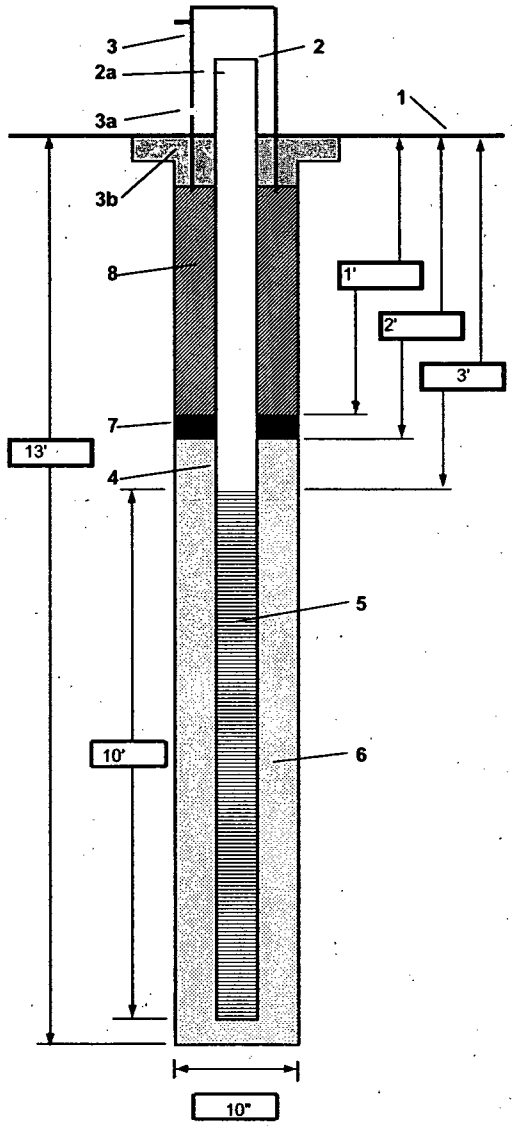
WELL COMPLETION DIAGRAM

PROJECT : Quanta Resources RI/FS — LOCATION : Edgewater, NJ

ELEVATION : 5.90' — DRILLING CONTRACTOR : Summit Drilling

DRILLING METHOD AND EQUIPMENT USED : 6 5/8" Hollow stem auger

WATER LEVELS : 6.6' (TIC) — START : 8/22/05 @ 1335 END : 8/22/05 @ 1445 LOGGER : A. Harclerode



1- Ground elevation at well	5.90' MSL
2- Top of casing elevation	8.20' MSL
a) vent hole?	N/A
3- Wellhead protection cover type	Steel standpipe, vent cap, and pad lock
a) weep hole?	N/A
b) concrete pad dimensions	24" x 24"
4- Diameter/type of well casing	4" schedule 40 PVC
5- Type/slot size of screen	4" schedule 40 PVC/20 slot
6- Type screen filter	Ricci Brothers #2 Sand
a) Quantity used	(5) 50 lb. bags
7- Type of seal	Bentonite
a) Quantity used	(1) 50 lb bag
8- Grout	
a) Grout mix used	Bentonite/Lehigh Type 1 Portland mix
b) Method of placement	Gravity feed
c) Quantity of well casing grout	99 lbs.
Development method	Whale pump
Development time	60 minutes
Estimated purge volume	160 gallons

Comments

CH2MHILL	PROJECT NUMBER 332898.QT.20.23	BORING NUMBER MW-106A	SHEET 1 OF 1

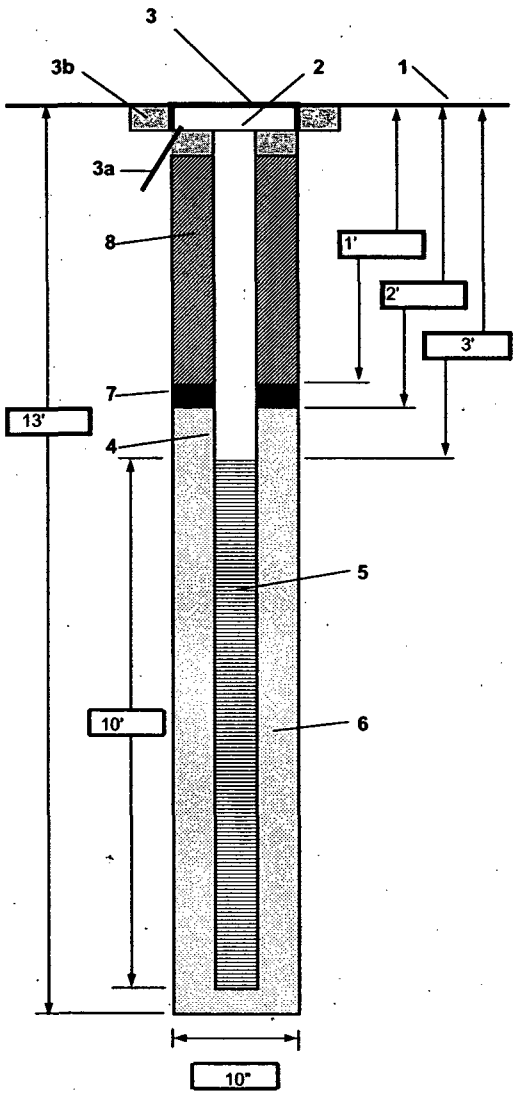
WELL COMPLETION DIAGRAM

PROJECT : Quanta Resources RI/FS — LOCATION : Edgewater, NJ

ELEVATION : 7.1' — DRILLING CONTRACTOR : Summit Drilling

DRILLING METHOD AND EQUIPMENT USED : 6 5/8" Hollow stem auger

WATER LEVELS : 5.70' (TIC) — START : 11/9/05 @ 1015 END : 11/9/05 @ 1125 LOGGER : D. Blitzer



1- Ground elevation at well	7.1' MSL
2- Top of casing elevation	6.65' MSL
a) vent hole?	N/A
3- Wellhead protection cover type	Flushmount collar, vent cap, and pad lock
a) weep hole?	N/A
b) concrete pad dimensions	24" x 24"
4- Diameter/type of well casing	4" schedule 40 PVC
5- Type/slot size of screen	4" schedule 40 PVC/20 slot
6- Type screen filter	Ricci Bros. #2 Sand, #00 Sand (neck)
a) Quantity used	(7) 50 lb. bags, (1) 50 lb. Bag
7- Type of seal	Bentonite
a) Quantity used	(1) 50 lb. bag
8- Grout	
a) Grout mix used	Bentonite/Lehigh Type I Portland mix
b) Method of placement	Gravity feed
c) Quantity of well casing grout	99 lbs.
Development method	Whale pump
Development time	Approximately 75 minutes
Estimated purge volume	160 gallons

Comments

CH2MHILL	PROJECT NUMBER 332898.QT.20.23	BORING NUMBER MW-107A	SHEET 1 OF 1

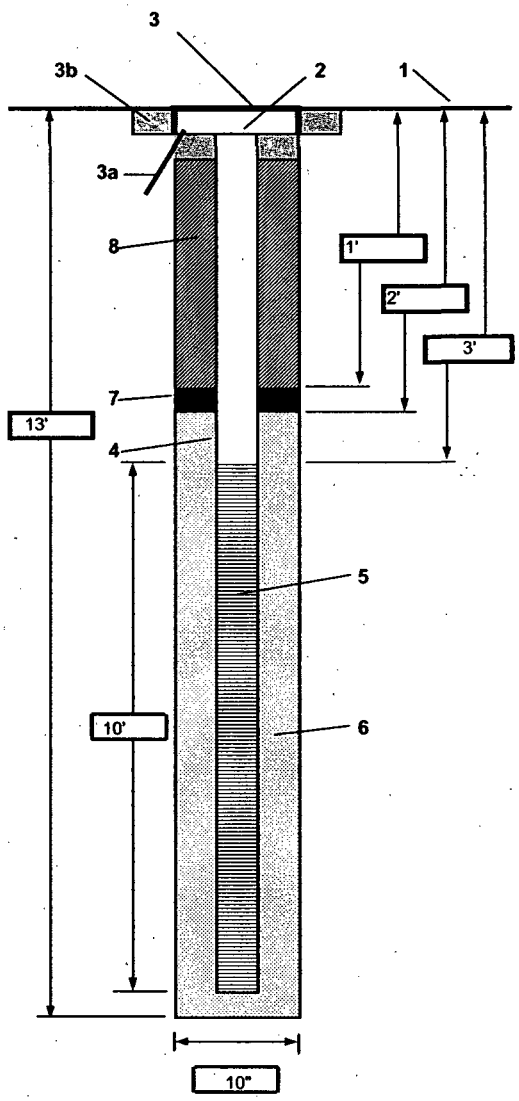
WELL COMPLETION DIAGRAM

PROJECT : Quanta Resources RI/FS — LOCATION : Edgewater, NJ

ELEVATION : 7.5' — DRILLING CONTRACTOR : Summit Drilling

DRILLING METHOD AND EQUIPMENT USED : 6 5/8" Hollow stem auger

WATER LEVELS : 3.64' (TIC) — START : 11/8/05 @ 0935 END : 11/8/05 @ 1030 LOGGER : D. Blitzer



1- Ground elevation at well	7.5' MSL
2- Top of casing elevation	7.04' MSL
a) vent hole?	N/A
3- Wellhead protection cover type	Flushmount collar, vent cap, and pad lock
a) weep hole?	N/A
b) concrete pad dimensions	24" x 24"
4- Diameter/type of well casing	4" schedule 40 PVC
5- Type/slot size of screen	4" schedule 40 PVC/20 slot
6- Type screen filter	Ricci Bros. #2 sand, # 00 sand
a) Quantity used	(7) 50 lb. bags, (1) 50 lb. bag
7- Type of seal	Bentonite
a) Quantity used	(1) 50 lb. bag
8- Grout	
a) Grout mix used	Bentonite/Lehigh Type I Portland mix
b) Method of placement	Gravity feed
c) Quantity of well casing grout	99 lbs.
Development method	Whale pump
Development time	Approximately 1 hour
Estimated purge volume	165 gallons

Comments

CH2MHILL	PROJECT NUMBER 332898.QT.20.23	BORING NUMBER MW-107DS	SHEET 1 OF 1

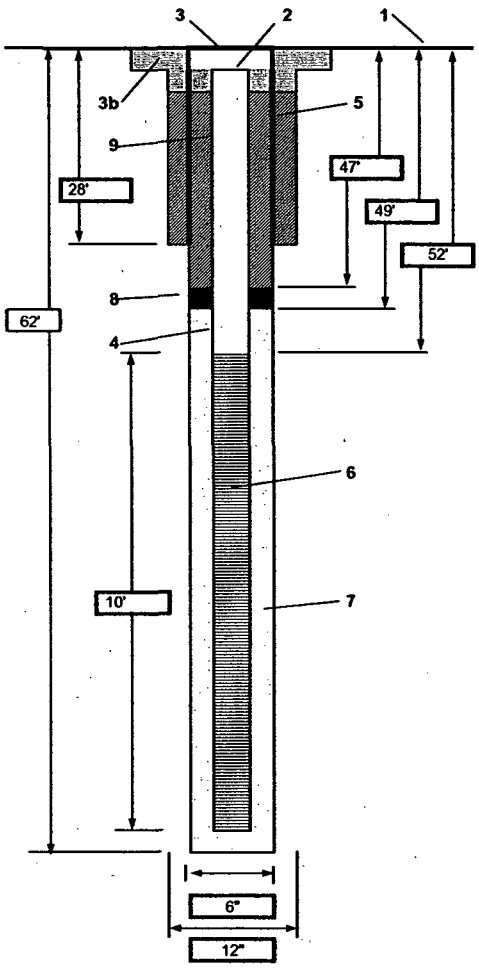
WELL COMPLETION DIAGRAM

PROJECT : Quanta Resource RI/FS — LOCATION : Edgewater, NJ

ELEVATION : 7.6' — DRILLING CONTRACTOR : Summit Drilling

DRILLING METHOD AND EQUIPMENT USED : 10" rolling air rotary bit, 8 1/4" (outer casing) & 4 1/4" (inner casing) Hollow Stem Auger/Spilt Spoon

WATER LEVELS : 2.71' (TIC) — START : 11/17/05 @ 1500 END : 11/17/05 @ 1430 LOGGER : A Harclerode



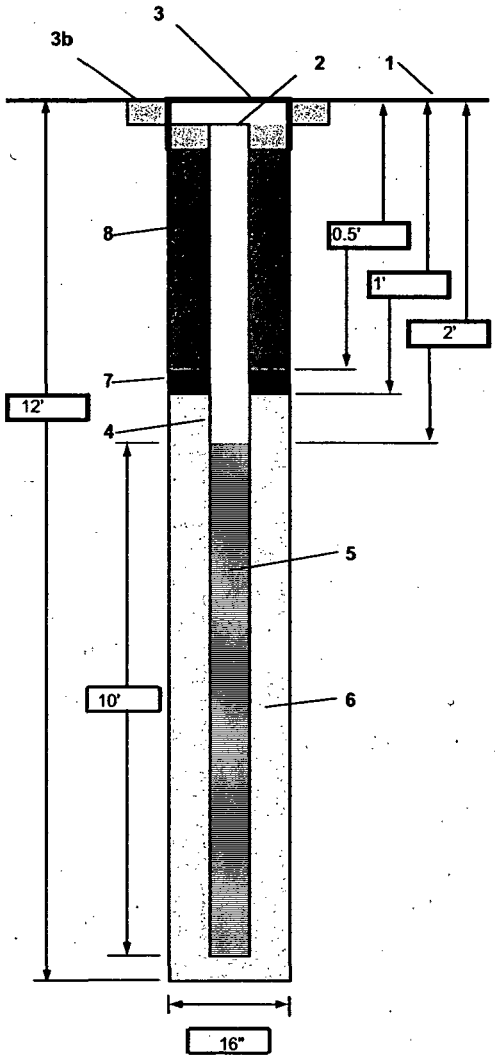
1- Ground elevation at well	
2- Top of casing elevation	
a) vent hole?	N/A
3- Wellhead protection cover type	Steel flushmount collar, vent cap, and pad lock
a) weep hole?	N/A
b) concrete pad dimensions	24" x 24"
4- Diameter/type of well casing	2" Schedule 40 PVC
5- Diameter/type of surface casing	6" steel outer casing
6- Type/slot size of screen	2" schedule 40 wire wrap PVC/20 slot
7- Type screen filter	Ricci Brothers Sand
a) Quantity used	(1) 50 lb. bag of 00 (sugar) and (5) 50 lb bags of #2
8- Type of seal	Bentonite
a) Quantity used	(2) 50 lb. bags
9- Grout	
a) Grout mix used	Lehigh Type 1 Portland Cement and Bentonite
b) Method of placement	Tremie pipe
c) Quantity of well casing grout	1980 lbs.
Development method	Whale pump
Development time	12 hours
Estimated purge volume	1100 gallons

Comments: Approx. 11' of drilling mud at bottom of well prior to development. Remnant drilling mud removed during development but water did not clear adequately. Decided to stop development prior to acceptible turbidity readings.

CH2MHILL	PROJECT NUMBER 332898.QT.20.23	BORING NUMBER MW-109A	SHEET 1 OF 1

WELL COMPLETION DIAGRAM

PROJECT : Quanta Resources RI/FS — LOCATION : Edgewater, NJ
ELEVATION : 4.9' — DRILLING CONTRACTOR : Summit Drilling
DRILLING METHOD AND EQUIPMENT USED : 10" rolling air rotary bit
WATER LEVELS : 4.7' — START : 11/15/05 @ 0925 END : 11/15/05 @ 1045 LOGGER : A. Harclerode



1- Ground elevation at well	4.9' MSL
2- Top of casing elevation	4.56' MSL
a) vent hole?	N/A
3- Wellhead protection cover type	Steel flushmount collar, vent cap, and lock
a) weep hole?	N/A
b) concrete pad dimensions	24" x 24"
4- Diameter/type of well casing	4" schedule 40 PVC
5- Type/slot size of screen	4" schedule 40 PVC/20 slot
6- Type screen filter	Ricci Brothers #2 Sand
a) Quantity used	(32) 50 lb. bags
7- Type of seal	Bentonite
a) Quantity used	(2) 50 lb. bags
8- Grout	
a) Grout mix used	Bentonite/Lehigh Type 1 Portland mix
b) Method of placement	Gravity feed
c) Quantity of well casing grout	N/A
Development method	Whale pump
Development time	Approximately 90 minutes
Estimated purge volume	Approximately 125 gallons

Comments

CH2MHILL	PROJECT NUMBER 332898.QT.20.23	BORING NUMBER MW-111A	SHEET 1 OF 1

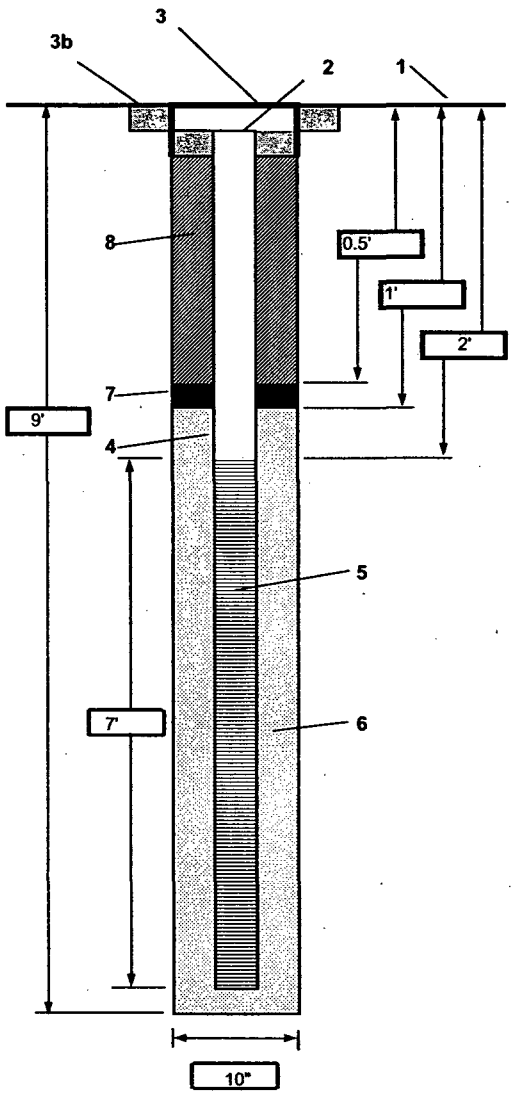
WELL COMPLETION DIAGRAM

PROJECT : Quanta Resources RI/FS — LOCATION : Edgewater, NJ

ELEVATION : 8.30' — DRILLING CONTRACTOR : Summit Drilling

DRILLING METHOD AND EQUIPMENT USED : 6 5/8" Hollow stem auger

WATER LEVELS : 4.3' — START : 8/4/05 @ 1340 END : 8/4/05 @ 1430 LOGGER : A. Harclerode



1- Ground elevation at well	8.30' MSL
2- Top of casing elevation	7.98'
a) vent hole?	N/A
3- Wellhead protection cover type	Steel flushmount collar, vent cap, and lock
a) weep hole?	N/A
b) concrete pad dimensions	12" x 12"
4- Diameter/type of well casing	4" schedule 40 PVC
5- Type/slot size of screen	4" schedule 40 PVC/20 slot
6- Type screen filter	Ricci Brothers #2 Sand
a) Quantity used	(6) 50 lb. bags
7- Type of seal	Bentonite
a) Quantity used	(1) 50 lb. bag
8- Grout	
a) Grout mix used	Bentonite/Lehigh Type 1 Portland mix
b) Method of placement	Gravity feed
c) Quantity of well casing grout	52.5 lbs.
Development method	Whale pump
Development time	Approximately 90 minutes
Estimated purge volume	Approximately 110 gallons

Comments: Boring was advanced deeper than well depth for investigative purposes per project manager instructions

CH2MHILL	PROJECT NUMBER 332898.QT.20.23	BORING NUMBER MW-111B	SHEET 1 OF 1

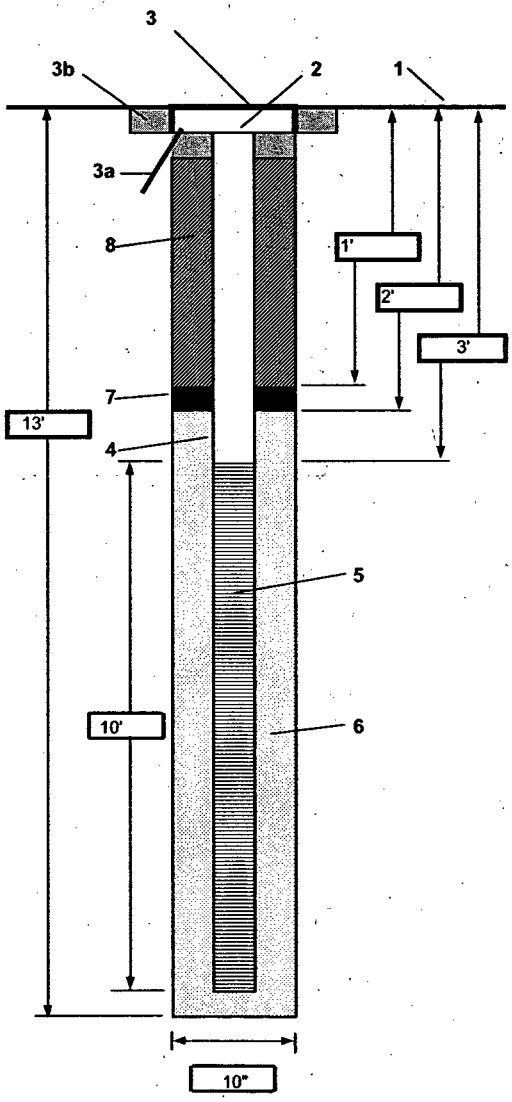
WELL COMPLETION DIAGRAM

PROJECT : Quanta Resources RI/FS — LOCATION : Edgewater, NJ

ELEVATION : 8.40' — DRILLING CONTRACTOR : Summit Drilling

DRILLING METHOD AND EQUIPMENT USED : 6 5/8" Hollow stem auger

WATER LEVELS : 4.6' (TIC) — START : 8/1/05 @ 1445 — END : 8/1/05 @ 1535 — LOGGER : A. Harclerode



1- Ground elevation at well	8.40' MSL
2- Top of casing elevation	7.85' MSL
a) vent hole?	N/A
3- Wellhead protection cover type	Flushmount collar, vent cap, and pad lock
a) weep hole?	N/A
b) concrete pad dimensions	12" x 12"
4- Diameter/type of well casing	4" schedule 40 PVC
5- Type/slot size of screen	4" schedule 40 PVC/20 slot
6- Type screen filter	#2 Sand
a) Quantity used	(9) 50 lb. bags
7- Type of seal	Bentonite
a) Quantity used	(1) 50 lb. bag
8- Grout	
a) Grout mix used	Bentonite/Portland mix
b) Method of placement	Gravity feed
c) Quantity of well casing grout	52.5 lbs.
Development method	Whale pump
Development time	Approximately 1. 5 hours
Estimated purge volume	110 gallons

Comments

CH2MHILL	PROJECT NUMBER 332898.QT.20.23	BORING NUMBER MW-112A	SHEET 1 OF 1

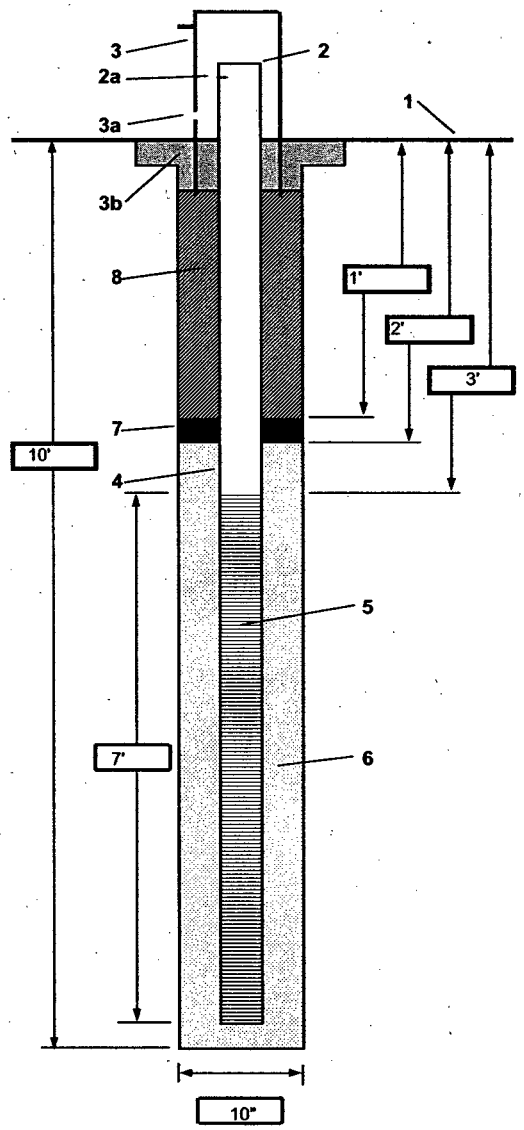
WELL COMPLETION DIAGRAM

PROJECT : Quanta Resources RI/FS — LOCATION : Edgewater, NJ

ELEVATION : 6.80' — DRILLING CONTRACTOR : Summit Drilling

DRILLING METHOD AND EQUIPMENT USED : 8" rolling air rotary bit

WATER LEVELS : 7.1' (TIC) — START : 8/15/05 @ 1255 END : 8/15/05 @ 1320 LOGGER : A. Harclerode



1- Ground elevation at well	6.80' MSL
2- Top of casing elevation	10.01' MSL
a) vent hole?	N/A
3- Wellhead protection cover type	Steel standpipe, vent cap, and pad lock
a) weep hole?	N/A
b) concrete pad dimensions	24" x 24"
4- Diameter/type of well casing	4" schedule 40 PVC
5- Type/slot size of screen	4" schedule 40 PVC/20 slot
6- Type screen filter	Ricci Brothers #2 Sand
a) Quantity used	(5) 50 lb. bags
7- Type of seal	Bentonite
a) Quantity used	(1) 50 lb. bag
8- Grout	
a) Grout mix used	Bentonite/Lehigh Type 1 Portland mix
b) Method of placement	Gravity feed
c) Quantity of well casing grout	N/A
Development method	Whale pump
Development time	Three purges @ approx. 10 minutes each
Estimated purge volume	40 gallons

Comments: Poor water production. Water never adequately cleared with floating product globules in purge water.

CH2MHILL	PROJECT NUMBER 332898.QT.20.23	BORING NUMBER MW-112B	SHEET 1 OF 1

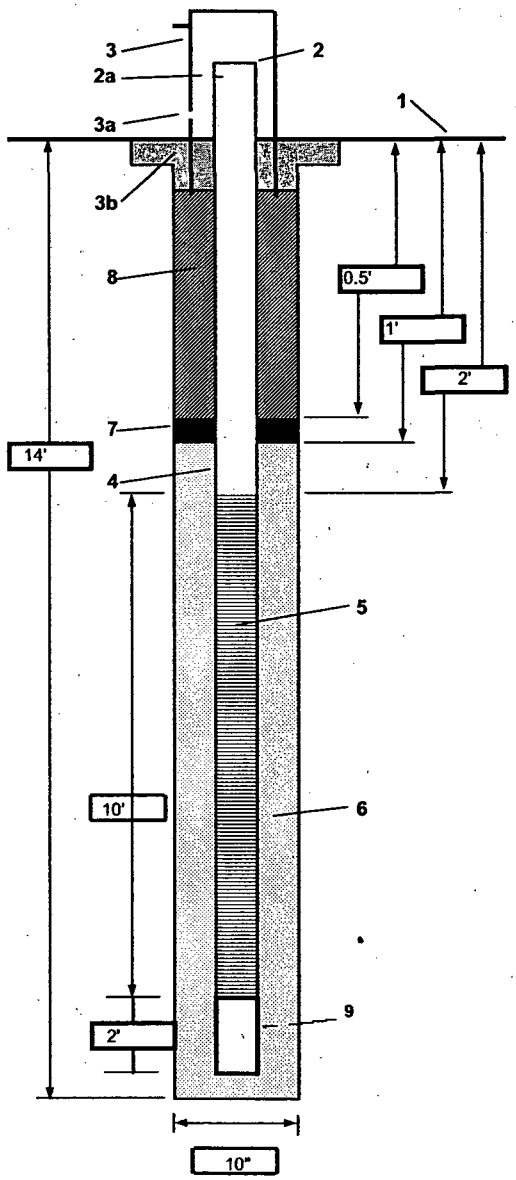
WELL COMPLETION DIAGRAM

PROJECT : Quanta Resources RI/FS — LOCATION : Edgewater, NJ

ELEVATION : 6.80' — DRILLING CONTRACTOR : Summit Drilling

DRILLING METHOD AND EQUIPMENT USED : 6 5/8" Hollow stem auger

WATER LEVELS : 5.9' (TIC) — START : 7/27/05 @ 1330 END : 8/16/05 @ 1500 LOGGER : A. Samuel



1- Ground elevation at well	6.80' MSL
2- Top of casing elevation	9.60' MSL
a) vent hole?	N/A
3- Wellhead protection cover type	Steel standpipe, vent cap, and lock
a) weep hole?	N/A
b) concrete pad dimensions	24 inches diameter
4- Diameter/type of well casing	4" schedule 40 PVC
5- Type/slot size of screen	4" schedule 40 PVC/20 slot
6- Type screen filter	#2 Sand
a) Quantity used	(12) 50 lb. bags
7- Type of seal	Bentonite
a) Quantity used	(1) 50 lb. bag
8- Grout	
a) Grout mix used	Bentonite/Portland mix
b) Method of placement	Tremie pipe
c) Quantity of well casing grout	99 lbs.
9- Well sump material	4" schedule 40 PVC capped riser pipe
Development method	Whale pump
Development time	3 purges @ approx.
Estimated purge volume	300 gallons

Comments

CH2MHILL	PROJECT NUMBER 332898.QT.20.23	BORING NUMBER MW-113A	SHEET 1 OF 1

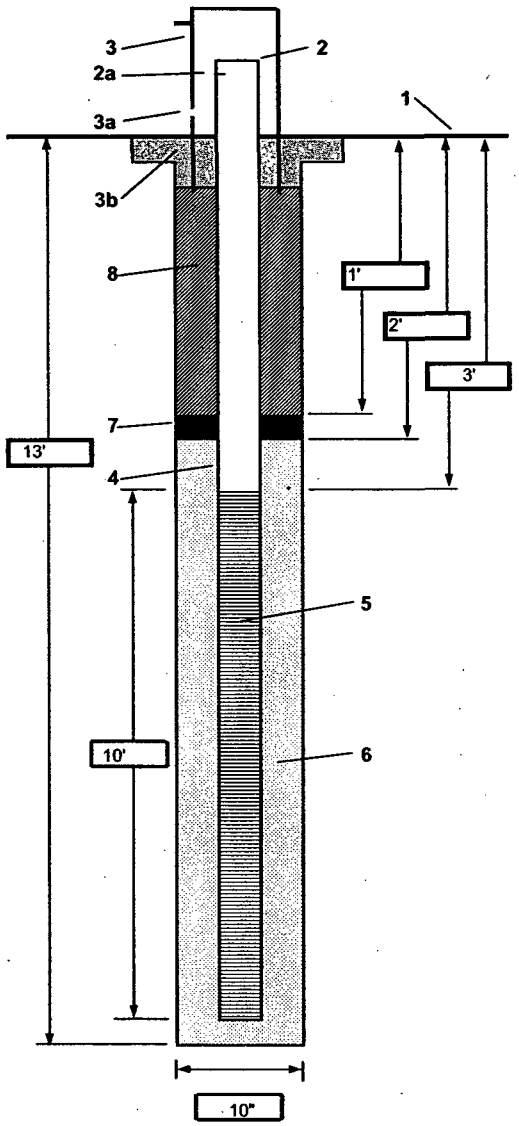
WELL COMPLETION DIAGRAM

PROJECT : Quanta Resources RI/FS — LOCATION : Edgewater, NJ

ELEVATION : 7.00' — DRILLING CONTRACTOR : Summit Drilling

DRILLING METHOD AND EQUIPMENT USED : 8" rolling air rotary bit, 6 5/8" hollow stem auger

WATER LEVELS : 6.6' (TIC) — START : 8/15/05 @ 0905 END : 8/15/05 @ 0930 LOGGER : A. Harclerode



1- Ground elevation at well	7.00' MSL
2- Top of casing elevation	10.20' MSL
a) vent hole?	N/A
3- Wellhead protection cover type	Steel standpipe, vent cap, and pad lock
a) weep hole?	N/A
b) concrete pad dimensions	24" x 24"
4- Diameter/type of well casing	4" schedule 40 PVC
5- Type/slot size of screen	4" schedule 40 PVC/20 slot
6- Type screen filter	Ricci Brothers #2 Sand
a) Quantity used	(7) 50 lb. bags
7- Type of seal	Bentonite
a) Quantity used	(1) 50 lb. bag
8- Grout	
a) Grout mix used	Bentonite/Lehigh Type 1 Portland mix
b) Method of placement	Gravity feed
c) Quantity of well casing grout	99 lbs.
Development method	Whale pump
Development time	Approximately 60 minutes @ 3 gallons/minute
Estimated purge volume	Approximately 160 gallons
Comments	

CH2MHILL	PROJECT NUMBER 332898.QT.20.23	BORING NUMBER MW-113B	SHEET 1 OF 1

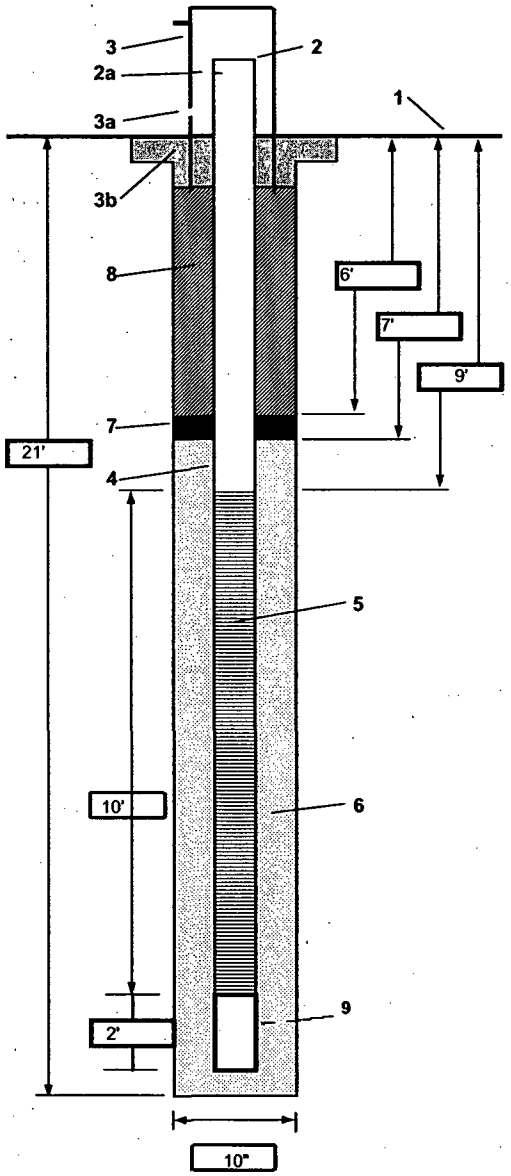
WELL COMPLETION DIAGRAM

PROJECT : Quanta Resources RI/FS — LOCATION : Edgewater, NJ

ELEVATION : 7.00' — DRILLING CONTRACTOR : Summit Drilling

DRILLING METHOD AND EQUIPMENT USED : 6 5/8" Hollow stem auger

WATER LEVELS : 6.6' (TIC) — START : 8/16/05 @ 0930 END : 8/16/05 @ 1015 LOGGER : A. Harclerode



1- Ground elevation at well	7.00' MSL
2- Top of casing elevation	9.94'
a) vent hole?	N/A
3- Wellhead protection cover type	Steel standpipe, vent cap, and pad lock
a) weep hole?	N/A
b) concrete pad dimensions	24" x 24"
4- Diameter/type of well casing	4" schedule 40 PVC
5- Type/slot size of screen	4" schedule 40 PVC/20 slot
6- Type screen filter	Ricci Brothers #2 Sand
a) Quantity used	(11) 50 lb. bags
7- Type of seal	Bentonite
a) Quantity used	(2) 50 lb. bags
8- Grout	
a) Grout mix used	Bentonite/Lehigh Type 1 Portland mix
b) Method of placement	Tremie pipe
c) Quantity of well casing grout	198 lbs.
9- Well sump material	4" schedule 40 PVC capped riser pipe
Development method	Whale pump
Development time	Approx. 250 minutes
Estimated purge volume	300 gallons

Comments

CH2MHILL	PROJECT NUMBER 332898.QT.20.23	BORING NUMBER MW-113C	SHEET 1 OF 1

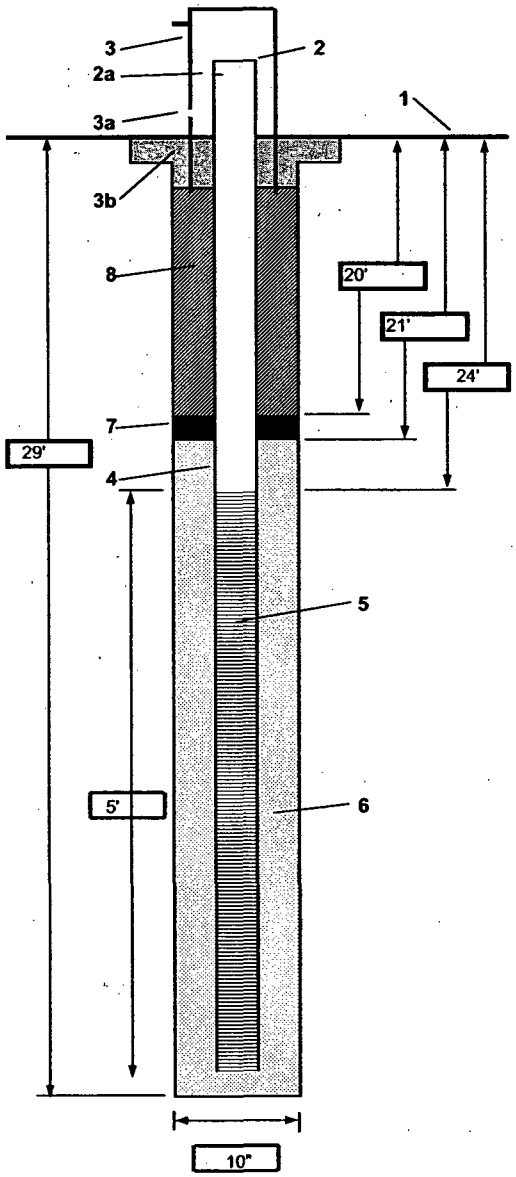
WELL COMPLETION DIAGRAM

PROJECT : Quanta Resources RI/FS — LOCATION : Edgewater, NJ

ELEVATION : 7.2' — DRILLING CONTRACTOR : Summit Drilling

DRILLING METHOD AND EQUIPMENT USED : 10" rolling air rotary bit, 6 5/8" Hollow Stem Auger/Spilt Spoon

WATER LEVELS : 6.9' (TIC) — START : 11/21/05 @ 1130 END : 11/21/05 @ 1330 LOGGER : A. Harclerode



1- Ground elevation at well	7.2' MSL
2- Top of casing elevation	9.80' MSL
a) vent hole?	
3- Wellhead protection cover type	Steel standpipe, vent cap, and lock
a) weep hole?	N/A
b) concrete pad dimensions	24" x 24"
4- Diameter/type of well casing	4" schedule 40 PVC
5- Type/slot size of screen	4" schedule 40 PVC/20 slot
6- Type screen filter	Ricci Bros #2 Sand, Ricci Bros #00 Sand
a) Quantity used	(12) 50 lb. bags
7- Type of seal	Bentonite
a) Quantity used	(1) 50 lb. bag
8- Grout	
a) Grout mix used	Bentonite/Portland mix
b) Method of placement	Gravity feed
c) Quantity of well casing grout	N/A
9- Well sump material	4" schedule 40 PVC capped riser pipe
Development method	Whale pump
Development time	Approximately 120 minutes
Estimated purge volume	75 gallons

Comments

CH2MHILL	PROJECT NUMBER 332898.QT.20.23	BORING NUMBER MW-114A	SHEET 1 OF 1

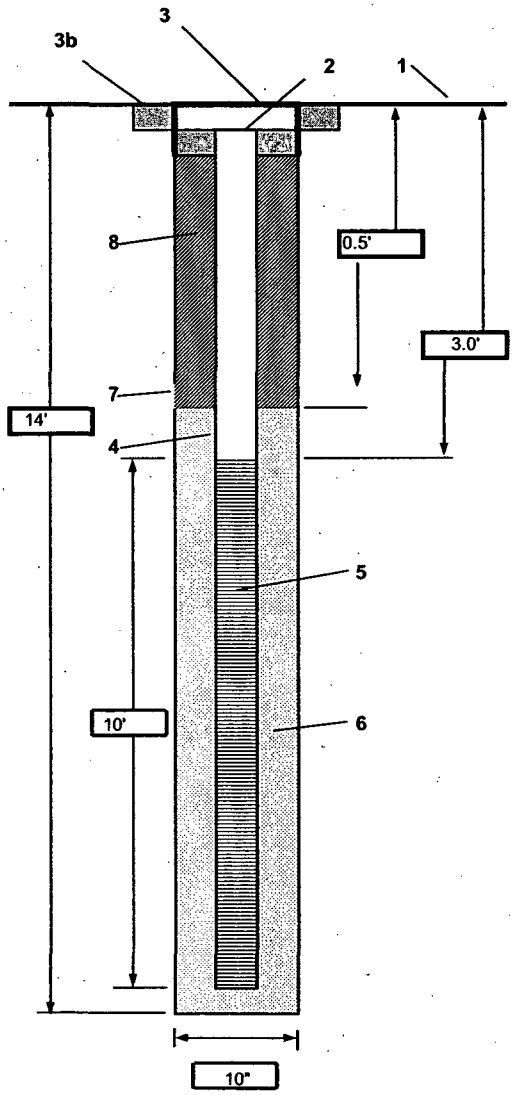
WELL COMPLETION DIAGRAM

PROJECT : Quanta Resources RI/FS — LOCATION : Edgewater, NJ

ELEVATION : — DRILLING CONTRACTOR : SGS Environmental Services, Inc.

DRILLING METHOD AND EQUIPMENT USED : 6 5/8" hollow stem auger

WATER LEVELS : — START : 1/14/06 @ 1635 END : 1/14/06 @ 1715 LOGGER : A. Harclerode



1- Ground elevation at well	
2- Top of casing elevation	
a) vent hole?	N/A
3- Wellhead protection cover type	Steel flushmount collar, vent cap, and lock
a) weep hole?	N/A
b) concrete pad dimensions	12" x 12"
4- Diameter/type of well casing	4" schedule 40 PVC
5- Type/slot size of screen	4" schedule 40 PVC/20 slot
6- Type screen filter	Fil Pro #2 sand, Fil Pro #00 sand
a) Quantity used	(11) 50 lb. bags, (2) 50 lb. bags
7- Type of seal	N/A
a) Quantity used	N/A
8- Grout	
a) Grout mix used	Bentonite/Lehigh Type 1 Portland mix
b) Method of placement	Gravity feed
c) Quantity of well casing grout	N/A
Development method	
Development time	
Estimated purge volume	

Comments

CH2MHILL	PROJECT NUMBER 332898.QT.20.23	BORING NUMBER MW-114B	SHEET 1 OF 1

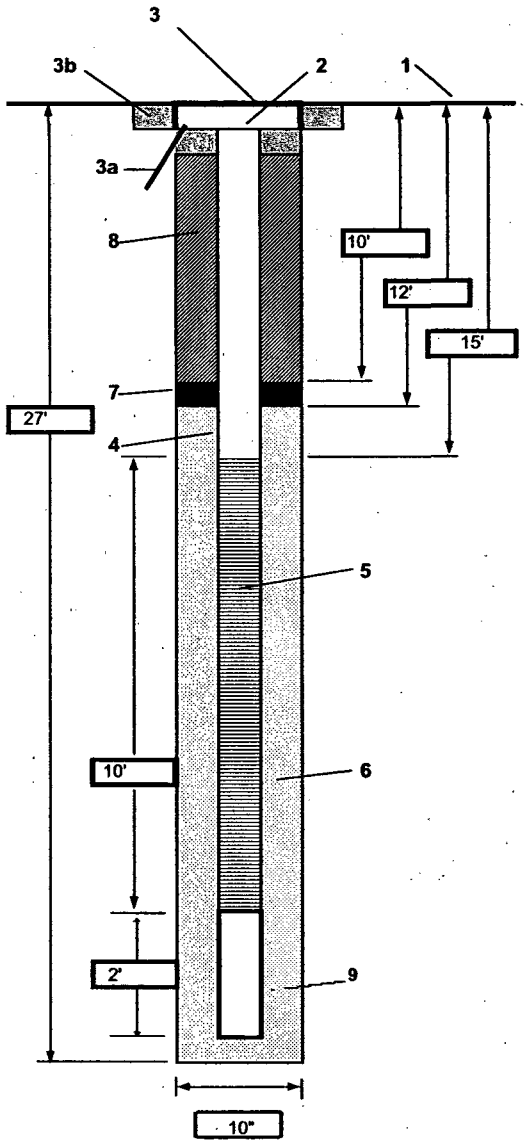
WELL COMPLETION DIAGRAM

PROJECT : Quanta Resources RI/FS — LOCATION : Edgewater, NJ

ELEVATION : — DRILLING CONTRACTOR : SGS Environmental Services, Inc.

DRILLING METHOD AND EQUIPMENT USED : 6 5/8" Hollow stem auger

WATER LEVELS : — START : 1/14/06 @ 1415 END : 1/14/06 @ 1545 LOGGER : A. Harclerode



1- Ground elevation at well	
2- Top of casing elevation	
a) vent hole?	
3- Wellhead protection cover type	Flushmount collar, vent cap, and pad lock
a) weep hole?	N/A
b) concrete pad dimensions	
4- Diameter/type of well casing	4" schedule 40 PVC
5- Type/slot size of screen	4" schedule 40 PVC/20 slot
6- Type screen filter	Fil Pro # 2 Sand, Fil Pro #00 Sand
a) Quantity used	(11) 50 lb. bags, (2) 50 lb. bags
7- Type of seal	Bentonite
a) Quantity used	(2) 50 lb. bags
8- Grout	
a) Grout mix used	Bentonite/Lehigh Type 1 Portland mix
b) Method of placement	Gravity feed
c) Quantity of well casing grout	N/A
9- Well sump material	4" schedule 40 PVC capped riser pipe
Development method	
Development time	
Estimated purge volume	

Comments

CH2MHILL	PROJECT NUMBER 332898.QT.20.23	BORING NUMBER MW-116A	SHEET 1 OF 1

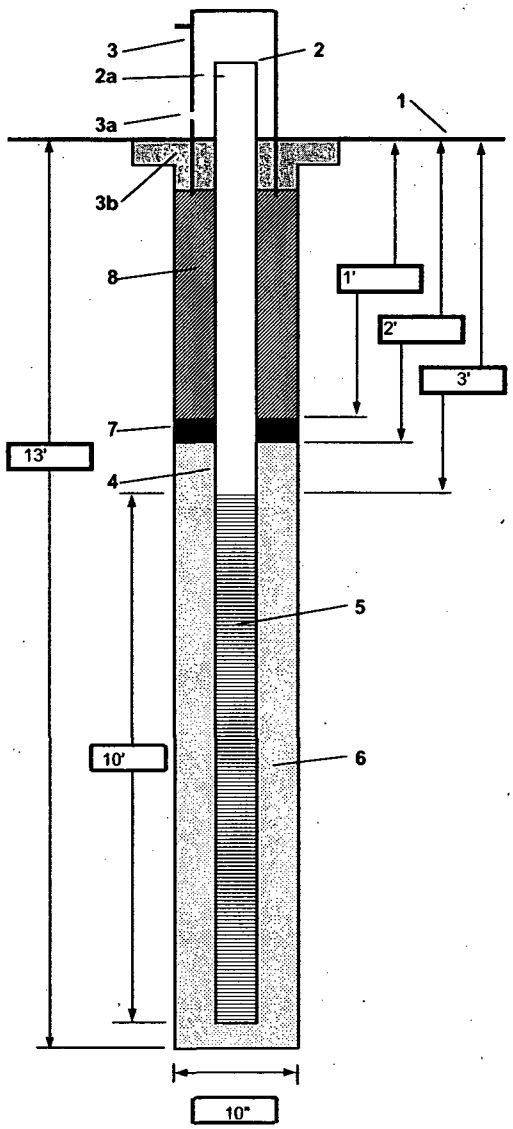
WELL COMPLETION DIAGRAM

PROJECT : Quanta Resources RI/FS — LOCATION : Edgewater, NJ

ELEVATION : 6.10' — DRILLING CONTRACTOR : Summit Drilling

DRILLING METHOD AND EQUIPMENT USED : 6 5/8" Hollow stem auger

WATER LEVELS : 6.6' — START : 7/22/05 @ 1000 END : 7/22/05 @ 1100 LOGGER : A. Harclerode



1- Ground elevation at well	6.10' MSL
2- Top of casing elevation	9.45' MSL
a) vent hole?	N/A
3- Wellhead protection cover type	Steel standpipe, vent cap, and pad lock
a) weep hole?	N/A
b) concrete pad dimensions	8" diameter
4- Diameter/type of well casing	4" schedule 40 PVC
5- Type/slot size of screen	4" schedule 40 PVC/20 slot
6- Type screen filter	Ricci Brothers #2 Sand
a) Quantity used	(13) 50 lb. bags
7- Type of seal	Bentonite
a) Quantity used	(1) 50 lb. bag
8- Grout	
a) Grout mix used	Bentonite/Lehigh Type 1 Portland mix
b) Method of placement	Gravity feed
c) Quantity of well casing grout	99 lbs.
Development method	Whale pump
Development time	3 purges @ approx. 10 minutes each
Estimated purge volume	225 gallons

Comments

CH2MHILL	PROJECT NUMBER 332898.QT.20.23	BORING NUMBER MW-116B	SHEET 1 OF 1

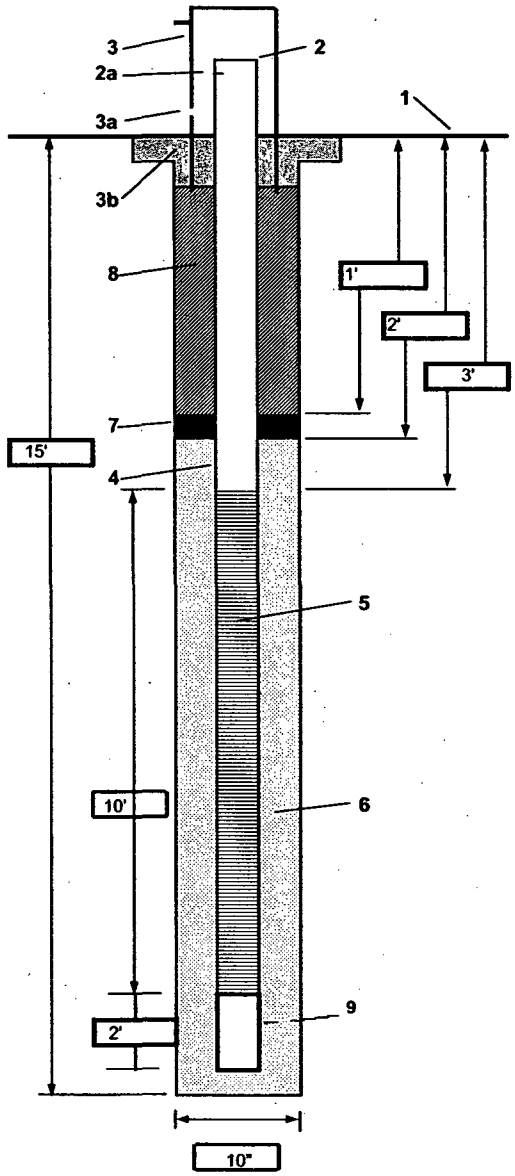
WELL COMPLETION DIAGRAM

PROJECT : Quanta Resources RI/FS — LOCATION : Edgewater, NJ

ELEVATION : 6.30' — DRILLING CONTRACTOR : Summit Drilling

DRILLING METHOD AND EQUIPMENT USED : 6 5/8" Hollow stem auger

WATER LEVELS : 4.51' — START : 8/16/05 @ 1300 END : 8/16/05 @ 1330 LOGGER : A. Harclerode



1- Ground elevation at well	6.30' MSL
2- Top of casing elevation	8.69' MSL
a) vent hole?	N/A
3- Wellhead protection cover type	Steel standpipe, vent cap, and pad lock
a) weep hole?	N/A
b) concrete pad dimensions	24" x 24"
4- Diameter/type of well casing	4" schedule 40 PVC
5- Type/slot size of screen	4" schedule 40 PVC/20 slot
6- Type screen filter	Ricci Brothers #2 Sand
a) Quantity used	(11) 50 lb. bags
7- Type of seal	Bentonite
a) Quantity used	(2) 50 lb. bag
8- Grout	
a) Grout mix used	Bentonite/Lehigh Type 1 Portland mix
b) Method of placement	Gravity feed
c) Quantity of well casing grout	99 lbs.
9- Well sump material	4" schedule 40 PVC capped riser pipe
Development method	Whale pump
Development time	Three purges @ ~ 15 minutes each
Estimated purge volume	100 gallons
Comments	Poor water production, well never fully developed with floating product globules in purge water

CH2MHILL	PROJECT NUMBER 332898.QT.20.23	BORING NUMBER MW-116DS	SHEET 1 OF 1

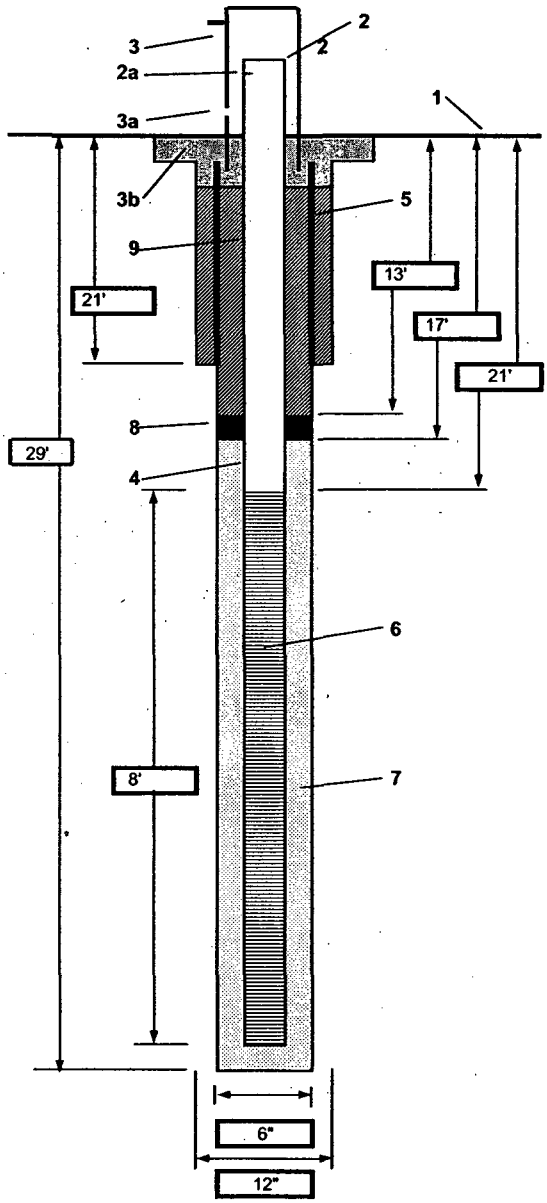
WELL COMPLETION DIAGRAM

PROJECT : Quanta Resources RI/FS — LOCATION : Edgewater, NJ

ELEVATION : 6.10' — DRILLING CONTRACTOR : Summit Drilling

DRILLING METHOD AND EQUIPMENT USED : 8 1/4" HSA (outer casing), 4 1/4" HSA (inner casing)

WATER LEVELS : 5.4' (TIC) — START : 8/25/05 @ 1100 END : 8/25/05 @ 1300 LOGGER : A. Harclerode



1- Ground elevation at well	6.10' MSL
2- Top of casing elevation	9.18' MSL
a) vent hole?	N/A
3- Wellhead protection cover type	Steel standpipe, vent cap, and pad lock
a) weep hole?	N/A
b) concrete pad dimensions	24" x 24"
4- Diameter/type of well casing	2" schedule 40 PVC
5- Diameter/type of surface casing	6" steel outer casing
6- Type/slot size of screen	2" schedule 40 wire wrap PVC/20 slot
7- Type screen filter	Ricci Brothers Sand
a) Quantity used	(1) 50 lb. bag of 00 (sugar) and (4) 50 lb bags of #2
8- Type of seal	Bentonite
a) Quantity used	(5) 50 lb. bags
9- Grout	
a) Grout mix used	Lehigh Type 1 Portland Cement and Bentonite
b) Method of placement	Gravity feed
c) Quantity of well casing grout	N/A
Development method	Whale pump
Development time	1.5 hours
Estimated purge volume	110 gallons

Comments

CH2MHILL	PROJECT NUMBER 332898.QT.20.23	BORING NUMBER MW-117A	SHEET 1 OF 1

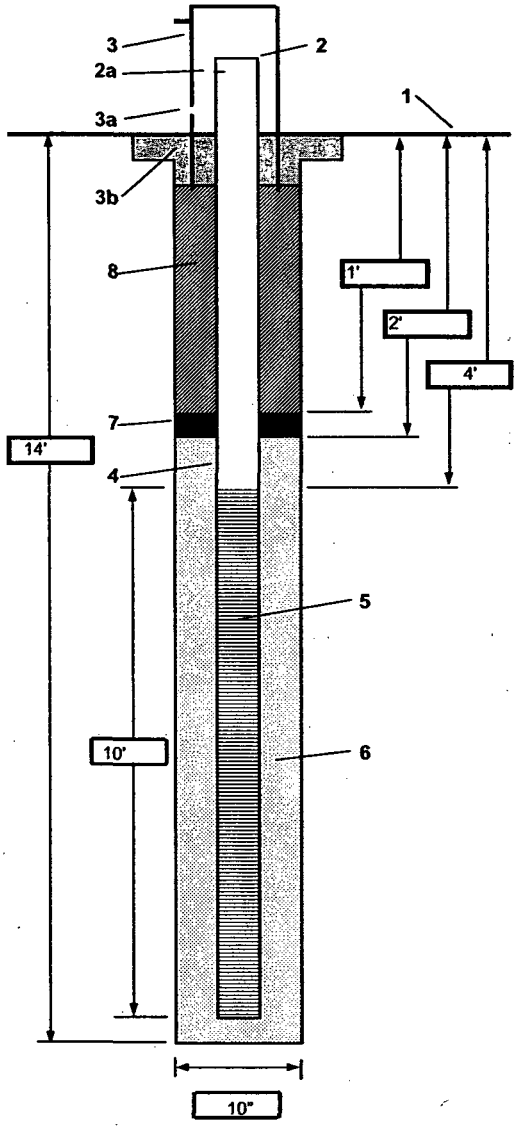
WELL COMPLETION DIAGRAM

PROJECT : Quanta Resources RI/FS — LOCATION : Edgewater, NJ

ELEVATION : 6.80' — DRILLING CONTRACTOR : Summit Drilling

DRILLING METHOD AND EQUIPMENT USED : 6 5/8" Hollow stem auger

WATER LEVELS : 6.7' (TIC) — START : 7/26/05 @ 1445 END : 7/21/05 @ 1545 LOGGER : A. Harclerode



1- Ground elevation at well	6.80' MSL
2- Top of casing elevation	9.37' MSL
a) vent hole?	N/A
3- Wellhead protection cover type	Steel standpipe, vent cap, and pad lock
a) weep hole?	N/A
b) concrete pad dimensions	8" diameter
4- Diameter/type of well casing	4" schedule 40 PVC
5- Type/slot size of screen	4" schedule 40 PVC/20 slot
6- Type screen filter	Ricci Brothers #2 Sand
a) Quantity used	(13) 50 lb. bags
7- Type of seal	Bentonite
a) Quantity used	(1) 50 lb. bag
8- Grout	
a) Grout mix used	Bentonite/Lehigh Type 1 Portland mix
b) Method of placement	Gravity feed
c) Quantity of well casing grout	99 lbs.
Development method	Whale pump
Development time	Approximately 90 minutes
Estimated purge volume	Approximately 75 gallons

Comments

CH2MHILL	PROJECT NUMBER 332898.QT.20.23	BORING NUMBER MW-117B	SHEET 1 OF 1

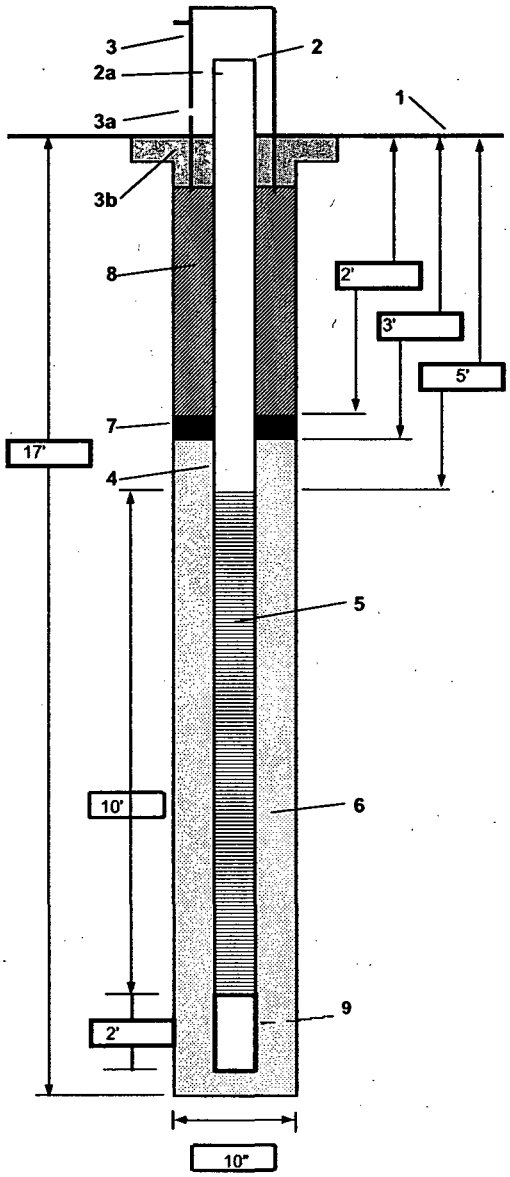
WELL COMPLETION DIAGRAM

PROJECT : Quanta Resources RI/FS — LOCATION : Edgewater, NJ

ELEVATION : 6.30' — DRILLING CONTRACTOR : Summit Drilling

DRILLING METHOD AND EQUIPMENT USED : 6 5/8" Hollow stem auger

WATER LEVELS : 8.0' (TIC) — START : 7/26/05 @ 1230 END : 7/26/05 @ 1330 LOGGER : A. Harclerode



1- Ground elevation at well	6.30' MSL
2- Top of casing elevation	9.04' MSL
a) vent hole?	N/A
3- Wellhead protection cover type	Steel standpipe, vent cap, and pad lock
a) weep hole?	N/A
b) concrete pad dimensions	8" diameter
4- Diameter/type of well casing	4" schedule 40 PVC
5- Type/slot size of screen	4" schedule 40 PVC/20 slot
6- Type screen filter	Ricci Brothers #2 Sand
a) Quantity used	(11) 50 lb. bags
7- Type of seal	Bentonite
a) Quantity used	(1) 50 lb. bag
8- Grout	
a) Grout mix used	Bentonite/Lehigh Type 1 Portland mix
b) Method of placement	Gravity feed
c) Quantity of well casing grout	99 lbs.
9- Well sump material	4" schedule 40 PVC capped riser pipe
Development method	Whale pump
Development time	3 purges, about 25 minutes each
Estimated purge volume	70 gallons

Comments

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
332898.QT.20.23	MW-118A	SHEET 1 OF 1

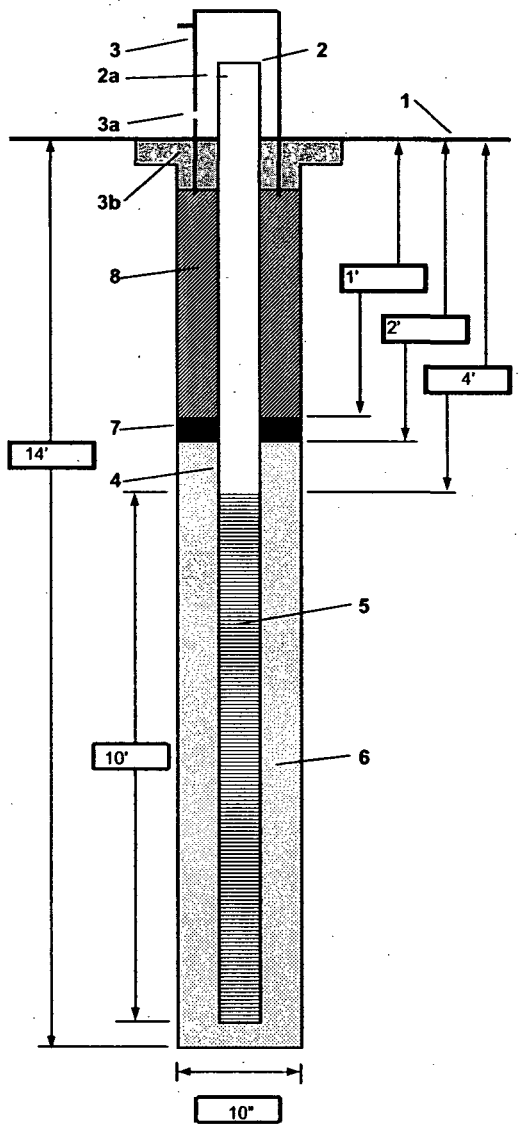
WELL COMPLETION DIAGRAM

PROJECT : Quanta Resources RI/FS — LOCATION : Edgewater, NJ

ELEVATION : 6.10' — DRILLING CONTRACTOR : Summit Drilling

DRILLING METHOD AND EQUIPMENT USED : 6 5/8" Hollow stem auger

WATER LEVELS : 7.1' (TIC) — START : 7/25/05 @ 1150 END : 7/25/05 @ 1230 LOGGER : A. Harclerode



1- Ground elevation at well	6.10' MSL
2- Top of casing elevation	9.00' MSL
a) vent hole?	N/A
3- Wellhead protection cover type	Steel standpipe, vent cap, and pad lock
a) weep hole?	N/A
b) concrete pad dimensions	8" diameter
4- Diameter/type of well casing	4" schedule 40 PVC
5- Type/slot size of screen	4" schedule 40 PVC/20 slot
6- Type screen filter	Ricci Brothers #2 Sand
a) Quantity used	(9) 50 lb. bags
7- Type of seal	Bentonite
a) Quantity used	(1) 50 lb. bag
8- Grout	
a) Grout mix used	Bentonite/Lehigh Type 1 Portland mix
b) Method of placement	Gravity feed
c) Quantity of well casing grout	99 lbs.
Development method	Whale pump
Development time	3 purges @ approx. 20 minutes each
Estimated purge volume	60 gallons

Comments: Pump well dry three times without having sufficiently low turbidity or stable readings.

CH2MHILL	PROJECT NUMBER 332898.QT.20.23	BORING NUMBER MW-118B	SHEET 1 OF 1

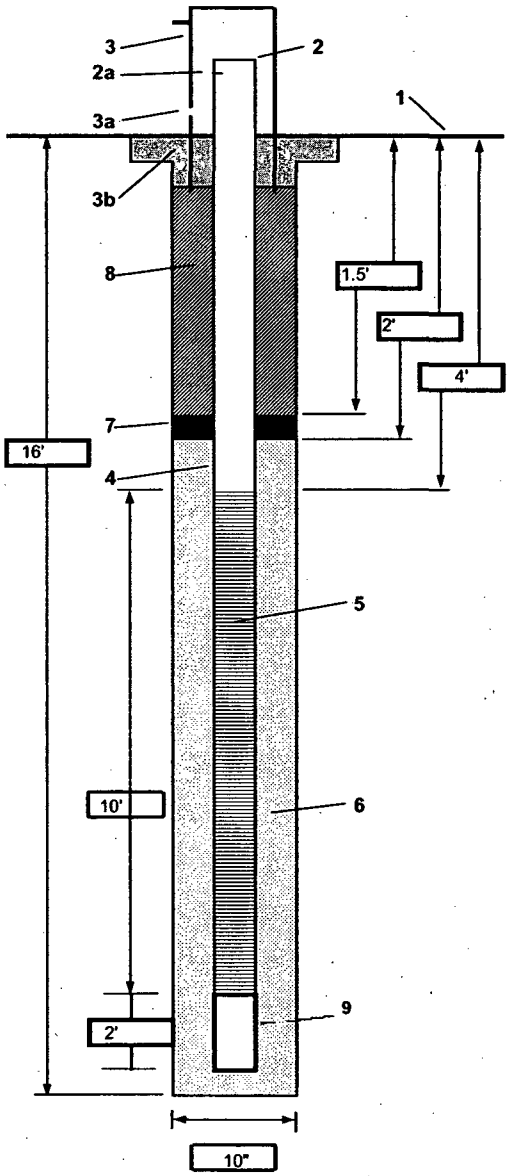
WELL COMPLETION DIAGRAM

PROJECT : Quanta Resources RI/FS — LOCATION : Edgewater, NJ

ELEVATION : 6.80' — DRILLING CONTRACTOR : Summit Drilling

DRILLING METHOD AND EQUIPMENT USED : 6 5/8" Hollow stem auger

WATER LEVELS : 7.4' — START : 7/25/05 @ 1515 END : 7/25/05 @ 1600 LOGGER : A. Harclerode



1- Ground elevation at well	6.80' MSL
2- Top of casing elevation	9.40' MSL
a) vent hole?	N/A
3- Wellhead protection cover type	Steel standpipe, vent cap, and lock
a) weep hole?	N/A
b) concrete pad dimensions	8" diameter
4- Diameter/type of well casing	4" schedule 40 PVC
5- Type/slot size of screen	4" schedule 40 PVC/20 slot
6- Type screen filter	Ricci Brothers #2 Sand
a) Quantity used	(13) 50 lb. bags
7- Type of seal	Bentonite
a) Quantity used	(1) 50 lb. bag
8- Grout	
a) Grout mix used	Bentonite/Lehigh Type 1 Portland mix
b) Method of placement	Gravity feed
c) Quantity of well casing grout	99 lbs.
9- Well sump material	4" schedule 40 PVC capped riser pipe
Development method	Whale pump
Development time	2.5 hrs
Estimated purge volume	110 gallons

Comments

CH2MHILL	PROJECT NUMBER 332898.QT.20.23	BORING NUMBER MW-119A	SHEET 1 OF 1

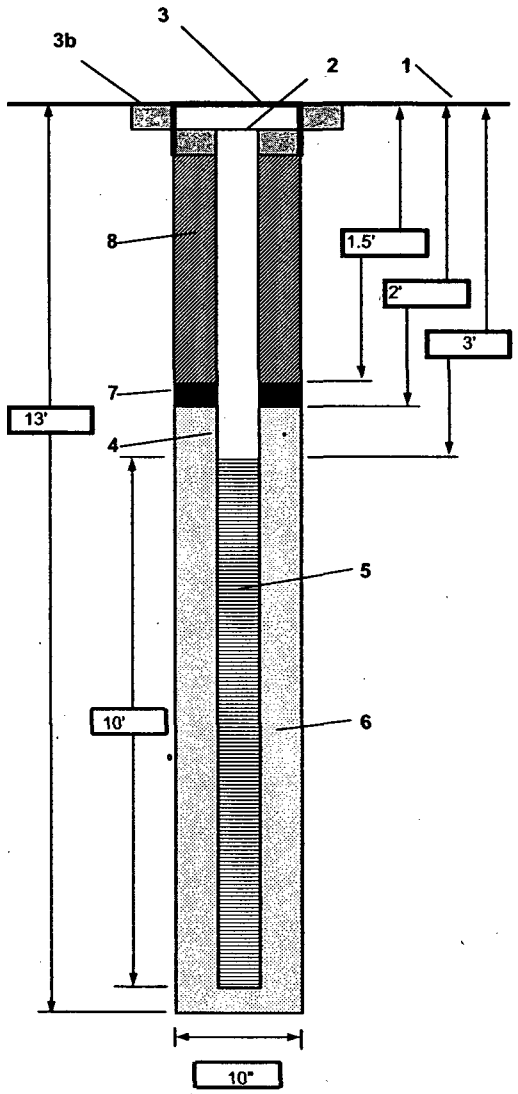
WELL COMPLETION DIAGRAM

PROJECT : Quanta Resources RI/FS — LOCATION : Edgewater, NJ

ELEVATION : 6.20' — DRILLING CONTRACTOR : Summit Drilling

DRILLING METHOD AND EQUIPMENT USED : 6 5/8" Hollow stem auger

WATER LEVELS : 4.3' — START : 10/8/05 @ 1345 END : 10/9/05 @ 1415 LOGGER : A. Harclerode



1- Ground elevation at well	6.20' MSL
2- Top of casing elevation	5.68'
a) vent hole?	
3- Wellhead protection cover type	Steel flushmount collar, vent cap, and lock
a) weep hole?	N/A
b) concrete pad dimensions	12" x 12"
4- Diameter/type of well casing	4" schedule 40 PVC
5- Type/slot size of screen	4" schedule 40 PVC/20 slot
6- Type screen filter	Ricci Brothers #2 Sand
a) Quantity used	(5) 50 lb. bags
7- Type of seal	Bentonite
a) Quantity used	(1) 50 lb. bag
8- Grout	
a) Grout mix used	Bentonite/Lehigh Type 1 Portland mix
b) Method of placement	Gravity feed
c) Quantity of well casing grout	N/A
Development method	Whale pump
Development time	Approximately 45 minutes
Estimated purge volume	110 gallons

Comments: Some floating specs of product in purge water.

CH2MHILL	PROJECT NUMBER 332898.QT.20.23	BORING NUMBER MW-119B	SHEET 1 OF 1

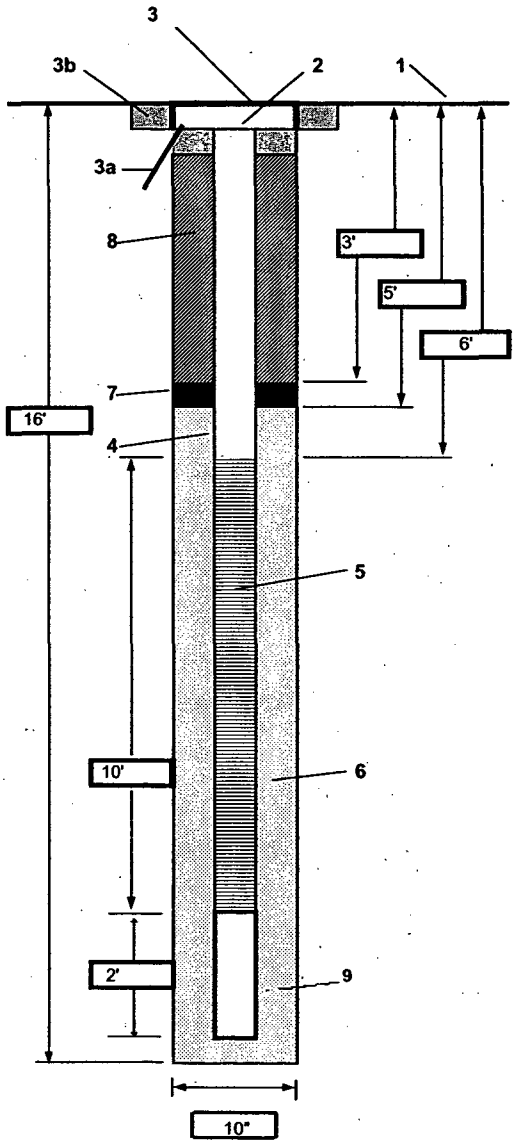
WELL COMPLETION DIAGRAM

PROJECT : Quanta Resources RI/FS — LOCATION : Edgewater, NJ

ELEVATION : 6.40' — DRILLING CONTRACTOR : Summit Drilling

DRILLING METHOD AND EQUIPMENT USED : 6 5/8" Hollow stem auger

WATER LEVELS : 4.2' (TIC) — START : 10/8/05 @ 1200 END : 10/8/05 @ 1230 LOGGER : A. Harclerode



1- Ground elevation at well	6.40' MSL
2- Top of casing elevation	6.00' MSL
a) vent hole?	N/A
3- Wellhead protection cover type	Flushmount collar, vent cap, and pad lock
a) weep hole?	N/A
b) concrete pad dimensions	12" x 12"
4- Diameter/type of well casing	4" schedule 40 PVC
5- Type/slot size of screen	4" schedule 40 PVC/20 slot
6- Type screen filter	Ricci Brothers #2 Sand
a) Quantity used	(5) 50 lb. bags
7- Type of seal	Bentonite
a) Quantity used	(1) 50 lb. bag
8- Grout	
a) Grout mix used	Bentonite/Lehigh Type 1 Portland mix
b) Method of placement	Gravity feed
c) Quantity of well casing grout	198 lbs.
9- Well sump material	4" schedule 40 PVC capped riser pipe
Development method	Whale pump
Development time	Approximately 80 minutes
Estimated purge volume	130 gallons

Comments

CH2MHILL	PROJECT NUMBER 332898.QT.20.23	BORING NUMBER MW-120A	SHEET 1 OF 1

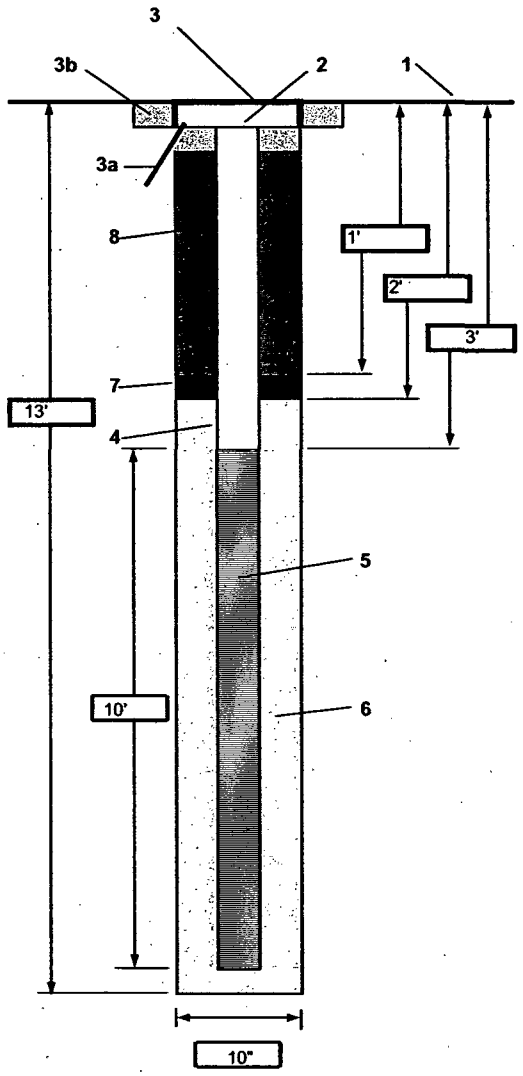
WELL COMPLETION DIAGRAM

PROJECT : Quanta Resources RI/FS — LOCATION : Edgewater, NJ

ELEVATION : 7.1' — DRILLING CONTRACTOR : Summit Drilling

DRILLING METHOD AND EQUIPMENT USED : 6 5/8" Hollow stem auger

WATER LEVELS : 5.75' (TIC) — START : 11/7/05 @ 1025 END : 11/7/05 @ 1110 LOGGER : A. Harclerode



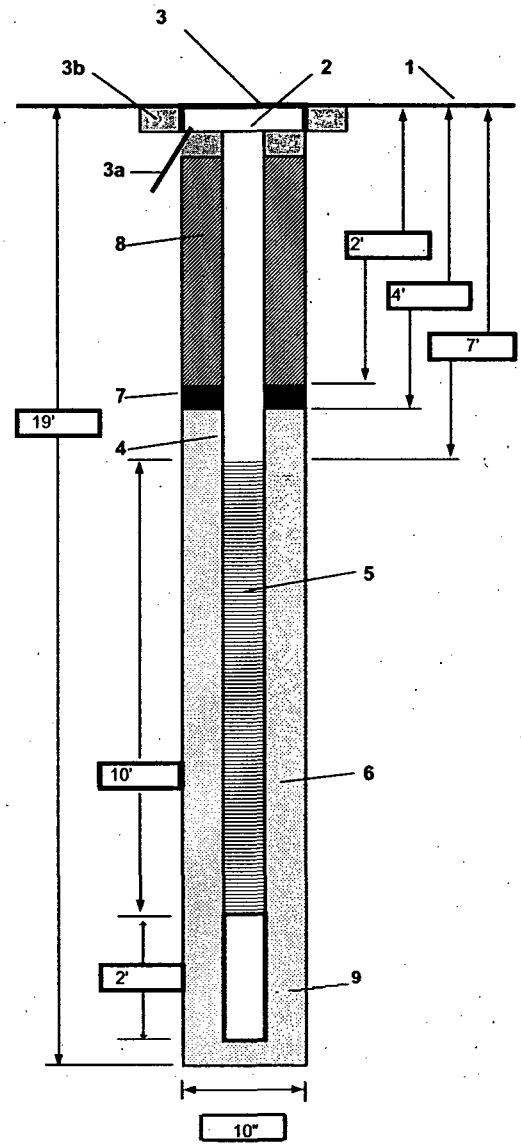
1- Ground elevation at well	7.1' MSL
2- Top of casing elevation	6.83' MSL
a) vent hole?	N/A
3- Wellhead protection cover type	Flushmount collar, vent cap, and pad lock
a) weep hole?	N/A
b) concrete pad dimensions	24" x 24"
4- Diameter/type of well casing	4" schedule 40 PVC
5- Type/slot size of screen	4" schedule 40 PVC/20 slot
6- Type screen filter	Ricci Brothers #2 Sand
a) Quantity used	(8) 50 lb. bags
7- Type of seal	Bentonite
a) Quantity used	(1) 50 lb. bag
8- Grout	
a) Grout mix used	Bentonite/Portland mix
b) Method of placement	Gravity feed
c) Quantity of well casing grout	99 lbs.
Development method	Whale pump
Development time	Approximately 1 hour
Estimated purge volume	165 gallons

Comments

CH2MHILL	PROJECT NUMBER 332898.QT.20.23	BORING NUMBER MW-120B	SHEET 1 OF 1

WELL COMPLETION DIAGRAM

PROJECT : Quanta Resources RI/FS — LOCATION : Edgewater, NJ
ELEVATION : 7.2' — DRILLING CONTRACTOR : Summit Drilling
DRILLING METHOD AND EQUIPMENT USED : 6 5/8" Hollow stem auger
WATER LEVELS : 5.75' (TIC) — START : 10/8/05 @ 1200 END : 10/8/05 @ 1230 LOGGER : A. Harclerode



1- Ground elevation at well	7.2' MSL
2- Top of casing elevation	6.78' MSL
a) vent hole?	N/A
3- Wellhead protection cover type	Flushmount collar, vent cap, and pad lock
a) weep hole?	N/A
b) concrete pad dimensions	24" x 24"
4- Diameter/type of well casing	4" schedule 40 PVC
5- Type/slot size of screen	4" schedule 40 PVC/20 slot
6- Type screen filter	Ricci Bros #2 Sand, Ricci Bros #00 sand
a) Quantity used	(8) 50 lb. bags, (1) 50 lb. bag
7- Type of seal	Bentonite
a) Quantity used	(1) 50 lb. bag
8- Grout	
a) Grout mix used	Bentonite/Lehigh Type 1 Portland mix
b) Method of placement	Tremie pipe
c) Quantity of well casing grout	198 lbs.
9- Well sump material	4" schedule 40 PVC capped riser pipe
Development method	Whale pump
Development time	Approximately 80 minutes
Estimated purge volume	130 gallons

Comments

CH2MHILL	PROJECT NUMBER 332898.QT.20.23	BORING NUMBER MW-121B	SHEET 1 OF 1

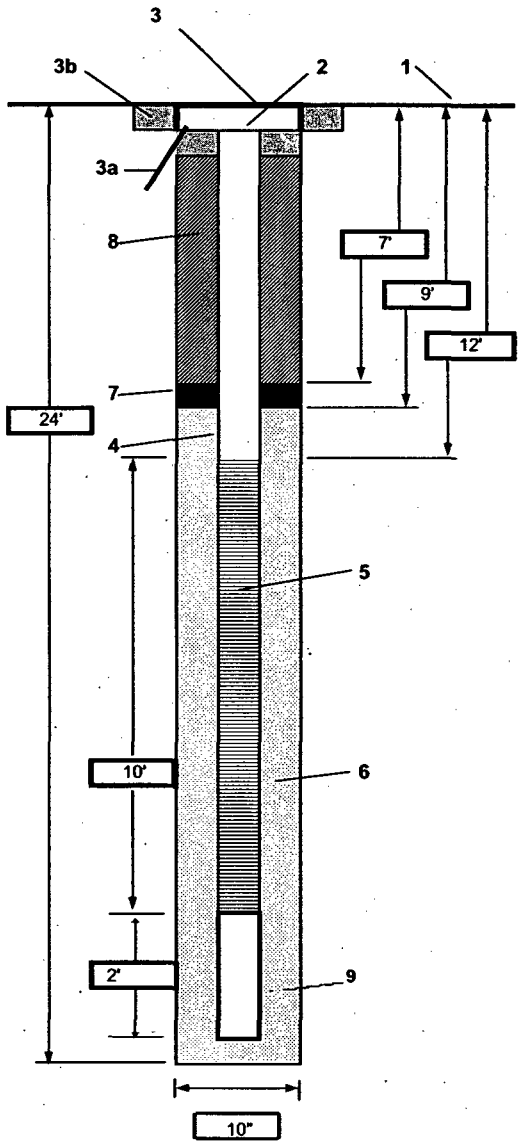
WELL COMPLETION DIAGRAM

PROJECT : Quanta Resources RI/FS — LOCATION : Edgewater, NJ

ELEVATION : — DRILLING CONTRACTOR : SGS Environmental Services, Inc.

DRILLING METHOD AND EQUIPMENT USED : 6 5/8" Hollow stem auger

WATER LEVELS : — START : 1/15/06 @ 1445 END : 1/15/06 @ 1545 LOGGER : A. Harclerode



1- Ground elevation at well	
2- Top of casing elevation	
a) vent hole?	
3- Wellhead protection cover type	Flushmount collar, vent cap, and pad lock
a) weep hole?	N/A
b) concrete pad dimensions	
4- Diameter/type of well casing	4" schedule 40 PVC
5- Type/slot size of screen	4" schedule 40 PVC/20 slot
6- Type screen filter	Fil Pro # 2 Sand, Fil Pro #00 Sand
a) Quantity used	(11) 50 lb. bags, (2) 50 lb. bags
7- Type of seal	Bentonite
a) Quantity used	(2) 50 lb. bags
8- Grout	
a) Grout mix used	Bentonite/Lehigh Type 1 Portland mix
b) Method of placement	Gravity feed
c) Quantity of well casing grout	N/A
9- Well sump material	4" schedule 40 PVC capped riser pipe
Development method	
Development time	
Estimated purge volume	

Comments

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
332898.QT.20.23	MW-122A	SHEET 1 OF 1

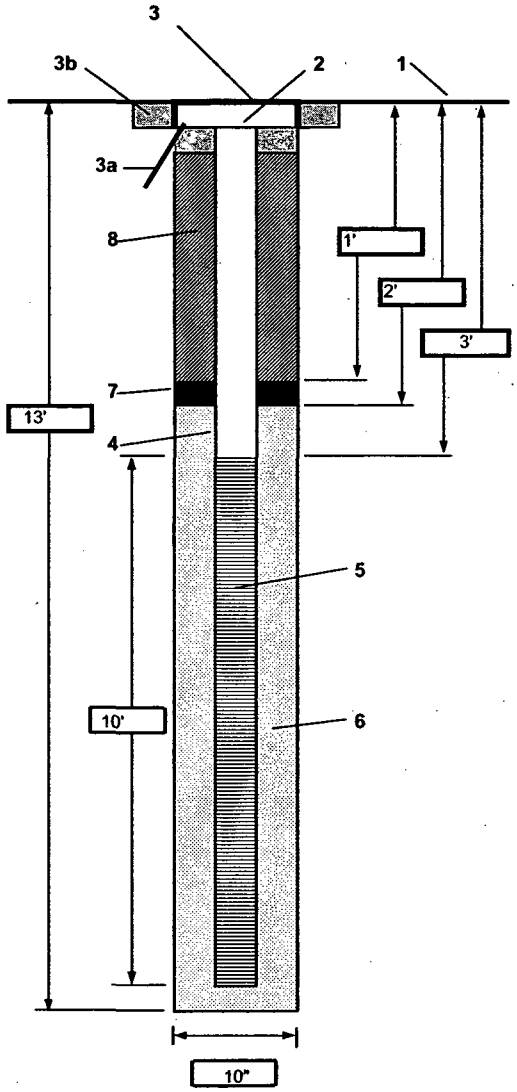
WELL COMPLETION DIAGRAM

PROJECT : Quanta Resources RI/FS — LOCATION : Edgewater, NJ

ELEVATION : 7.6' — DRILLING CONTRACTOR : Summit Drilling

DRILLING METHOD AND EQUIPMENT USED : 6 5/8" Hollow stem auger

WATER LEVELS : 3.61' (TIC) — START : 11/7/05 @ 1345 END : 11/7/05 @ 1430 LOGGER : A. Harclerode



1- Ground elevation at well	7.6' MSL
2- Top of casing elevation	7.24' MSL
a) vent hole?	N/A
3- Wellhead protection cover type	Flushmount collar, vent cap, and pad lock
a) weep hole?	N/A
b) concrete pad dimensions	24" x 24"
4- Diameter/type of well casing	4" schedule 40 PVC
5- Type/slot size of screen	4" schedule 40 PVC/20 slot
6- Type screen filter	Ricci Brothers #2 Sand
a) Quantity used	(8) 50 lb. bags
7- Type of seal	Bentonite
a) Quantity used	(1) 50 lb. bag
8- Grout	
a) Grout mix used	Bentonite/Lehigh Type 1 Portland mix
b) Method of placement	Gravity feed
c) Quantity of well casing grout	N/A
Development method	Whale pump
Development time	Approximately 2 hours
Estimated purge volume	220 gallons

Comments

Appendix C

Appendix C
Monitoring Well Development Logs

Low-Flow Groundwater Sampling: Field Data Sheet

Well Number:	MW-10IDS	**Site:**	Quanta
Field Crew:	AH	**Date:**	9/21
		Project #:	

Well Depth (ft.):	50.9'	Purge Methodology:	Diameter	Gal. Per Foot	Diameter	Gal. Per Foot
DTW (ft.):	7.33' (TIC)	EPA Region II Procedures for low flow	2"	.163	5"	1.020
Water Column (ft.):		purging/sampling	3"	.367	6"	1.469
Well Diameter (in.):		QED Sample Pro Bladder	4"	.653	8"	2.611
Gal. per ft.:		pumps with HDPE tubing				
Well Volume (gal.):		Horiba U-22, Lamotte				
Depth of Screen (ft.):		Turbidity meter				

Field Parameters

	Time	DTW (tic)	Flow Rate (ml/min)	Total Volume (gal)	pH (Std. Units)	Cond. (mS/cm)	Turbidity (NTU)	D.O. [Surface] (mg/l)	Temp. (C)	ORP (mV)	Turbidity - Lamotte (NTU)	Color/Odor
	Stabilization	< 0.3'	300 - 500		+/- 0.1	+/- 3 %	+/- 10%	+/- 10 mV		+/- 10	+/- 10%	
Initial	1335	8.62'	2gal/min	40	9.0	0.999	264	17.14	13.6	161	195	cloudy/no odor
	1345	9.40'	"	50	8.50	1.35	170	17.98	12.3	139	190	"
	1355	9.38'	"	60	8.72	0.90	124	18.02	12.5	138	129	"
	1405	9.39'	"	70	8.70	0.003	91.2	17.49	13.1	93	63.9	less "
	1415	9.37'	"	80	9.20	0.001	63.3	16.50	13.3	96	54	"
	1425	9.36'	"	90	9.30	0.000	34.7	16.68	12.9	88	24.9	"
	1435	9.35'	"	100	9.20	0.001	40	16.41	13.5	132	20.0	"
	1445	9.35'	"	110	9.25	1.38	25	17.16	12.8	127	16.2	"
	1455	9.35'	"	120	8.95	1.37	23.9	16.96	12.9	146	16.9	Same
	1505	9.35'	"	130	9.05	1.35	22	17.02	12.9	138	16.2	"

Remarks: Pump Intake Depth: Control Box Setting: Refill: Discharge: PSI:

52.6' Final depth (TIC)
Headspace PID: 0.0 ppm

SAMPLING

Depth to Water Before Sampling:
Sample Methodology:
Sample ID: QC Sample:
Sample Date/Time:
Sampler / Signature:
Filtered Metals Collected: Y / N Filter Size: NA
Sample Observations:
Parameters:

Low-Flow Groundwater Sampling: Field Data Sheet

Well Number: MW-102A	**Site:** Quanta / Edgewater
Field Crew: AH	**Date:** 9/12/05 **Project #:** 332898.01.20.23

		Diameter	Gal. Per Foot	Diameter	Gal. Per Foot
Well Depth (ft.): 14.6'	Purge Methodology:	2"	.163	5"	1.020
DTW (ft.): 5.9' (TIC)	EPA Region II Procedures for low flow				
Water Column (ft.):	purging/sampling	3"	.367	6"	1.469
Well Diameter (in.):	QED Sample Pro Bladder	4"	.653	8"	2.611
Gal. per ft.:	pumps with HDPE tubing				
Well Volume (gal.):	Horiba U-22, Lamotte				
Depth of Screen (ft.):	Turbidity meter				

Field Parameters

	Time	DTW (tic)	Flow Rate (ml/min)	Total Volume (gal)	pH (Std. Units)	Cond. (mS/cm)	Turbidity (NTU)	D.O. [Surface] (mg/l)	Temp (C)	ORP (mV)	Turbidity - Lamotte (NTU)	Color/Odor
	Stabilization	< 0.3'	300 - 500		+/- 0.1	+/- 3 %	+/- 10%	+/- 10 mV		+/- 10	+/- 10%	
Initial	Product - no readings taken											

Remarks: Pump Intake Depth: Control Box Setting: Refill: Discharge: PSI:

Bailer: heavy black product. Bailed many times then pumped, ran out of H_2O after short while

SAMPLING

Depth to Water Before Sampling: 14.6'	
Sample Methodology:	
Sample ID:	QC Sample:
Sample Date/Time:	
Sampler / Signature:	
Filtered Metals Collected: Y / N Filter Size: NA	
Sample Observations:	
Parameters:	

Low-Flow Groundwater Sampling: Field Data Sheet

Well Number: MW-102B		**Site:** Quanta / Edgewater	
Field Crew: AH		**Date:** 9/12/05	**Project #:** 332893.QT.20.23
Well Depth (ft.): 25.4	Purge Methodology:		
DTW (ft.): 6.1	EPA Region II Procedures for low flow		
Water Column (ft.):	purging/sampling		
Well Diameter (in.):	QED Sample Pro Bladder		
Gal. per ft.:	pumps with HDPE tubing		
Well Volume (gal.):	Horiba U-22, Lamotte		
Depth of Screen (ft.):	Turbidity meter		

Diameter	Gal. Per Foot	Diameter	Gal. Per Foot
2"	.163	5"	1.020
3"	.367	6"	1.469
4	.653	8"	2.611

Field Parameters

	Time	DTW (ft)	Flow Rate (ml/min)	Total Volume (gal)	pH (Std. Units)	Cond. (mS/cm)	Turbidity (NTU)	D.O. [Surface] (mg/l)	Temp (C)	ORP (mV)	Turbidity - Lamotte (NTU)	Color/Odor
	Stabilization	< 0.3'	300 - 500		+/- 0.1	+/- 3 %	+/- 10%	+/- 10 mV		+/- 10	+/- 10%	
Initial	0920	6.1	4 gal/min		7.78	0	154	7.20	18.6	105	85	dull grey/strong alg sulfur odor
	0930	7.8	"		7.41	0	152	8.94	15.2	110	100	"
	0940	7.8	"		7.35	0	143	9.15	15.6	115	120	"
	0950	8.1	"		7.70	0	143	8.47	14.8	96	20	"
	1000	8.1	"		7.58	0	135	7.3	23.5	110	9.03	"
	1030	6.2	"		7.04	0	223	6.12	30.2	~~503~~	~~505~~ 15	Clear

Remarks: Pump Intake Depth: 26'

Control Box Setting: Water Spout II (Proactive Env.)

Refill: Discharge: PSI:

PID Headspace: 2.1
bailed 4x initially; heavy sheen
some floating product on purge water

SAMPLING

Depth to Water Before Sampling:

Sample Methodology:

Sample ID: QC Sample:

Sample Date/Time:

Sampler / Signature:

Filtered Metals Collected: Y / N Filter Size: NA

Sample Observations:

Parameters:

Low-Flow Groundwater Sampling: Field Data Sheet

Well Number: MW-103A		**Site:** Quan 19	
Field Crew: AH		**Date:** 9/15/05	**Project #:**
Well Depth (ft.): 6.6'	Purge Methodology:		
DTW (ft.): 16.2'	EPA Region II Procedures for low flow		
Water Column (ft.):	purging/sampling		
Well Diameter (in.):	QED Sample Pro Bladder		
Gal. per ft.:	pumps with HDPE tubing		
Well Volume (gal.):	Horiba U-22, Lamotte		
Depth of Screen (ft.):	Turbidity meter		

Diameter	Gal. Per Foot	Diameter	Gal. Per Foot
2"	.163	5"	1.020
3"	.367	6"	1.469
4"	.653	8"	2.611

Field Parameters

	Time	DTW (tic)	Flow Rate (ml/min)	Total Volume (gal)	pH (Std. Units)	Cond. (mS/cm)	Turbidity (NTU)	D.O. [Surface] (mg/l)	Temp (C)	ORP (mV)	Turbidity - Lamotte (NTU)	Color/Odor
	Stabilization	< 0.3'	300 - 500		+/- 0.1	+/- 3 %	+/- 10%	+/- 10 mV		+/- 10	+/- 10%	
Initial	1400	7.7'	3 gal/min	45	8.01	0.722	61.9	13.52	15.3	-113	38.7	Slight turbid / slight plp odor
	1410	7.56'	"	65	8.00	0.688	35.5	14.00	14.9	-108	27.9	clearer / mod. plp odor
	1420	7.59'	"	85	8.02	0.701	30.2	13.96	14.7	-110	21.8	" "
	1430	7.58'	"	100	8.02	0.691	8.6	13.5	14.3	-102	10.7	"

Remarks: Pump Intake Depth: Control Box Setting: Refill: Discharge: PSI:

Surge for 15 mins, then start readings
Initial well depth: 16.2', Final Depth: 16.75'
headspace PID: 0.3 ppm

SAMPLING

Depth to Water Before Sampling:

Sample Methodology:

Sample ID: QC Sample:

Sample Date/Time:

Sampler / Signature:

Filtered Metals Collected: Y / N Filter Size: NA

Sample Observations:

Parameters:

Low-Flow Groundwater Sampling: Field Data Sheet

Well Number: MW-103BS		**Site:** Quanta	
Field Crew: AH		**Date:** 9/14/05/9/15/05	**Project #:**
Well Depth (ft.): 49.5'	Purge Methodology:	Diameter	Gal. Per Foot / Diameter / Gal. Per Foot
DTW (ft.): 6.8'	EPA Region II Procedures for low flow:	(2") .163	5" 1.020
Water Column (ft.):	purging/sampling	3" .367	6" 1.469
Well Diameter (in.):	QED Sample Pro Bladder	4" .653	8" 2.611
Gal. per ft.:	pumps with HDPE tubing		
Well Volume (gal.):	Horiba U-22, Lamotte		
Depth of Screen (ft.):	Turbidity meter		

Field Parameters

	Time	DTW (tic)	Flow Rate (ml/min)	Total Volume (gal)	pH (Std. Units)	Cond. (mS/cm)	Turbidity (NTU)	D.O. [Surface] (mg/l)	Temp (C)	ORP (mV)	Turbidity - Lamotte (NTU)	Color/Odor
	Stabilization	< 0.3'	300 - 500		+/- 0.1	+/- 3 %	+/- 10%	+/- 10 mV		+/- 10	+/- 10%	
Initial	1530	14.4'	3 gal/min	25	6.93	2.14	N/A	14.25	12.8	37	N/A	muddy / no odor
	1540	14.6'	"	55	7.30	2.00	838	14.06	12.8	64	770	slightly clearer / "
	1550	14.75'	"	75	~~8.00~~ 7.84	~~1.004~~ 3.16	~~224~~ 505	14.5	12.3	73	370	clearer / "
	1600	14.8'	"	95	8.30	2.11	283	14.6	12	76	219	"
	0920	11.65'	"	100	6.55	0.977	386	14.83	12.6	160	397	slightly turbid / no odor
	0950	11.98'	"	120	6.86	1.58	850	14.80	12.0	125	N/A	more turbid (surging)
	1030	10.85'	"	160	7.65	1.83	230	14.91	11.7	113	171	clearer
	1100	9.5'	2 gallons	180	8.08	1.79	15	14.75	12.0	115	14	"
(surging)	1230	10.68'	"	230	8.01	1.98	247	16.87	12.4	108	197	more turbid
	1240	11.8'	"	250	8.53	1.84	173	15.7	11.7	100	85.4	clearer
	1255	11.6'	"	270	8.54	1.87	124	15.3	12.4	108	117	"
	1305	11.64'	"	290	8.63	1.88	18.2	15.4	12.2	92	34	"
	1315	11.77'	"	330	8.68	1.85	17	15	12.1	103	25	"
9/19	~~0825~~	~~10.9'~~	~~2 gallons~~	~~340~~	~~7.99~~	~~0.001~~	~~61~~	~~13~~	~~15.6~~	~~217~~	~~28~~	~~clear / very slight odor~~

Remarks: Pump Intake Depth: Control Box Setting: Refill: Discharge: PSI:

Final depth: 56.5' from TIC
PID headspace: 0.3 ppm
No product on probe. No indication of product w/ oil/water probe
Very muddy towards bottom of screen

SAMPLING

Depth to Water Before Sampling:
Sample Methodology:
Sample ID: QC Sample:
Sample Date/Time:
Sampler / Signature:
Filtered Metals Collected: Y / N Filter Size: NA
Sample Observations:
Parameters:

Low-Flow Groundwater Sampling: Field Data Sheet

Well Number: MW-10R		**Site:** Quanta	
Field Crew: AH		**Date:** 9/16/05	**Project #:**
Well Depth (ft.): 16' (TIC) initial	Purge Methodology:		
DTW (ft.): 6.7' (TIC)	EPA Region II Procedures for low flow purging/sampling		
Water Column (ft.):			
Well Diameter (in.):	QED Sample Pro Bladder pumps with HDPE tubing		
Gal. per ft.:			
Well Volume (gal.):	Horiba U-22, Lamotte Turbidity meter		
Depth of Screen (ft.):			

Diameter	Gal. Per Foot	Diameter	Gal. Per Foot
2"	.163	5"	1.020
3"	.367	6"	1.469
4"	.653	8"	2.611

Field Parameters

	Time	DTW (tic)	Flow Rate (ml/min)	Total Volume (gal)	pH (Std. Units)	Cond. (mS/cm)	Turbidity (NTU)	D.O. (Surface) (mg/l)	Temp (C)	ORP (mV)	Turbidity - Lamotte (NTU)	Color/Odor
	Stabilization	< 0.3'	300 - 500		+/- 0.1	+/- 3 %	+/- 10%	+/- 10 mV		+/- 10	+/- 10%	
Initial	Poor	Flow	-	Pumps	Dry							

Remarks: Pump Intake Depth: Control Box Setting: Refill: Discharge: PSI:

No evidence of product based on probe of oil/water.

SAMPLING

Depth to Water Before Sampling:

Sample Methodology:

Sample ID: QC Sample:

Sample Date/Time:

Sampler / Signature:

Filtered Metals Collected: Y / N Filter Size: NA

Sample Observations:

Parameters:

Low-Flow Groundwater Sampling: Field Data Sheet

Well Number: MW-105A		**Site:** Quanta	
Field Crew: AIT		**Date:** 9/20/05	**Project #:**
Well Depth (ft): 16' (TIC) initial	Purge Methodology:		
DTW (ft): 6.58 (TIC)	EPA Region II Procedures for low flow purging/sampling		
Water Column (ft):			
Well Diameter (in.):	QED Sample Pro Bladder pumps with HDPE tubing		
Gal. per ft.:			
Well Volume (gal.):	Horiba U-22, Lamotte Turbidity meter		
Depth of Screen (ft):			

Diameter	Gal. Per Foot	Diameter	Gal. Per Foot
2"	.163	5"	1.020
3"	.367	6"	1.469
4"	.653	8"	2.611

Field Parameters

	Time	DTW (tic)	Flow Rate (ml/min)	Total Volume (gal)	pH (Std. Units)	Cond. (mS/cm)	Turbidity (NTU)	D.O. [Surface] (mg/l)	Temp (C)	ORP (mV)	Turbidity - Lamotte (NTU)	Color/Odor
	Stabilization	< 0.3'	300 - 500		+/- 0.1	+/- 3 %	+/- 10%	+/- 10 mV		+/- 10	+/- 10%	
Initial	0740	6.97'	2gal/min	90	6.79	1.58	11.9	3.70	17.5	-12	8.63	clear/strong pet. prod. odor
	0750	7.00'	"	100	7.20	1.55	1.9	9.80	17.2	-48	7.44	"
	0800	7.05'	"	115	7.75	1.53	14.7	10.37	17.5	-56	8.01	"
	0810	7.05'	"	125	7.90	0.80	0.0	10.61	17.6	-55	9.38	"
	0820	7.07'	"	135	8.20	1.55	0.0	11.25	17.4	-64	4.47	"
	0830	7.08'	"	145	8.30	1.55	0.0	11.35	17.3	-58	6.14	"

Remarks: Pump Intake Depth: Control Box Setting: Refill: Discharge: PSI:

16.5' final depth
~~[illegible]~~ headspace: 1.5 ppm

SAMPLING

Depth to Water Before Sampling:

Sample Methodology:

Sample ID: QC Sample:

Sample Date/Time:

Sampler / Signature:

Filtered Metals Collected: Y / N Filter Size: NA

Sample Observations:

Parameters:

Low-Flow Groundwater Sampling: Field Data Sheet

Well Number: MW-106A		**Site:** Unilever / Quanta	
Field Crew: HH / KU		**Date:** 11/19/05	**Project #:**
Well Depth (ft.): 12.65' (TIC) initial	Purge Methodology:		
DTW (ft.): 5.7 (TIC)	EPA Region II Procedures for low flow purging/sampling		
Water Column (ft.):			
Well Diameter (in.):	QED Sample Pro Bladder pumps with HDPE tubing		
Gal. per ft.:			
Well Volume (gal.):	Horiba U-22, Lamotte		
Depth of Screen (ft.):	Turbidity meter		

Diameter	Gal. Per Foot	Diameter	Gal. Per Foot
2"	.163*	5"	1.020
3"	.367	6"	1.469
4"	.653	8"	2.611

Field Parameters

	Time	DTW (tic)	Flow Rate (ml/min)	Total Volume (gal)	pH (Std. Units)	Cond. (mS/cm)	Turbidity (NTU)	D.O. [Surface] (mg/l)	Temp (C)	ORP (mV)	Turbidity - Lamotte (NTU)	Color/Odor
	Stabilization	< 0.3'	300 - 500		+/- 0.1	+/- 3 %	+/- 10%	+/- 10 mV		+/- 10	+/- 10%	
Initial	1625	8.57'	4 gallons	90	9.73	4.47	-10	9.62	14.91	-88	10	slightly turbid/fish odor
	1630	"	"	110	9.63	0.001	"	9.15	15.53	-95	5.5	greenish color/fish odor
	1635	8.36'	"	130	9.23	0.001	"	9.21	15.25	-95	3.4	"
	1640	8.12'	"	150	9.47	3.97	"	9.25	15.20	-87	2.5	"
	1645	8.03'	"	170	9.37	3.95	-10	9.27	14.54	-83	1.9	"

Remarks: Pump Intake Depth: Control Box Setting: Refill: Discharge: PSI:

Headspace: 20ppm (approx.) / Fishy odor 12.70' time / total depth

SAMPLING

Depth to Water Before Sampling:

Sample Methodology:

Sample ID: QC Sample:

Sample Date/Time:

Sampler / Signature:

Filtered Metals Collected: Y / N Filter Size: NA

Sample Observations:

Parameters:

Low-Flow Groundwater Sampling: Field Data Sheet

Well Number: MW-107A		**Site:** Quanta	
Field Crew: Alt		**Date:** 11/14/05	**Project #:** 332588.07.20.23
Well Depth (ft.): 12.62(TIC)/12.72'	Purge Methodology:		
DTW (ft.): 3.64'	EPA Region II Procedures for low flow		
Water Column (ft.):	purging/sampling		
Well Diameter (in.):	QED Sample Pro Bladder		
Gal. per ft.:	pumps with HDPE tubing		
Well Volume (gal.):	Horiba U-22, Lamotte		
Depth of Screen (ft.):	Turbidity meter		

Diameter	Gal. Per Foot	Diameter	Gal. Per Foot
2"	.163	5"	1.020
3"	.367	6"	1.469
4"	.653	8"	2.611

Field Parameters

	Time	DTW (tic)	Flow Rate (ml/min)	Total Volume (gal)	pH (Std. Units)	Cond. (mS/cm)	Turbidity (NTU)	D.O. [Surface] (mg/l)	Temp (C)	ORP (mV)	Turbidity - Lamotte (NTU)	Color/Odor
	Stabilization	< 0.3'	300 - 500		+/- 0.1	+/- 3 %	+/- 10%	+/- 10 mV		+/- 10	+/- 10%	
Initial	1055	5.34'	5 gallon	—	5.07	0.0	97.8	14.3	17.4	-2	19	slightly turbid/slight odor
	1100	5.33	"	25	5.33	0.80	52.3	8.89	16.95	2	28	"
	1105	5.38	"	50	5.38	3.83	21.5	8.56	17.36	1	15	"
	1110	5.40	"	75	5.50	0.004	24.3	9.99	17.19	-3	11	"
	1115	5.41	"	100	5.10	0.00	-2.5	9.64	16.95	15	12	"
	1120	5.41	"	125	4.96	0.00	-10.0	9.95	16.96	20	10	clearer/slight plp odor (less odor)
	1125	5.41	"	150	5.28	0.00	195	11.60	16.73	11	12	clear/less obvious plp odor
	1130	5.42	"	175	5.30	0.00	—	11.70	16.83	15	12	"

Remarks: Pump Intake Depth: Control Box Setting: Refill: Discharge: PSI:

0.0 ppm headspace

SAMPLING

Depth to Water Before Sampling:

Sample Methodology:

Sample ID: QC Sample:

Sample Date/Time:

Sampler / Signature:

Filtered Metals Collected: Y / N Filter Size: NA

Sample Observations:

Parameters:

Low-Flow Groundwater Sampling: Field Data Sheet

Well Number: MW-107DS	**Site:** Unilever / Marty
Field Crew: AHDK	**Date:** 11/23/05 11/29/05 **Project #:**

Well Depth (ft.): 50' (TIC) in.tw	Purge Methodology:	Diameter	Gal. Per Foot	Diameter	Gal. Per Foot
DTW (ft.): 2.71' (TIC)	EPA Region II Procedures for low flow	2"	.163	5"	1.020
Water Column (ft.):	purging/sampling	3"	.367	6"	1.469
Well Diameter (in.):	QED Sample Pro Bladder	4"	.653	8"	2.611
Gal. per ft.:	pumps with HDPE tubing				
Well Volume (gal.):	Horiba U-22, Lamotte				
Depth of Screen (ft.):	Turbidity meter				

Field Parameters

	Time	DTW (tic)	Flow Rate (ml/min)	Total Volume (gal)	pH (Std. Units)	Cond. (mS/cm)	Turbidity (NTU)	D.O. [Surface] (mg/l)	Temp (C)	ORP (mV)	Turbidity - Lamotte (NTU)	Color/Odor
	Stabilization	< 0.3'	300 - 500		+/- 0.1	+/- 3 %	+/- 10%	+/- 10 mV		+/- 10	+/- 10%	
Initial	Too Turbid											

Remarks: Pump Intake Depth: Control Box Setting: Refill: Discharge: PSI:

headspace: 0.0 ppm

SAMPLING

Depth to Water Before Sampling:

Sample Methodology:

Sample ID: QC Sample:

Sample Date/Time:

Sampler / Signature:

Filtered Metals Collected: Y / N Filter Size: NA

Sample Observations:

Parameters:

201 602 6167

Low-Flow Groundwater Sampling: Field Data Sheet

Well Number:	MW-109A	**Site:**	Quantex / Unilever
Field Crew:	AH/RV	**Date:** 11/29/05	**Project #:**

Well Depth (ft.): 11.8' (TIC)
DTW (ft.): 4.7' (TIC)
Water Column (ft.):
Well Diameter (in.):
Gal. per ft.:
Well Volume (gal.):
Depth of Screen (ft.):

Purge Methodology:
EPA Region II Procedures for low flow purging/sampling
QED Sample Pro Bladder pumps with ~~HDPE tubing~~
Horiba U-22, ~~Lamotte~~
Turbidity meter

Diameter	Gal. Per Foot	Diameter	Gal. Per Foot
2"	.163	5"	1.020
3"	.367	6"	1.469
4"	.653	8"	2.611

Field Parameters

	Time	DTW (tic)	Flow Rate (ml/min)	Total Volume (gal)	pH (Std. Units)	Cond. (mS/cm)	Turbidity (NTU)	D.O. [Surface] (mg/l)	Temp (C)	ORP (mV)	Turbidity - Lamotte (NTU)	Color/Odor
	Stabilization	< 0.3'	300 - 500		+/- 0.1	+/- 3 %	+/- 10%	+/- 10 mV		+/- 10	+/- 10%	
Initial	0945	3.66'	gal/min	35	6.71	9.2	28.2	11.71	15.71	130	5.50	clear/no odor
	0950	3.64'	"	40	7.14	8.78	6.7	11.77	15.50	101	5.87	" very slight sheen
	0955	3.70'	"	45	7.56	9.44	-16.0	12.17	15.60	131	4.02	" "
	1000	3.79'	"	50	8.10	0.004	-6.0	12.14	15.63	10	3.53	" "
	1010	3.98'	"	60	8.32	0.001	-7.7	12.18	15.59	-1	3.49	" "
	1015	3.75'	"	70	8.50	0.002	-6.2	12.23	15.47	-28	3.38	" "
	1020	4.01'	"	75	8.40	0.001	-5.2	12.23	15.37	-40	3.61	" "
	1025	4.07'	"	80	8.43	9.3	-7.3	12.01	15.46	-28	2.97	" "
	1030	4.11'	"	85	8.53	7.32	-3.7	12.05	15.41	-28	2.40	" "
	1035	4.19'	"	90	8.43	~~0.036~~ 9.6	-6.5	12.16	15.23	-23	3.02	" "
	1040	4.10'	"	95	"	8.11	-5.8	12.11	15.36	-37	2.49	" "
	1045	4.27'	"	100	9.55	7.89	-8.3	11.98	15.60	-43	2.87	" "
	1055	4.38'	"	105	9.50	7.91	-6.3	12.11	15.20	-40	3.16	" "
	1100	4.40'	"	110	8.56	7.89	-3.8	12.09	15.11	-36	3.07	" "
	1105	4.47'	"	110	8.58	7.43	-2.0	12.12	15.06	-33	4.15	" "
	1110	4.52'	"	115	8.63	7.43	-3.1	12.13	15.07	-31	3.79	" "
	1115	4.52'	"	120	8.68	7.46	-2.9	12.13	15.01	-35	3.82	" "

Remarks: Pump Intake Depth: Control Box Setting: Refill: Discharge: PSI:

Purged approx. 125 gallons

0.0 ppm headspace

SAMPLING

Depth to Water Before Sampling:
Sample Methodology:
Sample ID: QC Sample:
Sample Date/Time:
Sampler / Signature:
Filtered Metals Collected: Y / N Filter Size: NA
Sample Observations:
Parameters:

Low-Flow Groundwater Sampling: Field Data Sheet

Well Number: MW-111A		**Site:** Quanta	
Field Crew: AH		**Date:** 9/2/05	**Project #:**
Well Depth (ft): 8.7' (initial) TIC	Purge Methodology:	Diameter / Gal. Per Foot	Diameter / Gal. Per Foot
DTW (ft.): 4.3' (TIC)	EPA Region II Procedures for low flow	2" .163	5" 1.020
Water Column (ft.):	purging/sampling	3" .367	6" 1.469
Well Diameter (in.):	QED Sample Pro Bladder	4" .653	8" 2.611
Gal. per ft.:	pumps with HDPE tubing		
Well Volume (gal.):	Horiba U-22, Lamotte		
Depth of Screen (ft.):	Turbidity meter		

Field Parameters

	Time	DTW (tic)	Flow Rate (ml/min)	Total Volume (gal)	pH (Std. Units)	Cond. (mS/cm)	Turbidity (NTU)	D.O. (Surface) (mg/l)	Temp (C)	ORP (mV)	Turbidity - Lamotte (NTU)	Color/Odor
	Stabilization	< 0.3'	300 - 500		+/- 0.1	+/- 3 %	+/- 10%	+/- 10 mV		+/- 10	+/- 10%	
Initial	1755	4.7'	2 gal/min	40	8.43	0.014	14.4	9.62	22.6	-59	10.83	clear (strong petroleum odor)
	1805	4.7'	"	50	7.86	0.009	43.3	9.50	22.5	-81	8.87	"
	1815	4.7	"	60	7.39	0.012	~~[illegible]~~ 38.5	9.84	21.5	-64	15.8	"
	1825	4.7'	"	70	7.83	9.0	31	9.15	22	-66	13.0	"
	1835	"	"	80	7.59	3.50	17.2	9.47	21.9	-63	9.92	"
	1845	"	"	90	7.88	3.60	16.0	9.49	21.8	-64	9.12	"

Remarks: Pump Intake Depth: Control Box Setting: Refill: Discharge: PSI:

Final depth: 8.7'
Headspace PID: 0.0 ppm

SAMPLING

Depth to Water Before Sampling:

Sample Methodology:

Sample ID: QC Sample:

Sample Date/Time:

Sampler / Signature:

Filtered Metals Collected: Y / N Filter Size: NA

Sample Observations:

Parameters:

Low-Flow Groundwater Sampling: Field Data Sheet

Well Number: MW-111B	Site: Quanta
Field Crew:	Date: 9/21/05 Project #:

Well Depth (ft.): 12.6 (TIC) i.u tied	Purge Methodology:	Diameter	Gal. Per Foot	Diameter	Gal. Per Foot
DTW (ft.): ~~[illegible]~~ 4.6'	EPA Region II Procedures for low flow	2"	.163	5"	1.020
Water Column (ft.):	purging/sampling	3"	.367	6"	1.469
Well Diameter (in.):	QED Sample Pro Bladder	4"	.653	8"	2.611
Gal. per ft.:	pumps with HDPE tubing				
Well Volume (gal.):	Horiba U-22, Lamotte				
Depth of Screen (ft.):	Turbidity meter				

Field Parameters

	Time	DTW (tic)	Flow Rate (ml/min)	Total Volume (gal)	pH (Std. Units)	Cond. (mS/cm)	Turbidity (NTU)	D.O. [Surface] (mg/l)	Temp (C)	ORP (mV)	Turbidity - Lamotte (NTU)	Color/Odor
	Stabilization	< 0.3'	300 - 500		+/- 0.1	+/- 3%	+/- 10%	+/- 10 mV		+/- 10	+/- 10%	
Initial	1600	5.31'	2 ml/min	40	7.53	0.001	75.4	11.56	21.7	-59	36.5	Cloudy/sulf. odor
	1610	5.31'	"	50	7.98	3.14	48.7	11.83	20.7	-70	26.4	"
	1620	5.30'	"	60	8.41	N/A	80.8	11.34	20.7	-78	32.7	"
	1630	5.30'	"	70	8.60	N/A	66.2	11.35	20.5	-72	33.2	"
	1640	5.30'	"	80	8.62	N/A	40.5	10.72	20.4	-70	21.8	"
	1650	5.30'	"	90	8.66	N/A	28.4	10.62	20.5	-77	17.1	"
	1700	5.30'	"	100	8.61	N/A	24.5	10.72	20.2	-67	13.0	clear / "
	1710	5.30'	"	110	8.71	3.00	16.3	10.96	20.3	-61	12.4	"

Remarks: Pump Intake Depth: Control Box Setting: Refill: Discharge: PSI:

13' Final depth (TIC)
Headspace PID: 0.0 ppm

SAMPLING

Depth to Water Before Sampling:
Sample Methodology:
Sample ID: QC Sample:
Sample Date/Time:
Sampler / Signature:
Filtered Metals Collected: Y / N Filter Size: NA
Sample Observations:
Parameters:

Low-Flow Groundwater Sampling: Field Data Sheet

Well Number: MW-112A		**Site:** Quanta / Edgewater	
Field Crew: AH		**Date:** 9/15/05	**Project #:** 332898.QT.20.23
Well Depth (ft.): 12.1'	Purge Methodology:		
DTW (ft.): 6.2'	EPA Region II Procedures for low flow		
Water Column (ft.):	purging/sampling		
Well Diameter (in.):	QED Sample Pro Bladder		
Gal. per ft.:	pumps with HDPE tubing		
Well Volume (gal.):	Horiba U-22, Lamotte		
Depth of Screen (ft.):	Turbidity meter		

Diameter	Gal. Per Foot	Diameter	Gal. Per Foot
2"	.163	5"	1.020
3"	.367	6"	1.469
4"	.653	8"	2.611

Field Parameters

	Time	DTW (tic)	Flow Rate (ml/min)	Total Volume (gal)	pH (Std. Units)	Cond. (mS/cm)	Turbidity (NTU)	D.O. [Surface] (mg/l)	Temp (C)	ORP (mV)	Turbidity - Lamotte (NTU)	Color/Odor
	Stabilization	< 0.3'	300 - 500		+/- 0.1	+/- 3 %	+/- 10%	+/- 10 mV		+/- 10	+/- 10%	
Initial	0920	7.1'	3 gal/min		12.68	4.49	656	10	20.4	-466	N/A	Dark grey/prod odor
	Pumped	dry	repeatedly									

Remarks: Pump Intake Depth: Control Box Setting: Refill: Discharge: PSI:

PID Headspace 3.6 ppm
bail 3x to set product out
pump for about 15 minutes - out of water

SAMPLING

Depth to Water Before Sampling: 6.2'

Sample Methodology: well pump

Sample ID: QC Sample:

Sample Date/Time:

Sampler / Signature:

Filtered Metals Collected: Y / N Filter Size: NA

Sample Observations:

Parameters:

Low-Flow Groundwater Sampling: Field Data Sheet

Well Number: MW-112B		Site: Quanta / Edgewater	
Field Crew: AH		Date: 9/13/05	Project #: 332898.9T.20.23
Well Depth (ft.): 17.1'	Purge Methodology:	Diameter / Gal. Per Foot	Diameter / Gal. Per Foot
DTW (ft.): 5.9'	EPA Region II Procedures for low flow	2" .163	5" 1.020
Water Column (ft.):	purging/sampling	3" .367	6" 1.469
Well Diameter (in.):	QED Sample Pro Bladder	(4") .653	8" 2.611
Gal. per ft.:	pumps with HDPE tubing		
Well Volume (gal.):	Horiba U-22, Lamotte		
Depth of Screen (ft.):	Turbidity meter		

Field Parameters

	Time	DTW (tic)	Flow Rate (ml/min)	Total Volume (gal)	pH (Std. Units)	Cond. (mS/cm)	Turbidity (NTU)	D.O. [Surface] (mg/l)	Temp (C)	ORP (mV)	Turbidity - Lamotte (NTU)	Color/Odor
	Stabilization	< 0.3'	300 - 500		+/- 0.1	+/- 3 %	+/- 10%	+/- 10 mV		+/- 10	+/- 10%	
Initial	905	5.9'	3 gal/min		6.70	5.22	317	6.14	20.7	-66	215	Gray/Product odor

Remarks: Pump Intake Depth: Control Box Setting: Refill: Discharge: PSI:

Headspace: 35 ppm
Approx. 3' of prod. on top of water column
bail 3x to remove product + begin pumping

SAMPLING

Depth to Water Before Sampling:
Sample Methodology:
Sample ID: QC Sample:
Sample Date/Time:
Sampler / Signature:
Filtered Metals Collected: Y / N Filter Size: NA
Sample Observations:
Parameters:

Low-Flow Groundwater Sampling: Field Data Sheet

Well Number: MW-113A		**Site:** Quanta	
Field Crew: AH		**Date:** 332898 · Pt. 20.23	**Project #:** 9/13/05 / 9/14/05
Well Depth (ft.): 14.65'	Purge Methodology:		
DTW (ft.): 6.6'	EPA Region II Procedures for low flow		
Water Column (ft.):	purging/sampling		
Well Diameter (in.):	QED Sample Pro Bladder		
Gal. per ft.:	pumps with HDPE tubing		
Well Volume (gal.):	Horiba U-22, Lamotte		
Depth of Screen (ft.):	Turbidity meter		

Diameter	Gal. Per Foot	Diameter	Gal. Per Foot
2"	.163	5"	1.020
3"	.367	6"	1.469
4"	.653	8"	2.611

Field Parameters

	Time	DTW (tic)	Flow Rate (ml/min)	Total Volume (gal)	pH (Std. Units)	Cond. (mS/cm)	Turbidity (NTU)	D.O. [Surface] (mg/l)	Temp (C)	ORP (mV)	Turbidity - Lamotte (NTU)	Color/Odor
	Stabilization	< 0.3'	300 - 500		+/- 0.1	+/- 3 %	+/- 10%	+/- 10 mV		+/- 10	+/- 10%	
Initial	1020	6.8'	3 gal/min	—	8.67	295	425	11.96	17.9	-131	234	Grey / No odor
	1030	10.2'	"	30	7.33	3.01	-5.0	13.75	15	-21	N/A	"
	1040	11	"	60	6.34	0.014	274	13.5	15.5	87	162	Light Grey
	1050	9.4'	"	90	5.58	3.14	74.3	13.87	15.1	129	~~122~~ 31	Clear / no odor
	1100	9.41'	"	120	5.45	3.55	120	14.72	15.1	135	79.8	"
	1110	9.43'	"	150	5.33	3.05	35.6	15.2	15.1	149	17.6	"
	1120	9.43'	"	180	5.34	3.10	33	15.1	15.3	147	15	"

Remarks: Pump Intake Depth: Control Box Setting: Refill: Discharge: PSI:

0.0 headspace

SAMPLING

Depth to Water Before Sampling:

Sample Methodology:

Sample ID: QC Sample:

Sample Date/Time:

Sampler / Signature:

Filtered Metals Collected: Y / N Filter Size: NA

Sample Observations:

Parameters:

Low-Flow Groundwater Sampling: Field Data Sheet

Well Number: MW-113B		**Site:** Avenel	
Field Crew: AH		**Date:** 9/14	**Project #:**
Well Depth (ft.): 60'	Purge Methodology:		
DTW (ft.): 21.1'	EPA Region II Procedures for low flow		
Water Column (ft.):	purging/sampling		
Well Diameter (in.):	QED Sample Pro Bladder		
Gal. per ft.:	pumps with HDPE tubing		
Well Volume (gal.):	Horiba U-22, Lamotte		
Depth of Screen (ft.):	Turbidity meter		

Diameter	Gal. Per Foot	Diameter	Gal. Per Foot
2"	.163	5"	1.020
3"	.367	6"	1.469
4"	.653	8"	2.611

Field Parameters

	Time	DTW (tic)	Flow Rate (ml/min)	Total Volume (gal)	pH (Std. Units)	Cond. (mS/cm)	Turbidity (NTU)	D.O. [Surface] (mg/l)	Temp (C)	ORP (mV)	Turbidity - Lamotte (NTU)	Color/Odor
	Stabilization	< 0.3'	300 - 500		+/- 0.1	+/- 3 %	+/- 10%	+/- 10 mV		+/- 10	+/- 10%	
Initial	1225	13.58'	3 gal/min	15	6.54	0.001	N/A	14.86	16.8	43	N/A	Brown/very turbid/no odor
	1235	16.35'	"	40	6.05	3.16	N/A	15.15	15.0	84	"	"
	1245	14.3'	"	60	6.18	3.07	N/A	13.77	15.0	70	"	"
	1255	8.5'	"	80	5.47	0.003	775	11.86	17	147	542	Clearer/no odor
	1305	19.3'	"	100	5.53	0.98	510	10.2	20.9	132	600	"
	1315	19.9'	"	110	5.53	0.005	294	10.05	21.4	111	360	"
	1325	20.0'	"	135	5.54	9.0	370	13.17	15.0	149	199	
(pump)	1350	17.9'	2 gal/min	140	5.18	2.99	623	3.45	15.3	161	408	Murkier/no odor
	1400	21.3'	1 gal/min	155	5.19	9.8	N/A	12.85	14.2	164	283	"
	1415	15.5'	2 gal/min	180	5.13	3.05	371	8.50	15.2	169	177	Clearer/no odor
18	1715	22'	"	230	5.30	9.0	307	14.19	14.8	134	N/A	Cloudy/pip odor
	1725	22'	"	240	4.84	3.05	177	13.94	14.8	164	"	"
	1735	22'	"	250	4.73	3.01	~~10~~ N/A	13.74	14.9	172	"	"
19)	0825	10.9'	"	260	4.99	0.001	61	13	15.6	217	24	clear/very slight odor
	0835	11.2'	"	270	4.79	0.001	364	12.92	15.4	198	23	"
	0845	11.5'	"	280	4.96	0.001	457	13.92	15.2	195	22	"
	0855	11.3'	"	290	5.02	3.24	443	13.90	15.1	197	23	"

Remarks: Pump Intake Depth: Control Box Setting: Refill: Discharge: PSI:

0.0 ppm headspace
lots of sediment/silt in sump

SAMPLING

Depth to Water Before Sampling: 60'
Sample Methodology:
Sample ID: QC Sample:
Sample Date/Time:
Sampler / Signature:
Filtered Metals Collected: Y / N Filter Size: NA
Sample Observations:
Parameters:

Low-Flow Groundwater Sampling: Field Data Sheet

Well Number:	MW-113C	**Site:**	Quanta
Field Crew:	AH	**Date:** 11/29/06	**Project #:**

Well Depth (ft.): 32.1 (TIC) final	Purge Methodology:	Diameter	Gal. Per Foot	Diameter	Gal. Per Foot
DTW (ft.): 6.9' (TIC)	EPA Region II Procedures for low flow	2"	.163	5"	1.020
Water Column (ft.):	purging/sampling	3"	.367	6"	1.469
Well Diameter (in.):	QED Sample Pro Bladder	4"	.653	8"	2.611
Gal. per ft.:	pumps with HDPE tubing				
Well Volume (gal.):	Horiba U-22, Lamotte				
Depth of Screen (ft.):	Turbidity meter				

Field Parameters

	Time	DTW (tic)	Flow Rate (ml/min)	Total Volume (gal)	pH (Std. Units)	Cond. (mS/cm)	Turbidity (NTU)	D.O. [Surface] (mg/l)	Temp (C)	ORP (mV)	Turbidity - Lamotte (NTU)	Color/Odor
	Stabilization	< 0.3'	300 - 500		+/- 0.1	+/- 3 %	+/- 10%	+/- 10 mV		+/- 10	+/- 10%	
Initial	1500	N/A*	0.2 gal/m	45	7.03	0.001	22	11.40	16.57	71	19.3	clear/no odor
	1505	"	"	46	5.88	0.005	16.0	11.29	16.61	110	13.9	"
	1510	"	"	47	5.30	0.001	13.5	11.30	16.46	137	12.3	"
	1515	"	"	48	5.31	0.001	9.1	11.25	16.60	153	11.8	"
	1520	"	"	49	5.23	3.40	9.8	11.13	16.72	159	11.7	"
	1525	"	"	50	5.06	0.004	9.1	11.21	16.57	153	11.9	"
	1530	"	"	51	4.92	0.001	11.4	11.22	16.51	158	11.8	"
	1535	"	"	52	4.89	0.001	8.9	11.23	16.57	171	11.9	"
	1540	"	"	53	4.89	"	10.0	11.26	16.53	162	12.9	"
	1545	"	"	54	4.94	"	9.4	11.17	16.60	161	12.4	"

Remarks: Pump Intake Depth: Control Box Setting: Refill: Discharge: PSI:

Approx. 75 gallons pumped

* pump drawing out water as it comes into bottom of well

0.0 ppm headspace. very poor water productivity, pumps out rapidly

SAMPLING

Depth to Water Before Sampling:

Sample Methodology:

Sample ID: QC Sample:

Sample Date/Time:

Sampler / Signature:

Filtered Metals Collected: Y / N Filter Size: NA

Sample Observations:

Parameters:

Low-Flow Groundwater Sampling: Field Data Sheet

Well Number: MW-116A		**Site:**	
Field Crew:		**Date:**	**Project #:**
Well Depth (ft.): 15.4' (initial TIC)	Purge Methodology:		
DTW (ft.): 6.6'	EPA Region II Procedures for low flow purging/sampling		
Water Column (ft.):			
Well Diameter (in.):	QED Sample Pro Bladder pumps with HDPE tubing		
Gal. per ft.:			
Well Volume (gal.):	Horiba U-22, Lamotte Turbidity meter		
Depth of Screen (ft.):			

Diameter	Gal. Per Foot	Diameter	Gal. Per Foot
2"	.163	5"	1.020
3"	.367	6"	1.469
4"	.653	8"	2.611

Field Parameters

	Time	DTW (tic)	Flow Rate (ml/min)	Total Volume (gal)	pH (Std. Units)	Cond. (mS/cm)	Turbidity (NTU)	D.O. [Surface] (mg/l)	Temp (C)	ORP (mV)	Turbidity - Lamotte (NTU)	Color/Odor
	Stabilization	< 0.3'	300 - 500		+/- 0.1	+/- 3 %	+/- 10%	+/- 10 mV		+/- 10	+/- 10%	
Initial	0950	10.24'	2 gal/min	95	6.93	N/A	67	14.03	17.7	-38	N/A	clear w/some floating product sheen/sh odor
	1000	10.55'	"	105	7.41	0.001	72.5	14.45	16.9	-53	"	"
	1010	10.89'	"	115	7.62	0.001	42.8	14.26	17.2	-55	"	"
	1020	11.55'	"	125	7.72	9.99	64	13.95	17.2	-54	"	"
	1030	12.53'	"	135	7.87	0.001	313	13.88	16.9	-61	"	Dark grey/cloudier
	1040	13.55	"	145	7.97	"	120	13.62	17.2	-53	"	clearer/sheen/strong odor
	1050	14.40	"	155	No	reading	s due	to high	turbid	ity		
	1100	14.65	"	165	8.00	0.001	64.3	14.05	17.6	-58	"	clearer/sheen/strong odor
	1110	14.05	"	175	7.63	0.001	51.9	13.59	17.2	-55	"	"
	1120	13	"	185	8.00	9.99	45	13.57	17.2	-54	"	Same clearness/sheen/odor
	1220	9.95'	"	195	7.63	0.001	87.7	13.41	18.8	-37	35.6	"
	1230	10'	"	205	8.46	"	22.4	12.91	18.2	-51	13.9	Cleaner/less sheen/strong odor
stopped (+60)	1240	8.6'	1 gal/min	210	8.64	0.001	116	12.70	18.4	-51	56	cloudier/more sheen/same odor
	1250	9.0'	"	215	8.40	"	20.4	13.74	18.5	-35	11.2	cleaner/"/"
	1300	9.15	"	225	8.50	0.922	7.6	13.77	18.4	-34	6.83	"

Remarks: Pump Intake Depth: Control Box Setting: Refill: Discharge: PSI:

16' total depth after first pump same final depth - 16' (TIC)

SAMPLING

Depth to Water Before Sampling:

Sample Methodology:

Sample ID: QC Sample:

Sample Date/Time:

Sampler / Signature:

Filtered Metals Collected: Y / N Filter Size: NA

Sample Observations:

Parameters:

Low-Flow Groundwater Sampling: Field Data Sheet

Well Number: MW-116B		**Site:** Quanta	
Field Crew: AH		**Date:** 9/16/05	**Project #:**
Well Depth (ft.): 16.8' (TIC) initial	Purge Methodology:		
DTW (ft.): 6'	EPA Region II Procedures for low flow purging/sampling		
Water Column (ft.):			
Well Diameter (in.):	QED Sample Pro Bladder pumps with HDPE tubing		
Gal. per ft.:			
Well Volume (gal.):	Horiba U-22, Lamotte Turbidity meter		
Depth of Screen (ft.):			

Diameter	Gal. Per Foot	Diameter	Gal. Per Foot
2"	.163	5"	1.020
3"	.367	6"	1.469
4"	.653	8"	2.611

Field Parameters

	Time	DTW (tic)	Flow Rate (ml/min)	Total Volume (gal)	pH (Std. Units)	Cond. (mS/cm)	Turbidity (NTU)	D.O. [Surface] (mg/l)	Temp (C)	ORP (mV)	Turbidity - Lamotte (NTU)	Color/Odor
	Stabilization	< 0.3'	300 - 500		+/- 0.1	+/- 3 %	+/- 10%	+/- 10 mV		+/- 10	+/- 10%	
Initial	product - no reading taken											

Remarks: Pump Intake Depth: Control Box Setting: Refill: Discharge: PSI:

127' Total depth after 1 round of pumping

Abundant product

SAMPLING

Depth to Water Before Sampling:

Sample Methodology:

Sample ID: QC Sample:

Sample Date/Time:

Sampler / Signature:

Filtered Metals Collected: Y / N Filter Size: NA

Sample Observations:

Parameters:

Low-Flow Groundwater Sampling: Field Data Sheet

Well Number: MW-116DS		**Site:** Quanta	
Field Crew: AH		**Date:** 9/16/05	**Project #:**
Well Depth (ft.): 25.4' (initial MW)	Purge Methodology:		
DTW (ft.): 5.4'	EPA Region II Procedures for low flow purging/sampling		
Water Column (ft.):			
Well Diameter (in.):	QED Sample Pro Bladder pumps with HDPE tubing		
Gal. per ft.:			
Well Volume (gal.):	Horiba U-22, Lamotte Turbidity meter		
Depth of Screen (ft.):			

Diameter	Gal. Per Foot	Diameter	Gal. Per Foot
2"	.163	5"	1.020
3"	.367	6"	1.469
4"	.653	8"	2.611

Field Parameters

	Time	DTW (tic)	Flow Rate (ml/min)	Total Volume (gal)	pH (Std. Units)	Cond. (mS/cm)	Turbidity (NTU)	D.O. [Surface] (mg/l)	Temp (C)	ORP (mV)	Turbidity - Lamotte (NTU)	Color/Odor
	Stabilization	< 0.3'	300 - 500		+/- 0.1	+/- 3 %	+/- 10%	+/- 10 mV		+/- 10	+/- 10%	
Initial	0755	≈ 30'	3 gal/min	35	6.69	1.89	N/A	14.74	11.8	124	N/A	Cloudy white / very slight pet odor
	0805	"	2 gal/min	45	6.89	1.95	210	14.63	11.7	113	40	clearer / "
	0815	"	"	55	7.23	1.95	141	14.10	12.2	118	92	clear / "
	0825	"	"	65	7.23	1.98	10.9	14.07	12.4	122	23.4	" / "
	0835	"	"	75	~~8.19~~ 7.73	~~0.003~~ 1.96	~~760~~ 0	13.68	12.9	118	13	"
	0845	"	"	85	8.06	1.96	0.0	14.04	12.2	113	8.66	"
	0855	"	"	95	7.92	1.99	0.0	14.28	12.0	123	7.36	"

Remarks: Pump Intake Depth: Control Box Setting: Refill: Discharge: PSI:

No evidence of product in well
Headspace PID: 0.0 ppm

SAMPLING

Depth to Water Before Sampling:

Sample Methodology:

Sample ID: QC Sample:

Sample Date/Time:

Sampler / Signature:

Filtered Metals Collected: Y / N Filter Size: NA

Sample Observations:

Parameters:

Low-Flow Groundwater Sampling: Field Data Sheet

Well Number: MW-117A		**Site:** Quanta	
Field Crew: AH		**Date:** 9/19/05	**Project #:**
Well Depth (ft.): 18.7' (initial)	Purge Methodology:		
DTW (ft.): 6.7' (TIC)	EPA Region II Procedures for low flow		
Water Column (ft.):	purging/sampling		
Well Diameter (in.):	QED Sample Pro Bladder		
Gal. per ft.:	pumps with HDPE tubing		
Well Volume (gal.):	Horiba U-22, Lamotte		
Depth of Screen (ft.):	Turbidity meter		

Diameter	Gal. Per Foot	Diameter	Gal. Per Foot
2"	.163	5"	1.020
3"	.367	6"	1.469
4"	.653	8"	2.611

Field Parameters

	Time	DTW (tic)	Flow Rate (ml/min)	Total Volume (gal)	pH (Std. Units)	Cond. (mS/cm)	Turbidity (NTU)	D.O. [Surface] (mg/l)	Temp (C)	ORP (mV)	Turbidity - Lamotte (NTU)	Color/Odor
	Stabilization	< 0.3'	300 - 500		+/- 0.1	+/- 3 %	+/- 10%	+/- 10 mV		+/- 10	+/- 10%	
Initial	1515	9.3'	2 gal/min	45	7.42	0.001	19.9	13.31	17.5	-17	12.3	clear w/ trace floating prod./sheen
	1525	9.75'	"	65	7.90	"	21.9	13.11	16.8	-22	11.4	" Strong P/P
	1535	10.11'	"	75	7.80	"	36	13.17	16.8	-37	17.8	"
	0735	8.3'	"	85	6.76	1.10	15.9	11.72	15.9	30	12.9	"
	0745	8.8'	"	95	6.95	1.06	8.6	11.78	15.8	-14	11.2	"
	0755	9.25'	"	110	7.30	0.828	5.9	11.67	15.7	-34	8.02	"

Remarks: Pump Intake Depth: Control Box Setting: Refill: Discharge: PSI:

Final depth: 17'
Headspace PID: 3.7 ppm

SAMPLING

Depth to Water Before Sampling:

Sample Methodology:

Sample ID: QC Sample:

Sample Date/Time:

Sampler / Signature:

Filtered Metals Collected: Y / N Filter Size: NA

Sample Observations:

Parameters:

Low-Flow Groundwater Sampling: Field Data Sheet

Well Number:	MW-117B	**Site:**	Quanta
Field Crew:	AH	**Date:**	9/20/05
		Project #:	

Well Depth (ft.):	19.3 (TIC) initial	Purge Methodology:	Diameter	Gal. Per Foot	Diameter	Gal. Per Foot
DTW (ft.):	8' (TIC)	EPA Region II Procedures for low flow	2"	.163	5"	1.020
Water Column (ft.):		purging/sampling	3"	.367	6"	1.469
Well Diameter (in.):		QED Sample Pro Bladder	4"	.653	8"	2.611
Gal. per ft.:		pumps with HDPE tubing				
Well Volume (gal.):		Horiba U-22, Lamotte				
Depth of Screen (ft.):		Turbidity meter				

Field Parameters

	Time	DTW (tic)	Flow Rate (ml/min)	Total Volume (gal)	pH (Std. Units)	Cond. (mS/cm)	Turbidity (NTU)	D.O. [Surface] (mg/l)	Temp (C)	ORP (mV)	Turbidity - Lamotte (NTU)	Color/Odor
	Stabilization	< 0.3'	300 - 500		+/- 0.1	+/- 3 %	+/- 10%	+/- 10 mV		+/- 10	+/- 10%	
Initial	1100	12.70'	2 gal/min	75	8.60	9.0	115	13.1	17.0	-60	62.9	Slight turbid kerosene/pp odor
	1110	18'	"	85	8.90	0.002	91.6	13.15	16.3	-75	56.7	"
9/22	700	11.05	"	95	8.18	0.001	88.1	12	12.3	154	67	"
	0710	12.85	"	105	7.95	0.001	102	10.41	15.2	5	53.3	"

Remarks: Pump Intake Depth: Control Box Setting: Refill: Discharge: PSI:

Final depth: 14.55'
headspace PID: 1.7 ppm

SAMPLING

Depth to Water Before Sampling:

Sample Methodology:

Sample ID: QC Sample:

Sample Date/Time:

Sampler / Signature:

Filtered Metals Collected: Y / N Filter Size: NA

Sample Observations:

Parameters:

Low-Flow Groundwater Sampling: Field Data Sheet

Well Number: MW-11RA		**Site:** Quality	
Field Crew: AH		**Date:** 9/20/05	**Project #:**
Well Depth (ft.): 16' (initial TIC)	Purge Methodology:		
DTW (ft.): 7.1'	EPA Region II Procedures for low flow purging/sampling		
Water Column (ft.):			
Well Diameter (in.):	QED Sample Pro Bladder pumps with HDPE tubing		
Gal. per ft.:			
Well Volume (gal.):	Horiba U-22, Lamotte		
Depth of Screen (ft.):	Turbidity meter		

Diameter	Gal. Per Foot	Diameter	Gal. Per Foot
2"	.163	5"	1.020
3"	.367	6"	1.469
4"	.653	8"	2.611

Field Parameters

	Time	DTW (tic)	Flow Rate (ml/min)	Total Volume (gal)	pH (Std. Units)	Cond. (mS/cm)	Turbidity (NTU)	D.O. [Surface] (mg/l)	Temp (C)	ORP (mV)	Turbidity - Lamotte (NTU)	Color/Odor
	Stabilization	< 0.3'	300 - 500		+/- 0.1	+/- 3 %	+/- 10%	+/- 10 mV		+/- 10	+/- 10%	
Initial	0930	5.5'	2 gallon	40	8.34	0.003	91.7	11.52	14.6	10	29.7	slight cloudy / slight pkp odor
	Pumps	Dry	Repeatedly									

Remarks: Pump Intake Depth: Control Box Setting: Refill: Discharge: PSI:

Final depth: 16.8'
headspace: 6.3 ppm

SAMPLING

Depth to Water Before Sampling:

Sample Methodology:

Sample ID: QC Sample:

Sample Date/Time:

Sampler / Signature:

Filtered Metals Collected: Y / N Filter Size: NA

Sample Observations:

Parameters:

Low-Flow Groundwater Sampling: Field Data Sheet

Well Number: MW-118B		**Site:** Ovan 19	
Field Crew: AH		**Date:** 9/20/05	**Project #:**
Well Depth (ft.): 18' (TIC initial)	Purge Methodology:		
DTW (ft.): 7.4' TIC	EPA Region II Procedures for low flow purging/sampling		
Water Column (ft.):			
Well Diameter (in.):	QED Sample Pro Bladder pumps with HDPE tubing		
Gal. per ft.:			
Well Volume (gal.):	Horiba U-22, Lamotte		
Depth of Screen (ft.):	Turbidity meter		

Diameter	Gal. Per Foot	Diameter	Gal. Per Foot
2"	.163	5"	1.020
3"	.367	6"	1.469
(4")	.653	8"	2.611

Field Parameters

	Time	DTW (tic)	Flow Rate (ml/min)	Total Volume (gal)	pH (Std. Units)	Cond. (mS/cm)	Turbidity (NTU)	D.O. [Surface] (mg/l)	Temp (C)	ORP (mV)	Turbidity - Lamotte (NTU)	Color/Odor
	Stabilization	< 0.3'	300 - 500		+/- 0.1	+/- 3 %	+/- 10%	+/- 10 mV		+/- 10	+/- 10%	
Initial	1350	8.9'	200 ml/min	130	7.55	0.004	14.0	13.92	16.9	-10	10.45	clear/trace sheen/strong plp odor
	1400	8.95'	"	160	7.82	1.57	13.0	14.01	16.4	-38	8.23	"
	1410	9.00'	"	170	8.15	0.002	9.0	13.91	16.2	-60	9.09	"
	1420	9.00'	"	180	8.31	1.65	9.9	13.57	16.2	-53	7.72	"

Remarks: Pump Intake Depth: Control Box Setting: Refill: Discharge: PSI:

Final depth: 18.7'
Some product on probe
Headspace PID: 0.2 ppm

SAMPLING

Depth to Water Before Sampling:
Sample Methodology:
Sample ID: QC Sample:
Sample Date/Time:
Sampler / Signature:
Filtered Metals Collected: Y / N Filter Size: NA
Sample Observations:
Parameters:

Low-Flow Groundwater Sampling: Field Data Sheet

Well Number: MW-119A	**Site:** Quanta / 115 River Road
Field Crew: AH / RU	**Date:** 11/19/05 **Project #:**

		Diameter	Gal. Per Foot	Diameter	Gal. Per Foot
Well Depth (ft.): 12.85'	Purge Methodology:				
DTW (ft.): 5.00 (TIC)	EPA Region II Procedures for low flow	2"	.163	5"	1.020
Water Column (ft.):	purging/sampling	3"	.367	6"	1.469
Well Diameter (in.):	QED Sample Pro Bladder	4"	.653	8"	2.611
Gal. per ft.:	pumps with HDPE tubing				
Well Volume (gal.):	Horiba U-22, Lamotte				
Depth of Screen (ft.):	Turbidity meter				

Field Parameters

Time	DTW (tic)	Flow Rate (ml/min)	Total Volume (gal)	pH (Std. Units)	Cond. (mS/cm)	Turbidity (NTU)	D.O. [Surface] (mg/l)	Temp (C)	ORP (mV)	Turbidity - Lamotte (NTU)	Color/Odor
Stabilization	< 0.3'	300 - 500		+/- 0.1	+/- 3 %	+/- 10%	+/- 10 mV		+/- 10	+/- 10%	
Initial											
TOC	MUCH	Product floating in water for U-22 / Lamotte									

Remarks: Pump Intake Depth: Control Box Setting: Refill: Discharge: PSI:

interface probe indicated product from 6.25' - 12.85'
Head space: 0.2 ppm, film/scum on water

SAMPLING

Depth to Water Before Sampling:

Sample Methodology:

Sample ID: QC Sample:

Sample Date/Time:

Sampler / Signature:

Filtered Metals Collected: Y / N Filter Size: NA

Sample Observations:

Parameters:

Low-Flow Groundwater Sampling: Field Data Sheet

Well Number: MW-119B		**Site:** 115 River Rd.	
Field Crew: AH/RU		**Date:**	**Project #:**
Well Depth (ft.): 15' (TIC) initial	Purge Methodology:		
DTW (ft.): 4.95 (TIC)	EPA Region II Procedures for low flow purging/sampling		
Water Column (ft.):			
Well Diameter (in.):	QED Sample Pro Bladder pumps with HDPE tubing		
Gal. per ft.:			
Well Volume (gal.):	Horiba U-22, Lamotte		
Depth of Screen (ft.):	Turbidity meter		

Diameter	Gal. Per Foot	Diameter	Gal. Per Foot
2"	.163	5"	1.020
3"	.367	6"	1.469
4"	.653	8"	2.611

Field Parameters

	Time	DTW (tic)	Flow Rate (ml/min)	Total Volume (gal)	pH (Std. Units)	Cond. (mS/cm)	Turbidity (NTU)	D.O. [Surface] (mg/l)	Temp (C)	ORP (mV)	Turbidity - Lamotte (NTU)	Color/Odor
	Stabilization	< 0.3'	300 - 500		+/- 0.1	+/- 3 %	+/- 10%	+/- 10 mV		+/- 10	+/- 10%	
Initial												
	Too much product (floating) for readings											
(ed))	1000	6.39'	4 gallons	75	6.14	6.67	-10.0	7.33	15.32	0	14	Clear, some globs/sulfur?
	1005	6.41'	"	100	9.30	6.55	-10.0	9.14	17.44	-90	7.8	"
	~~1010~~ 1010	6.40'	"	125	9.14	6.46	-10.0	8.98	18.81	-128	12	"
	1015	6.45'	"	150	9.14	6.50	-10.0	9.89	18.27	-132	6.6	"

Remarks: Pump Intake Depth: Control Box Setting: Refill: Discharge: PSI:

pumped approx. 130 gallons
sheen on top of water column
0.1 ppm headspace, probe indicated product from 6.2' - 15'

SAMPLING

Depth to Water Before Sampling:
Sample Methodology:
Sample ID: QC Sample:
Sample Date/Time:
Sampler / Signature:
Filtered Metals Collected: Y / N Filter Size: NA
Sample Observations:
Parameters:

Low-Flow Groundwater Sampling: Field Data Sheet

Well Number: MW-120A		**Site:** Quanta / Unilever	
Field Crew: AH / RV		**Date:** 11/14/05	**Project #:**
Well Depth (ft.): 13.45'	Purge Methodology:	Diameter	Gal. Per Foot / Diameter / Gal. Per Foot
DTW (ft.): 5.75' (TIC)	EPA Region II Procedures for low flow	2" .163	5" 1.020
Water Column (ft.):	purging/sampling	3" .367	6" 1.469
Well Diameter (in.): 4	QED Sample Pro Bladder	4" .653	8" 2.611
Gal. per ft.:	pumps with HDPE tubing		
Well Volume (gal.):	Horiba U-22, Lamotte		
Depth of Screen (ft.):	Turbidity meter		

Field Parameters

	Time	DTW (tic)	Flow Rate (ml/min)	Total Volume (gal)	pH (Std. Units)	Cond. (mS/cm)	Turbidity (NTU)	D.O. [Surface] (mg/l)	Temp (C)	ORP (mV)	Turbidity - Lamotte (NTU)	Color/Odor
	Stabilization	< 0.3'	300 - 500		+/- 0.1	+/- 3 %	+/- 10%	+/- 10 mV		+/- 10	+/- 10%	
Initial												
	~~Too much floating product for readings w/U-22~~ (AH)											
	1305	6.60'	4 gal/min	75	9.00	6.31	-10	11.41	17.30	-86	13.1	cloudy/slight sulfur odor
	1310	6.62'	"	100	9.70	6.82	-10	11.39	16.04	-129	6.67	"
	1315	6.51'	"	120	9.50	6.14	-10	9.82	16.51	-132	6.00	"
	1320	6.69'	"	140	9.41	6.95	"	9.98	16.01	-136	30.4	cloudier / "
	1325	6.62'	"	160	9.41	6.98	"	10.40	15.37	-139	5.32	clearer / "
	1330	6.69'	"	170	9.41	7.00	"	10.31	15.74	-137	2.84	"

Remarks: Pump Intake Depth: Control Box Setting: Refill: Discharge: PSI:

0.0 ppm headspace

SAMPLING

Depth to Water Before Sampling:

Sample Methodology:

Sample ID: QC Sample:

Sample Date/Time:

Sampler / Signature:

Filtered Metals Collected: Y / N Filter Size: NA

Sample Observations:

Parameters:

Low-Flow Groundwater Sampling: Field Data Sheet

Well Number: MW-120B		**Site:** Unilever / Quanta	
Field Crew: AH / RU		**Date:**	**Project #:**
Well Depth (ft.): ~~5.75'(TIC)~~ 190(TIC)	Purge Methodology:		
DTW (ft.): 5.75' (TIC)	EPA Region II Procedures for low flow		
Water Column (ft.):	purging/sampling		
Well Diameter (in.):	QED Sample Pro Bladder		
Gal. per ft.:	pumps with HDPE tubing		
Well Volume (gal.):	Horiba U-22, Lamotte		
Depth of Screen (ft.):	Turbidity meter		

Diameter	Gal. Per Foot	Diameter	Gal. Per Foot
2"	.163	5"	1.020
3"	.367	6"	1.469
(4")	.653	8"	2.611

Field Parameters

	Time	DTW (tic)	Flow Rate (ml/min)	Total Volume (gal)	pH (Std. Units)	Cond. (mS/cm)	Turbidity (NTU)	D.O. [Surface] (mg/l)	Temp (C)	ORP (mV)	Turbidity - Lamotte (NTU)	Color/Odor
	Stabilization	< 0.3'	300 - 500		+/- 0.1	+/- 3 %	+/- 10%	+/- 10 mV		+/- 10	+/- 10%	
Initial	1440	5.94'	4 gal/min	105	8.80	20.2	127	9.90	16.68	-122	116	cloudy / sulfur odor
	1450	5.95'	"	125	9.50	19.8	151	11.20	15.73	-106	149	"
	1500	5.94'	"	145	9.70	20.7	46	10.45	15.72	-160	66.4	"
	1510	5.94'	"	165	9.80	20.7	-10	10.49	15.50	-159	22	clearer / "
	1520	5.97'	"	185	9.80	21.0	-10	11.00	15.48	-164	6.67	clear / "

Remarks: Pump Intake Depth: Control Box Setting: Refill: Discharge: PSI:

0.0 ppm headspace

SAMPLING

Depth to Water Before Sampling:

Sample Methodology:

Sample ID: QC Sample:

Sample Date/Time:

Sampler / Signature:

Filtered Metals Collected: Y / N Filter Size: NA

Sample Observations:

Parameters:

Low-Flow Groundwater Sampling: Field Data Sheet

Well Number:	MW-12A	**Site:**	Quanta
Field Crew:	Alt	**Date:** 11/14/05	**Project #:** 332898.QT.20.23

Well Depth (ft.):	12.30 (TIC)	Purge Methodology:	Diameter	Gal. Per Foot	Diameter	Gal. Per Foot
DTW (ft.):	3.61 (TIC)	EPA Region II Procedures for low flow	2"	.163	5"	1.020
Water Column (ft.):		purging/sampling	3"	.367	6"	1.469
Well Diameter (in.):		QED Sample Pro Bladder	4"	.653	8"	2.611
Gal. per ft.:		pumps with HDPE tubing				
Well Volume (gal.):		Horiba U-22, Lamotte				
Depth of Screen (ft.):		Turbidity meter				

Field Parameters

	Time	DTW (tic)	Flow Rate (ml/min)	Total Volume (gal)	pH (Std. Units)	Cond. (mS/cm)	Turbidity (NTU)	D.O. [Surface] (mg/l)	Temp (C)	ORP (mV)	Turbidity - Lamotte (NTU)	Color/Odor
	Stabilization	< 0.3'	300 - 500		+/- 0.1	+/- 3 %	+/- 10%	+/- 10 mV		+/- 10	+/- 10%	
Initial	1355	~~4.87~~ 5.76	5 gal/min	—	4.81	3.47	132	13.03	17.91	79	78	Turbid. P/P odor
	1400	5.70	"	25	5.52	3.11	48.2	13.57	17.38	33	45	clearer, "
	1405	5.73	"	50	6.0	3.35	42.0	12.4	17.21	0	40	"
	1410	5.75	"	75	5.86	3.46	36.0	12.83	16.53	30	24	"
	1415	5.77	"	100	5.99	3.45	61.0	7.55	16.71	34	8.7	"
	1420	5.79	"	125	5.30	15.0	-10	9.50	17.27	41	6.7	"
	1430	5.58	"	175	5.30	3.48	-3.4	9.79	16.63	33	8	"
	1435	5.60	"	200	5.32	3.43	9.0	9.59	17.12	37	11	"
	1440	5.62	"	225	5.27	0.017	5.3	9.89	16.07	35	9.8	"
	1450	5.65	"	225*	5.27	3.44	39.7	9.44	16.20	36	8.7	"
	1455	5.66	"	225	5.33	3.46	4.7	9.34	17.05	28	7.6	"
	1500	5.66	"	225	5.38	3.46	-4.9	9.38	16.86	28	7.8	"

Remarks: Pump Intake Depth: Control Box Setting: Refill: Discharge: PSI:

* pump volume approx. 4 gal/min not 5 gal/min. Total purge 220 gallons
0.0 ppm headspace

SAMPLING

Depth to Water Before Sampling:

Sample Methodology:

Sample ID: QC Sample:

Sample Date/Time:

Sampler / Signature:

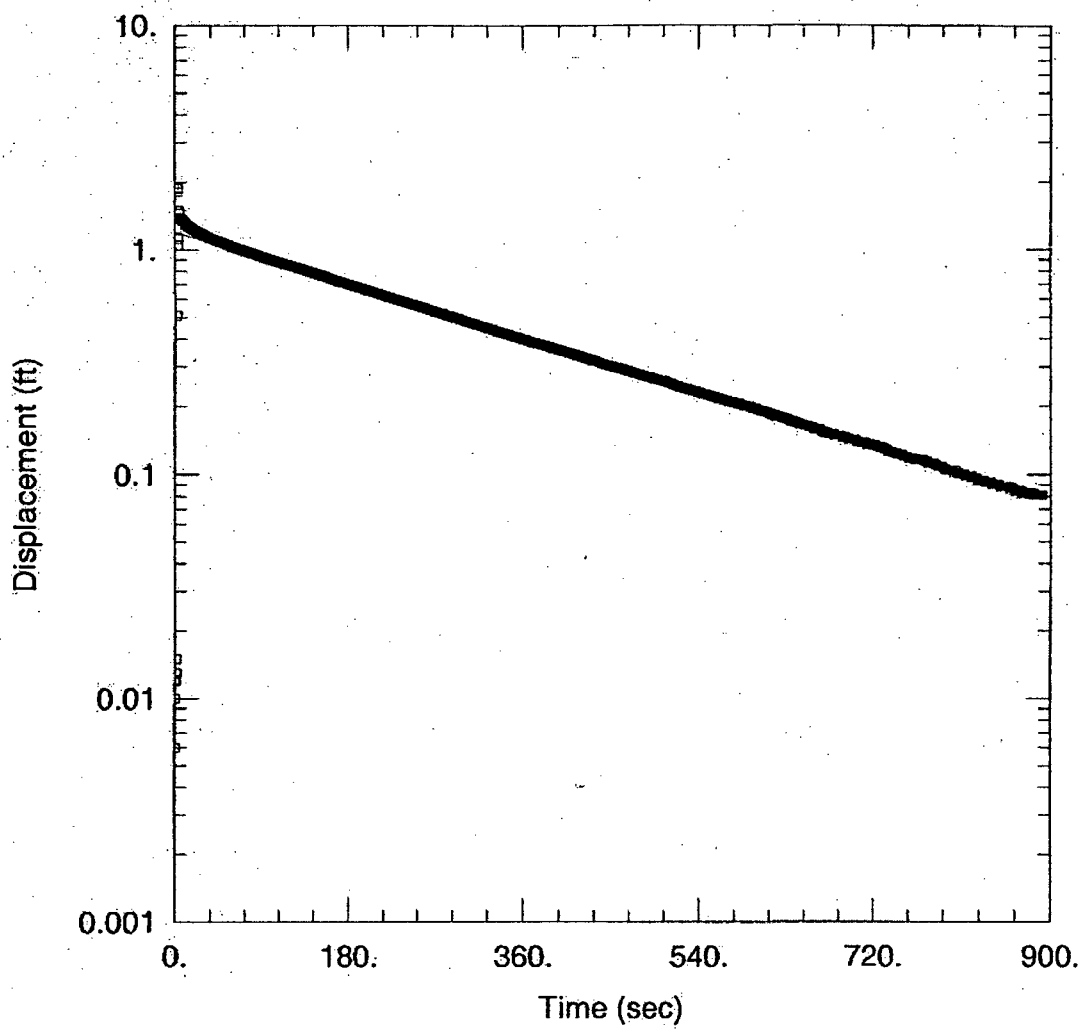
Filtered Metals Collected: Y / N Filter Size: NA

Sample Observations:

Parameters:

Appendix D

Appendix D
Hydraulic Conductivity Testing Data



MW-102A-FH1

PROJECT INFORMATION

Company: CH2M HILL
Client: Honeywell
Project: 332898
Test Location: Quanta Resources Site, NJ
Test Well: MW-102A
Test Date: 12/01/05

AQUIFER DATA

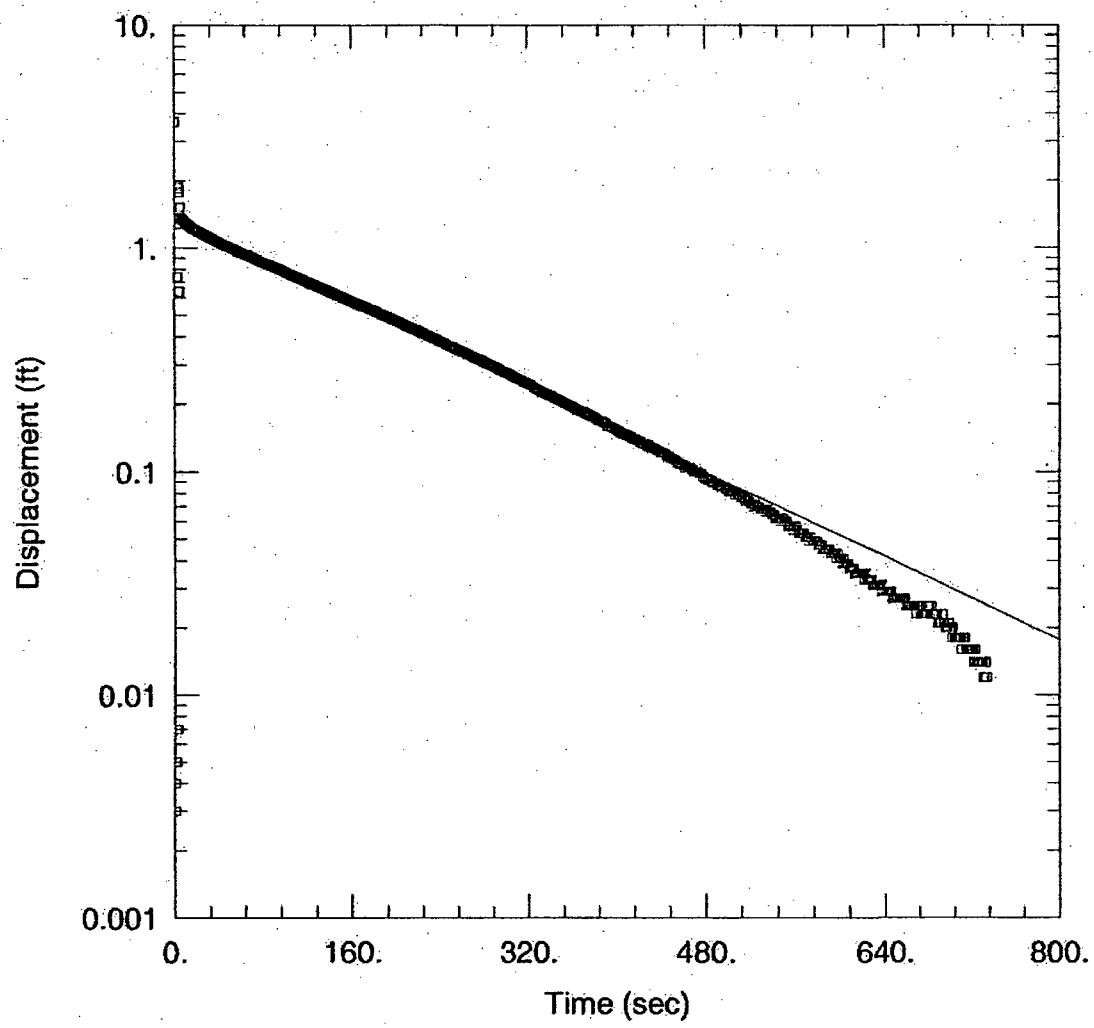
Saturated Thickness: 22.8 ft
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-102A-FH1)

Initial Displacement: 1.897 ft
Casing Radius: 0.16 ft
Screen Length: 10. ft
Water Column Height: 12.3 ft
Wellbore Radius: 0.44 ft
Gravel Pack Porosity: 0.35

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 3.303 ft/day
y0 = 1.2 ft



MW-102A-FH2

PROJECT INFORMATION

Company: CH2M HILL
Client: Honeywell
Project: 332898
Test Location: Quanta Resources Site, NJ
Test Well: MW-102A
Test Date: 12/01/05

AQUIFER DATA

Saturated Thickness: 22.8 ft
Anisotropy Ratio (Kz/Kr): 0.1

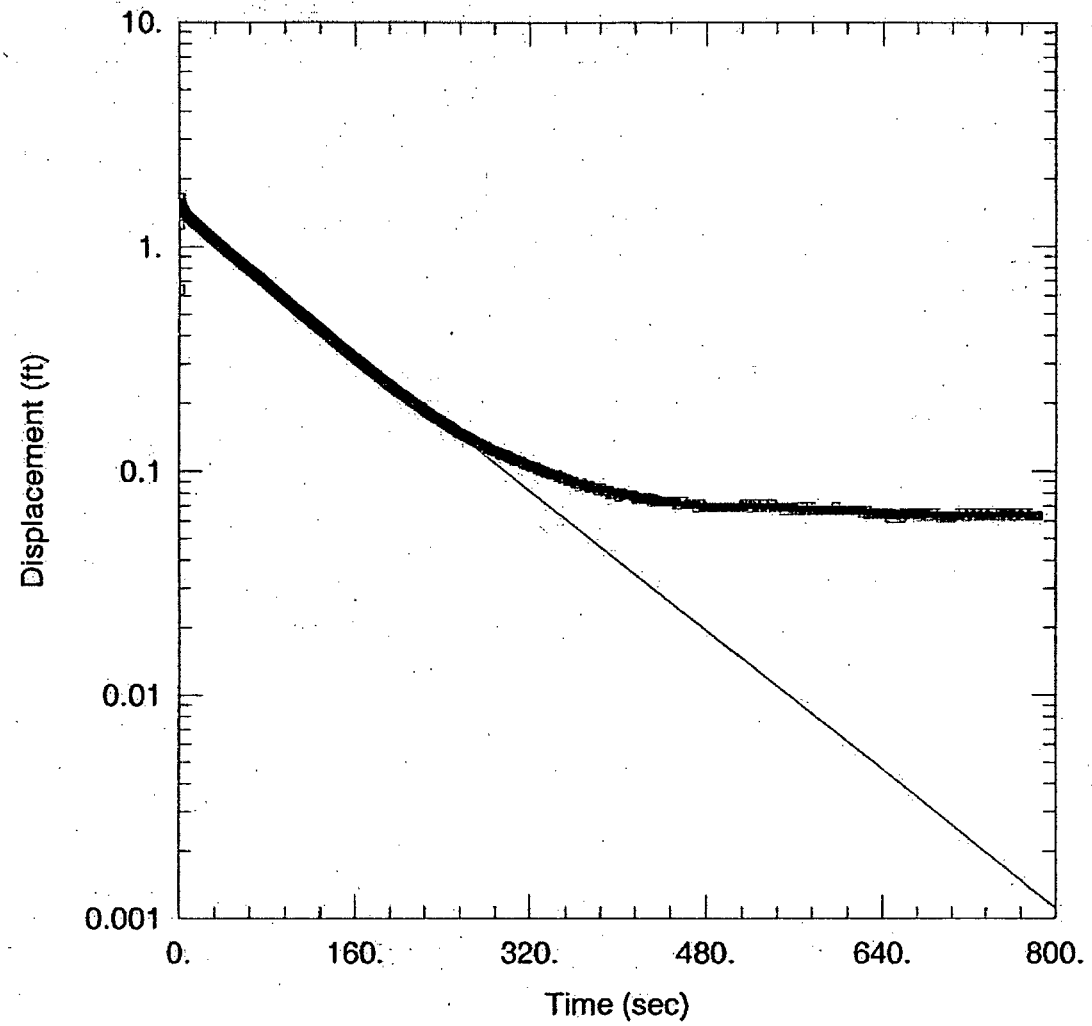
WELL DATA (MW-102A-FH2)

Initial Displacement: 3.67 ft
Casing Radius: 0.16 ft
Screen Length: 10. ft
Water Column Height: 12.3 ft
Wellbore Radius: 0.44 ft
Gravel Pack Porosity: 0.35

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 5.896 ft/day
y0 = 1.31 ft



MW-102A-RH1

PROJECT INFORMATION

Company: CH2M HILL
Client: Honeywell
Project: 332898
Test Location: Quanta Resources Site, NJ
Test Well: MW-102A
Test Date: 12/01/05

AQUIFER DATA

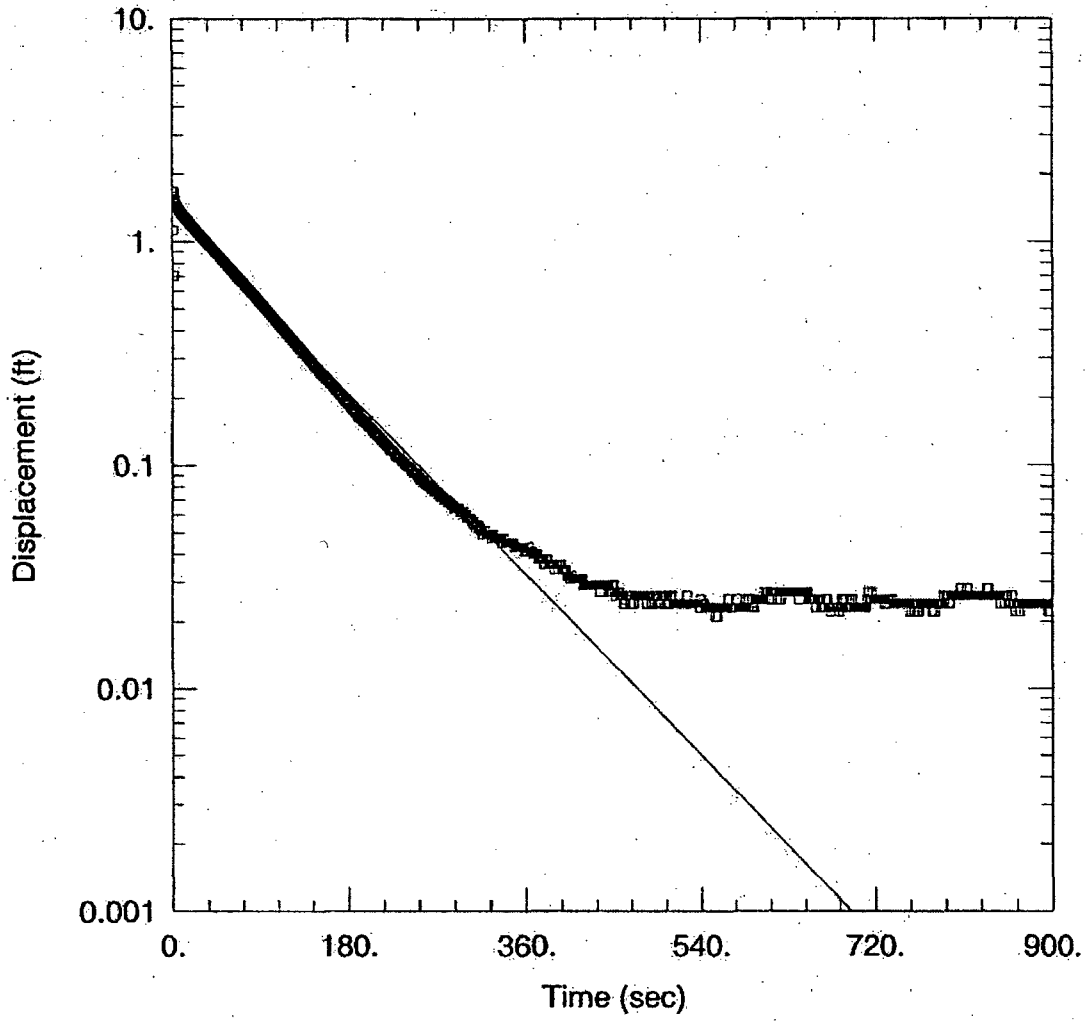
Saturated Thickness: 22.8 ft
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-102A-RH1)

Initial Displacement: 1.647 ft
Casing Radius: 0.16 ft
Screen Length: 10. ft
Water Column Height: 12.3 ft
Wellbore Radius: 0.44 ft
Gravel Pack Porosity: 0.35

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 9.795 ft/day
y0 = 1.42 ft



MW-102A-RH2

PROJECT INFORMATION

Company: CH2M HILL
Client: Honeywell
Project: 332898
Test Location: Quanta Resources Site, NJ
Test Well: MW-102A
Test Date: 12/01/05

AQUIFER DATA

Saturated Thickness: 22.8 ft
Anisotropy Ratio (Kz/Kr): 0.1

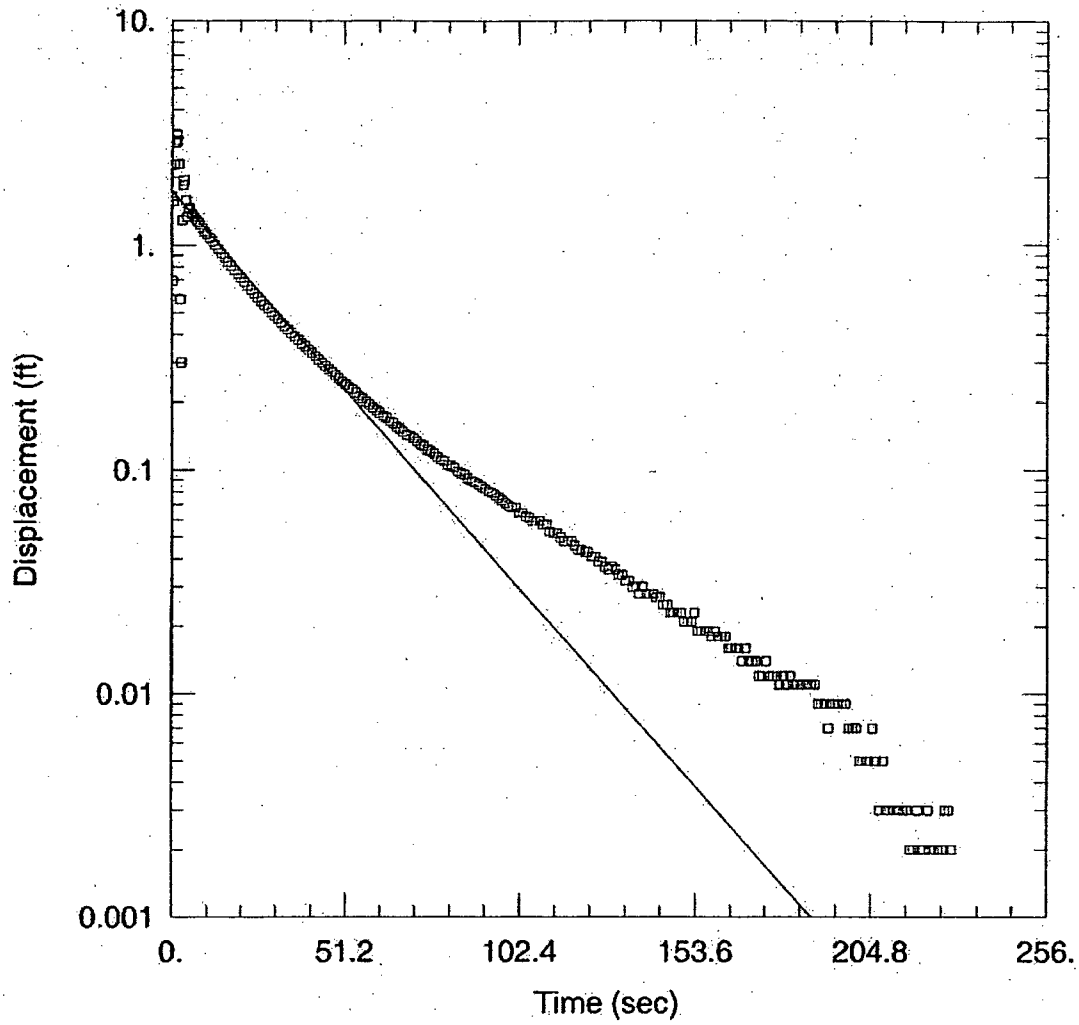
WELL DATA (MW-102A-RH2)

Initial Displacement: 1.671 ft
Casing Radius: 0.16 ft
Screen Length: 10. ft
Water Column Height: 12.3 ft
Wellbore Radius: 0.44 ft
Gravel Pack Porosity: 0.35

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 11.36 ft/day
y0 = 1.357 ft



MW-102B-FH1

PROJECT INFORMATION

Company: CH2M HILL
Client: Honeywell
Project: 332898
Test Location: Quanta Resources Site, NJ
Test Well: MW-102A
Test Date: 12/01/05

AQUIFER DATA

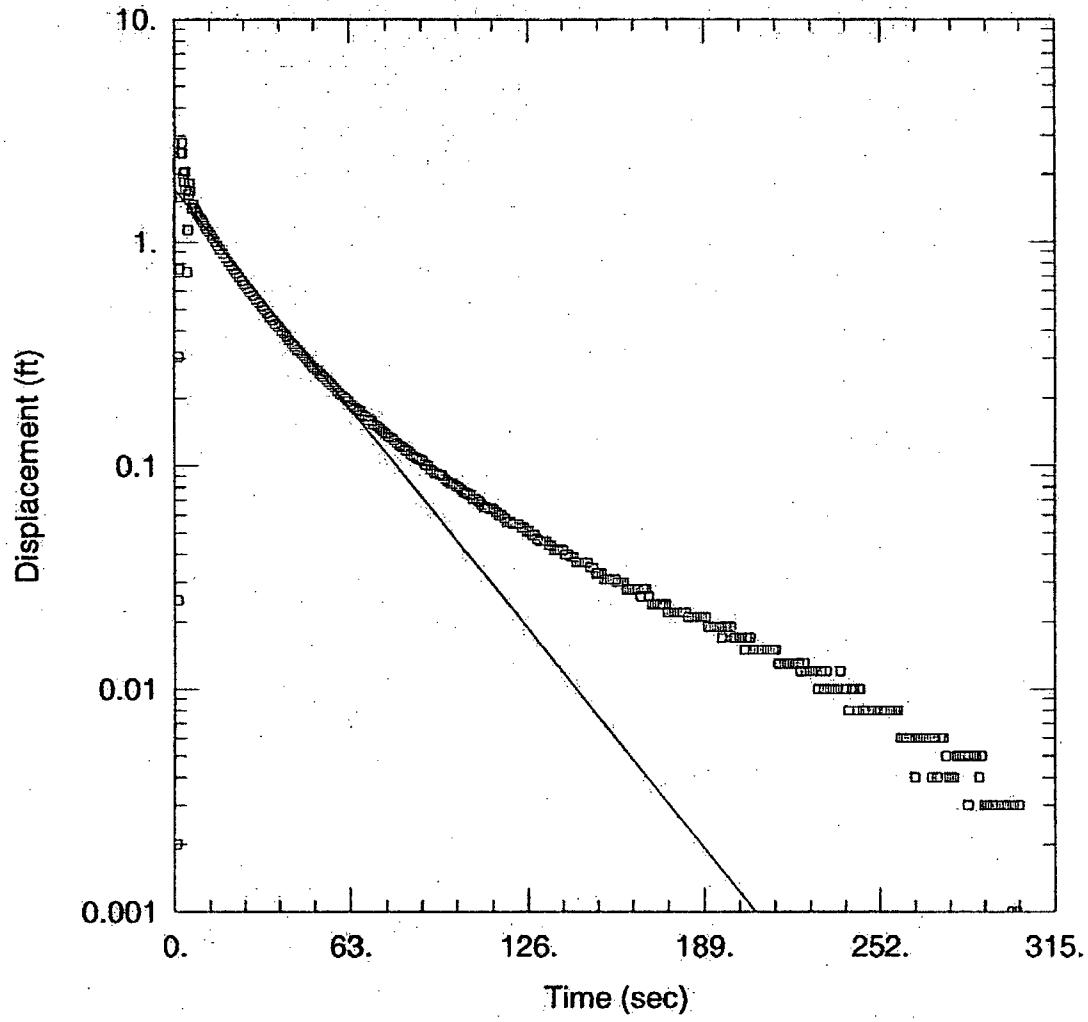
Saturated Thickness: 21.96 ft
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-102B-FH1)

Initial Displacement: 1.647 ft
Casing Radius: 0.16 ft
Screen Length: 10. ft
Water Column Height: 22.46 ft
Wellbore Radius: 0.44 ft
Gravel Pack Porosity: 0.35

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 55.02 ft/day
y0 = 1.73 ft



MW-102B-FH2

PROJECT INFORMATION

Company: CH2M HILL
Client: Honeywell
Project: 332898
Test Location: Quanta Resources Site, NJ
Test Well: MW-102A
Test Date: 12/01/05

AQUIFER DATA

Saturated Thickness: 21.96 ft
Anisotropy Ratio (Kz/Kr): 0.1

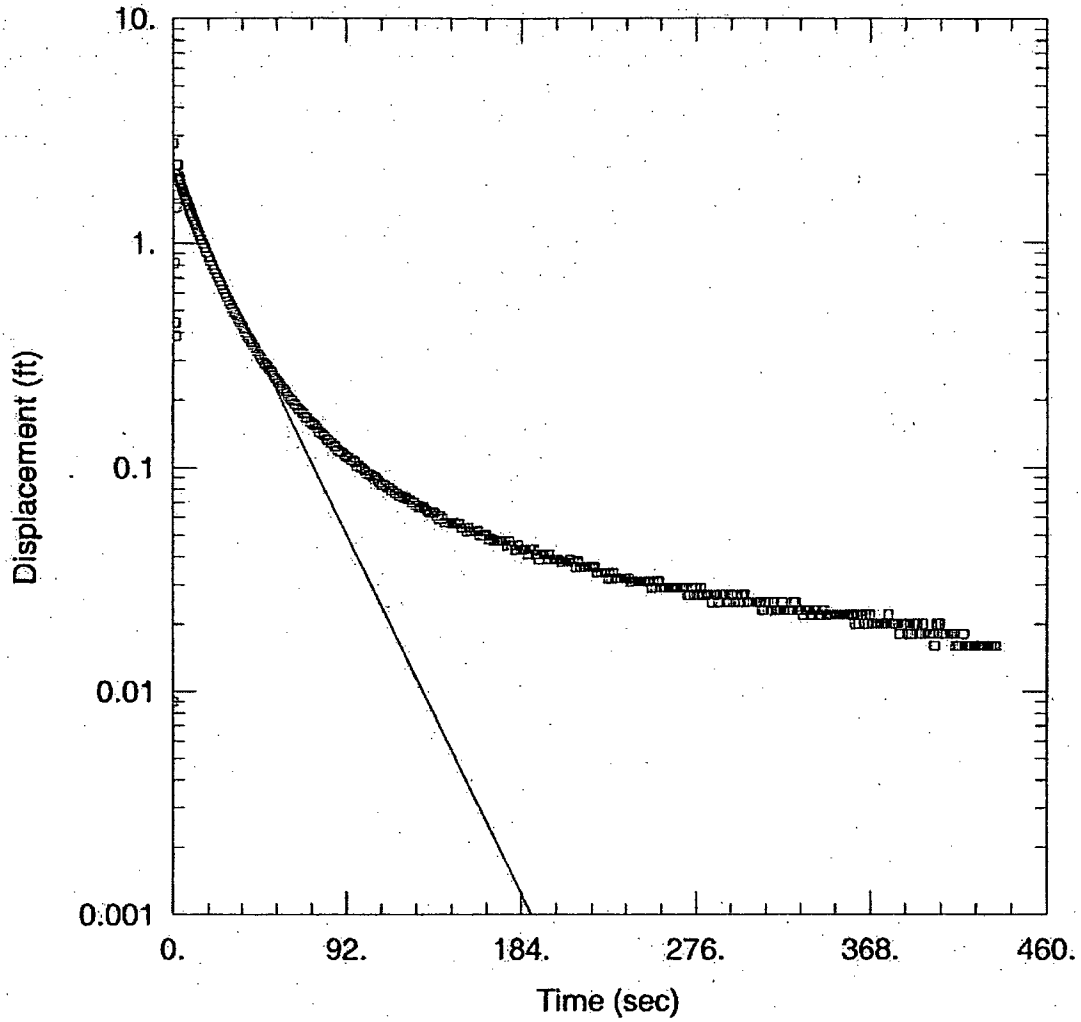
WELL DATA (MW-102B-FH2)

Initial Displacement: 2.778 ft
Casing Radius: 0.16 ft
Screen Length: 10. ft
Water Column Height: 22.46 ft
Wellbore Radius: 0.44 ft
Gravel Pack Porosity: 0.35

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 49.73 ft/day
y0 = 1.73 ft



MW-102B-RH1

PROJECT INFORMATION

Company: CH2M HILL
Client: Honeywell
Project: 332898
Test Location: Quanta Resources Site, NJ
Test Well: MW-102A
Test Date: 12/01/05

AQUIFER DATA

Saturated Thickness: 21.96 ft
Anisotropy Ratio (Kz/Kr): 0.1

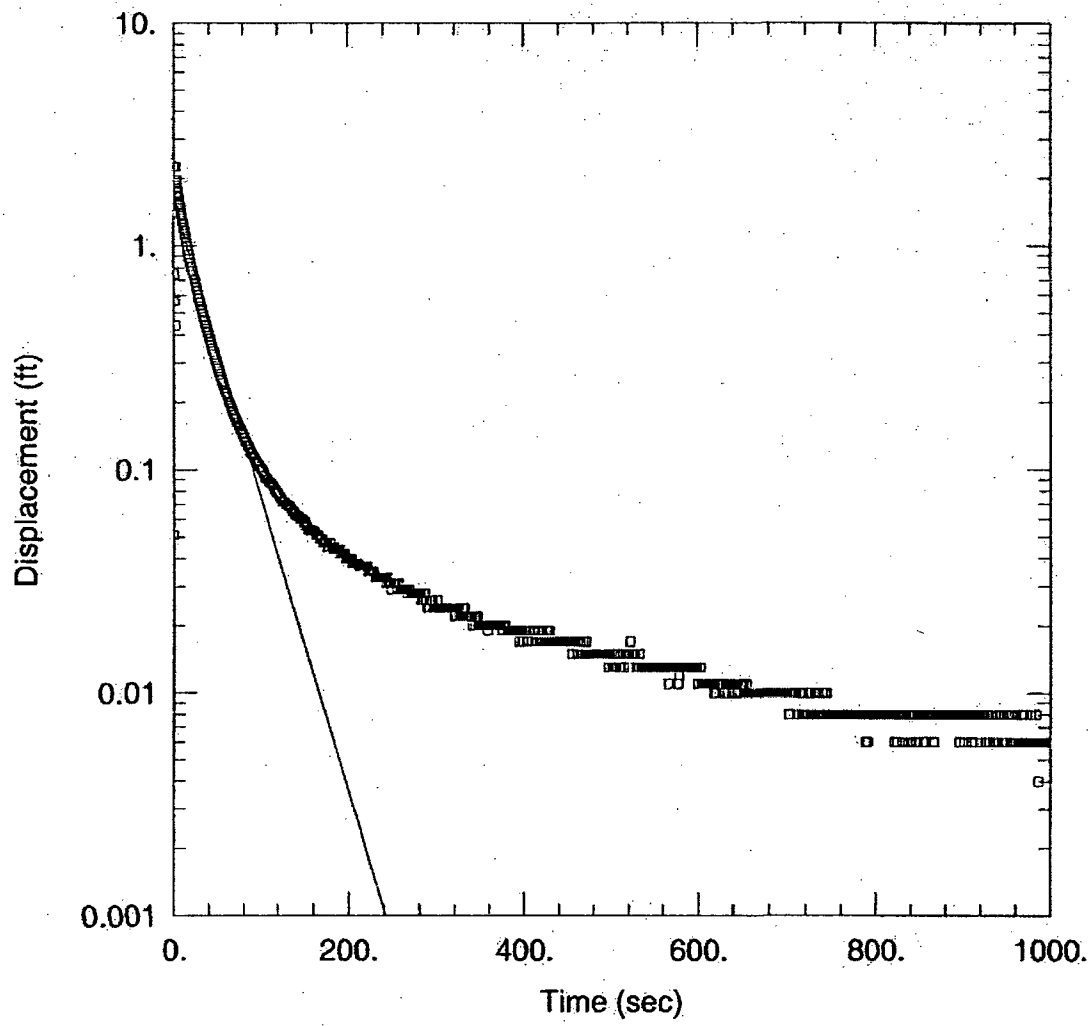
WELL DATA (MW-102B-RH1)

Initial Displacement: 2.778 ft
Casing Radius: 0.16 ft
Screen Length: 10. ft
Water Column Height: 22.46 ft
Wellbore Radius: 0.44 ft
Gravel Pack Porosity: 0.35

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 55.53 ft/day
y0 = 2.016 ft



MW-102B-RH2

PROJECT INFORMATION

Company: CH2M HILL
Client: Honeywell
Project: 332898
Test Location: Quanta Resources Site, NJ
Test Well: MW-102A
Test Date: 12/01/05

AQUIFER DATA

Saturated Thickness: 21.96 ft
Anisotropy Ratio (Kz/Kr): 0.1

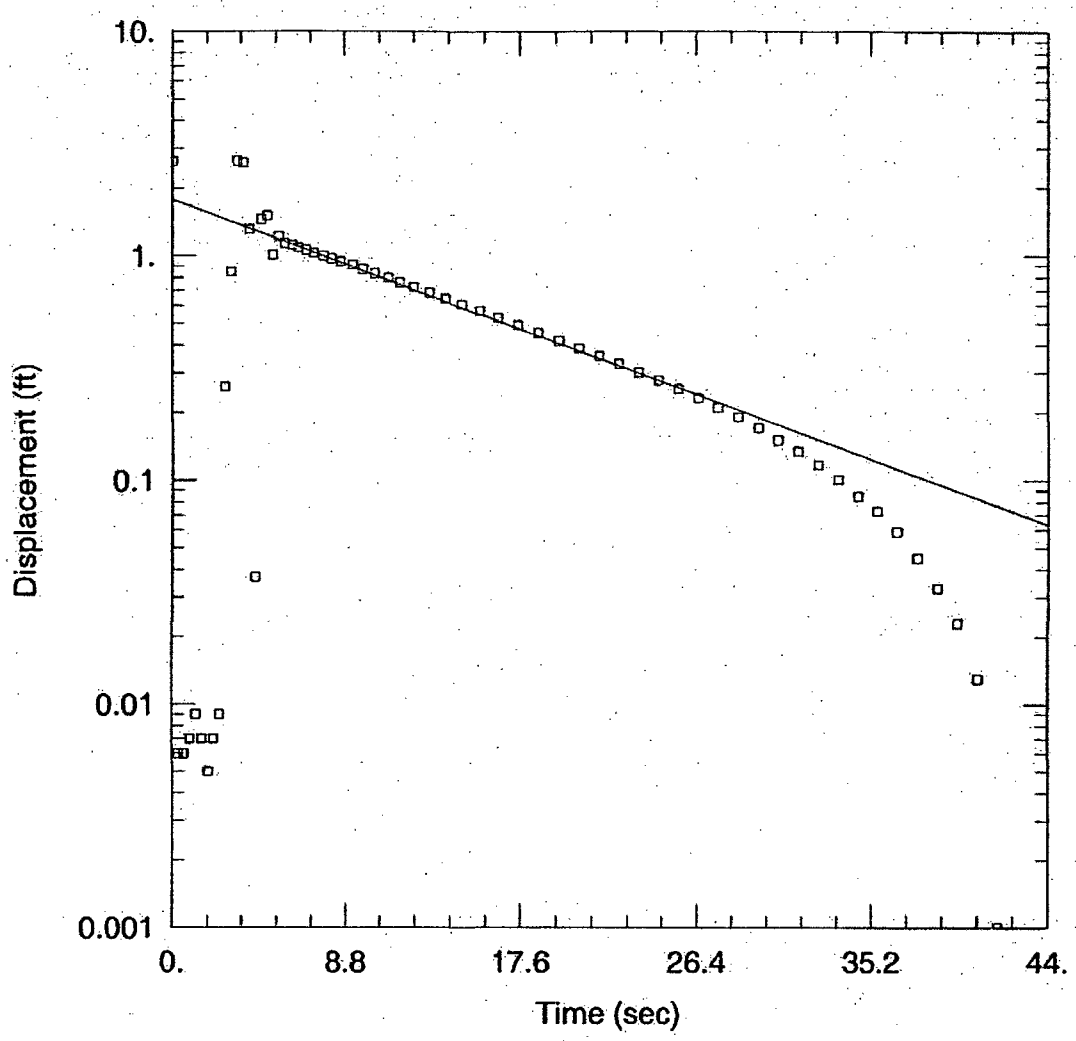
WELL DATA (MW-102B-RH2)

Initial Displacement: 2.271 ft
Casing Radius: 0.16 ft
Screen Length: 10. ft
Water Column Height: 22.46 ft
Wellbore Radius: 0.44 ft
Gravel Pack Porosity: 0.35

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 42.11 ft/day
y0 = 1.606 ft



MW-103A-FH1

PROJECT INFORMATION

Company: CH2M HILL
Client: Honeywell
Project: 332898
Test Location: Quanta Resources Site, NJ
Test Well: MW-102A
Test Date: 12/01/05

AQUIFER DATA

Saturated Thickness: 18.92 ft
Anisotropy Ratio (Kz/Kr): 0.1

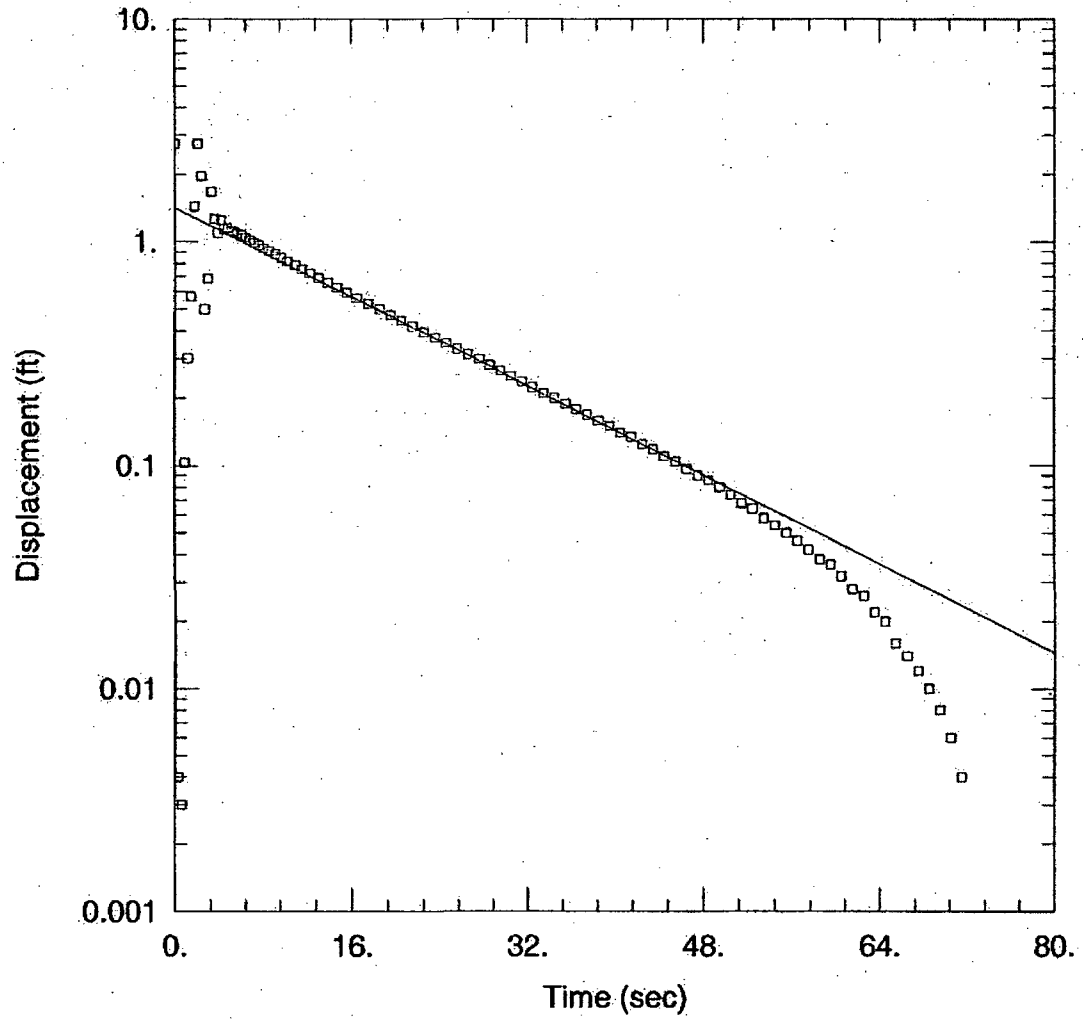
WELL DATA (MW-103A-FH1)

Initial Displacement: 2.65 ft
Casing Radius: 0.16 ft
Screen Length: 10. ft
Water Column Height: 12.22 ft
Wellbore Radius: 0.44 ft
Gravel Pack Porosity: 0.35

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 83.92 ft/day
y0 = 1.785 ft



MW-103A-FH2

PROJECT INFORMATION

Company: CH2M HILL
Client: Honeywell
Project: 332898
Test Location: Quanta Resources Site, NJ
Test Well: MW-102A
Test Date: 12/01/05

AQUIFER DATA

Saturated Thickness: 18.92 ft
Anisotropy Ratio (Kz/Kr): 0.1

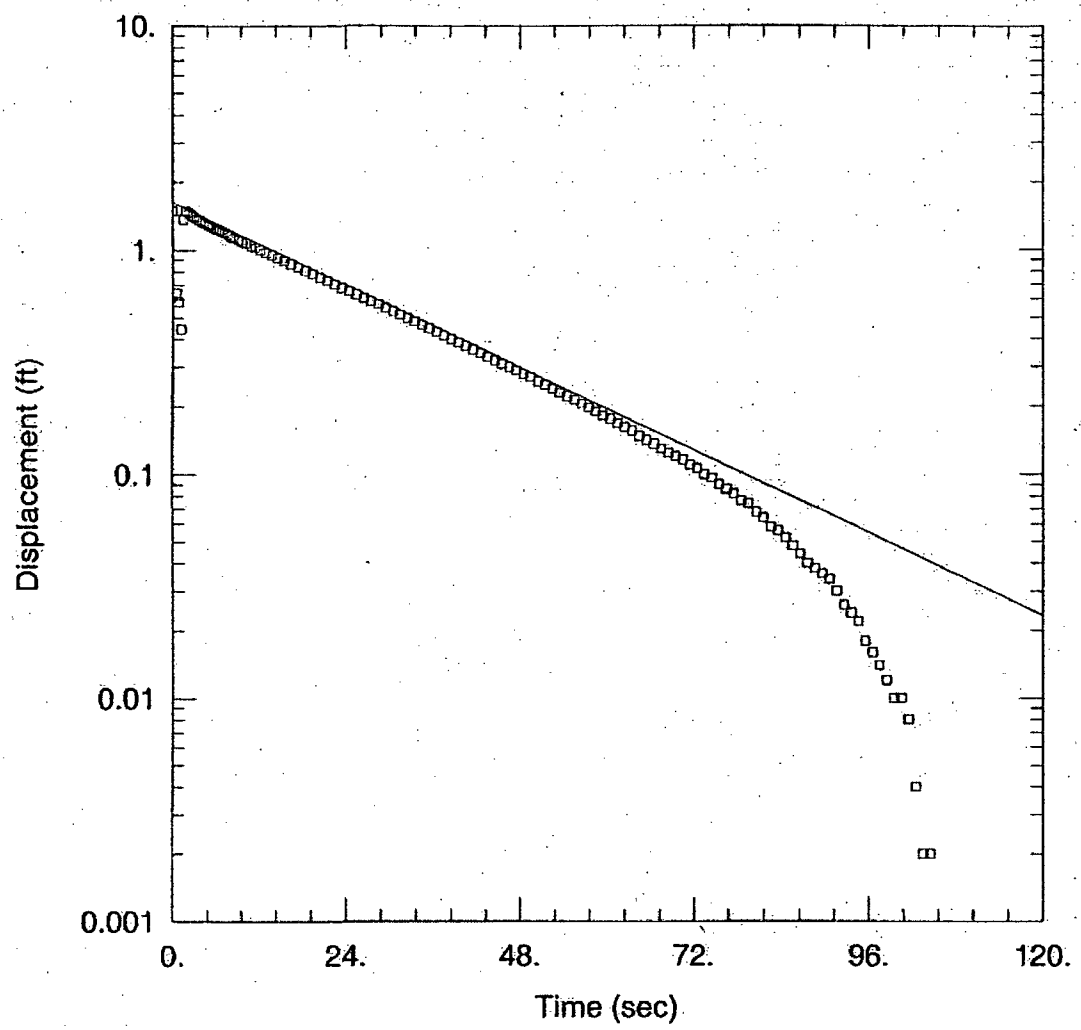
WELL DATA (MW-103A-FH2)

Initial Displacement: 2.762 ft
Casing Radius: 0.16 ft
Screen Length: 10. ft
Water Column Height: 12.22 ft
Wellbore Radius: 0.44 ft
Gravel Pack Porosity: 0.35

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 63.45 ft/day
y0 = 1.42 ft



MW-103A-RH1

PROJECT INFORMATION

Company: CH2M HILL
Client: Honeywell
Project: 332898
Test Location: Quanta Resources Site, NJ
Test Well: MW-102A
Test Date: 12/01/05

AQUIFER DATA

Saturated Thickness: 18.92 ft
Anisotropy Ratio (Kz/Kr): 0.1

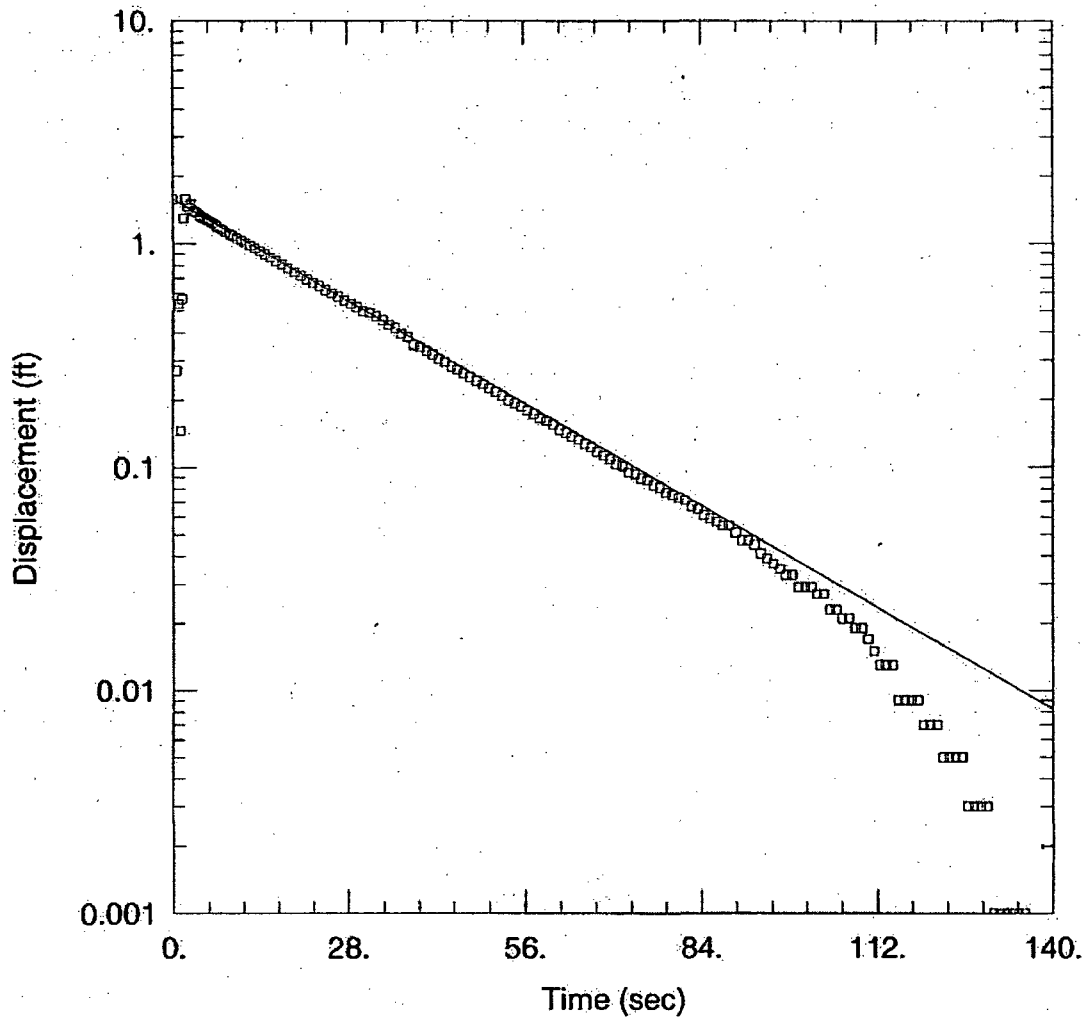
WELL DATA (MW-103A-RH1)

Initial Displacement: 1.499 ft
Casing Radius: 0.16 ft
Screen Length: 10. ft
Water Column Height: 12.22 ft
Wellbore Radius: 0.44 ft
Gravel Pack Porosity: 0.35

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 39.14 ft/day
y0 = 1.632 ft



MW-103A-RH2

PROJECT INFORMATION

Company: CH2M HILL
Client: Honeywell
Project: 332898
Test Location: Quanta Resources Site, NJ
Test Well: MW-102A
Test Date: 12/01/05

AQUIFER DATA

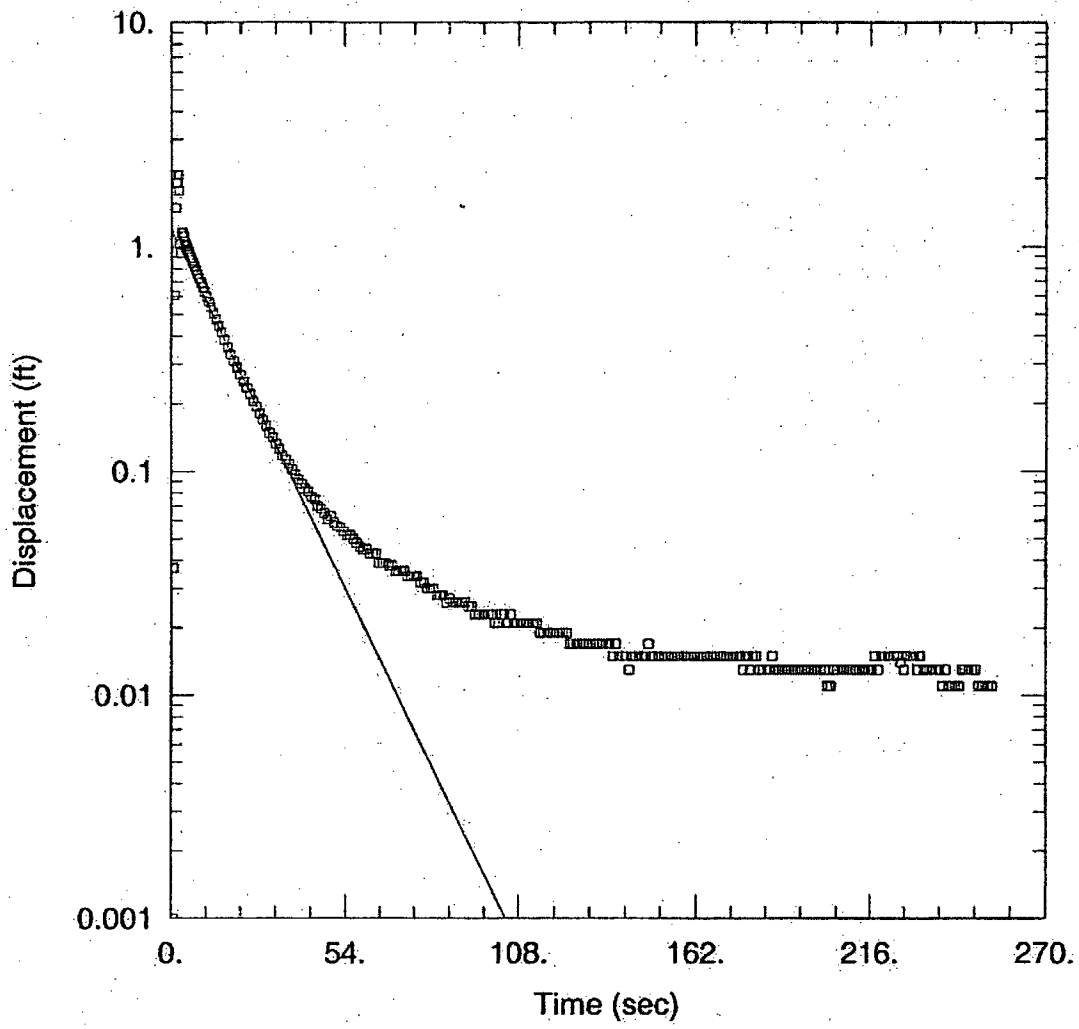
Saturated Thickness: 18.92 ft
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-103A-RH2)

Initial Displacement: 1.582 ft
Casing Radius: 0.16 ft
Screen Length: 10. ft
Water Column Height: 12.22 ft
Wellbore Radius: 0.44 ft
Gravel Pack Porosity: 0.35

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 41.57 ft/day
y0 = 1.585 ft



MW-103DS-FH1

PROJECT INFORMATION

Company: CH2M HILL
Client: Honeywell
Project: 332898
Test Location: Quanta Resources Site, NJ
Test Well: MW-102A
Test Date: 12/01/05

AQUIFER DATA

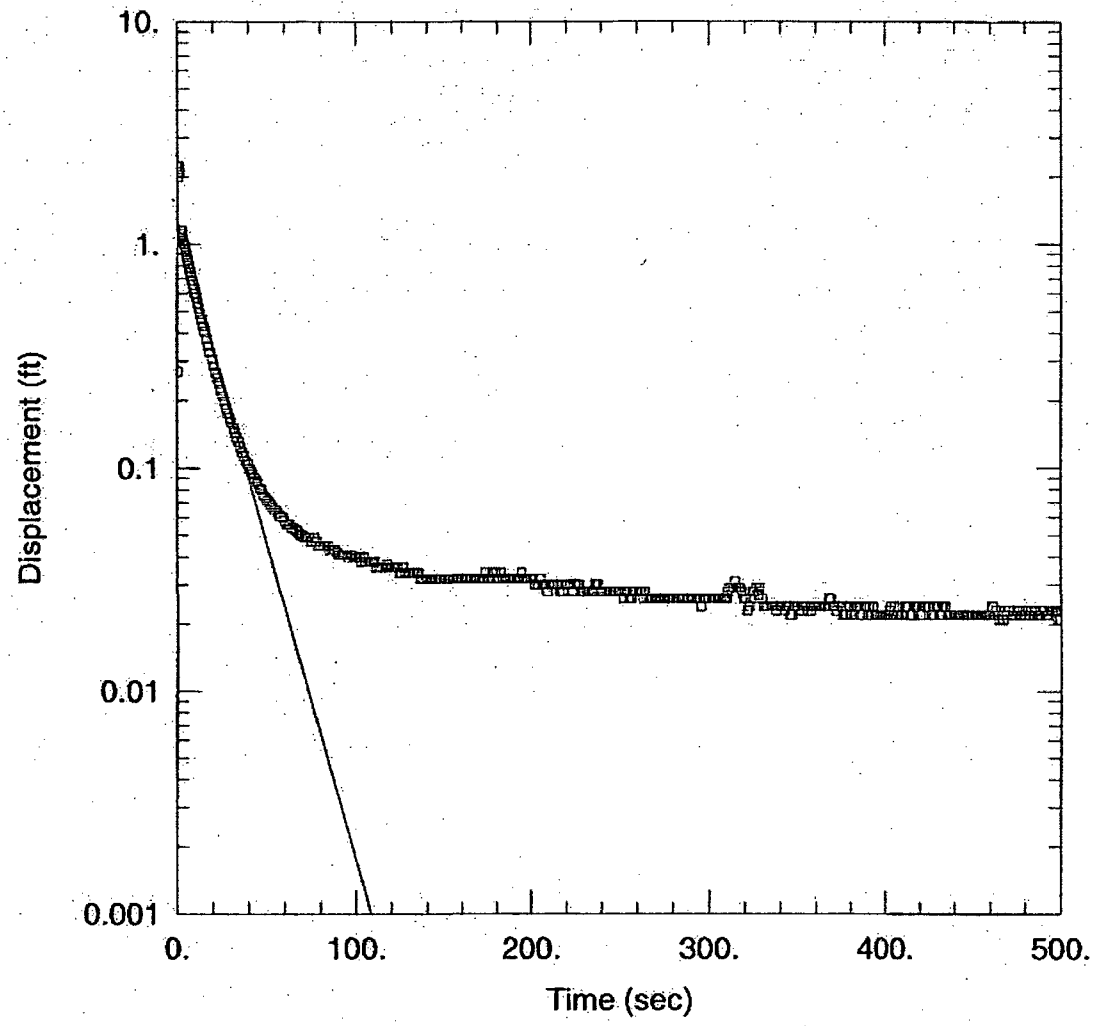
Saturated Thickness: 9. ft
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-103DS-FH1)

Initial Displacement: 2.085 ft
Casing Radius: 0.08 ft
Screen Length: 10. ft
Water Column Height: 7. ft
Wellbore Radius: 0.25 ft
Gravel Pack Porosity: 0.35

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 18.17 ft/day
y0 = 1.197 ft



MW-103DS-FH2

PROJECT INFORMATION

Company: CH2M HILL
Client: Honeywell
Project: 332898
Test Location: Quanta Resources Site, NJ
Test Well: MW-102A
Test Date: 12/01/05

AQUIFER DATA

Saturated Thickness: 9. ft
Anisotropy Ratio (Kz/Kr): 0.1

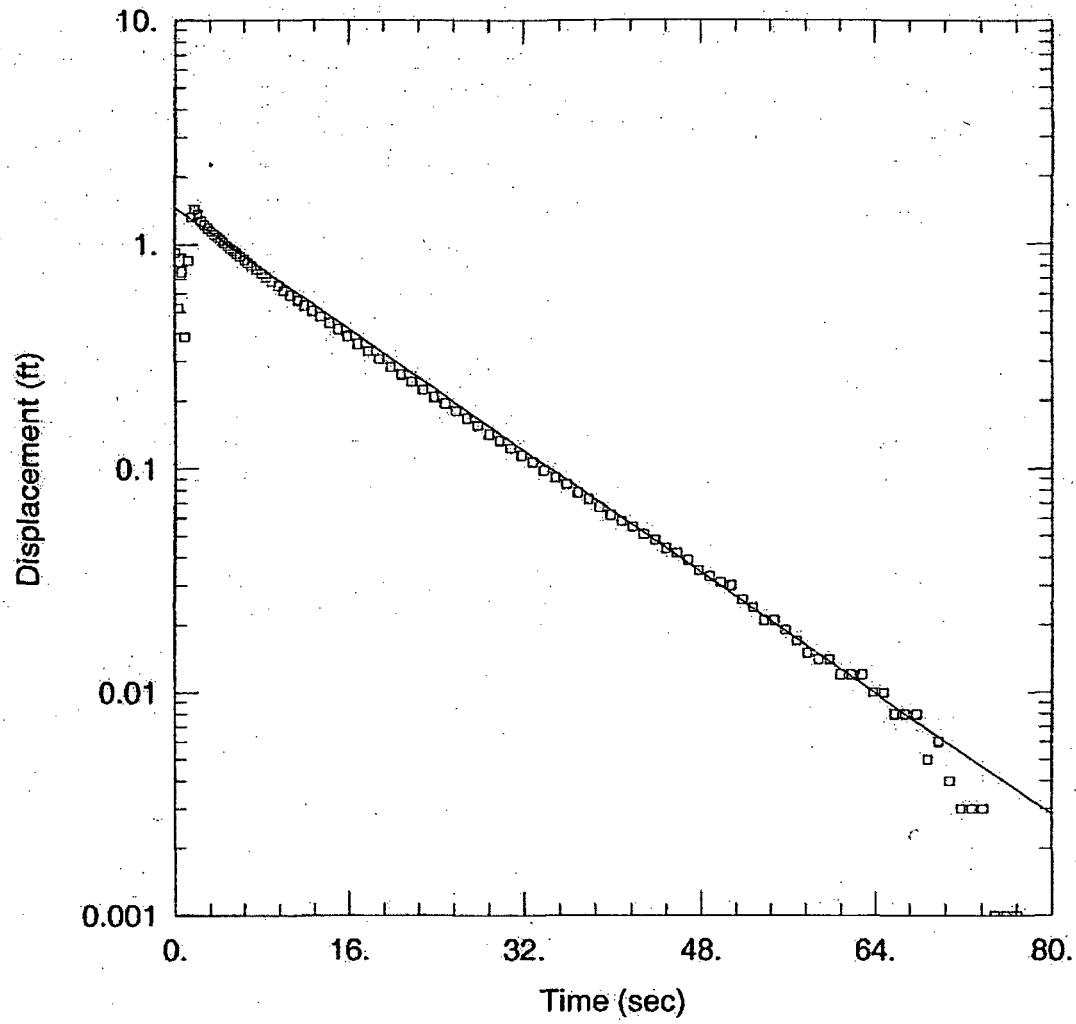
WELL DATA (MW-103DS-FH2)

Initial Displacement: 2.238 ft
Casing Radius: 0.08 ft
Screen Length: 10. ft
Water Column Height: 7. ft
Wellbore Radius: 0.25 ft
Gravel Pack Porosity: 0.35

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice

K = 17.59 ft/day
y0 = 1.271 ft



MW-103DS-RH1

PROJECT INFORMATION

Company: CH2M HILL
Client: Honeywell
Project: 332898
Test Location: Quanta Resources Site, NJ
Test Well: MW-102A
Test Date: 12/01/05

AQUIFER DATA

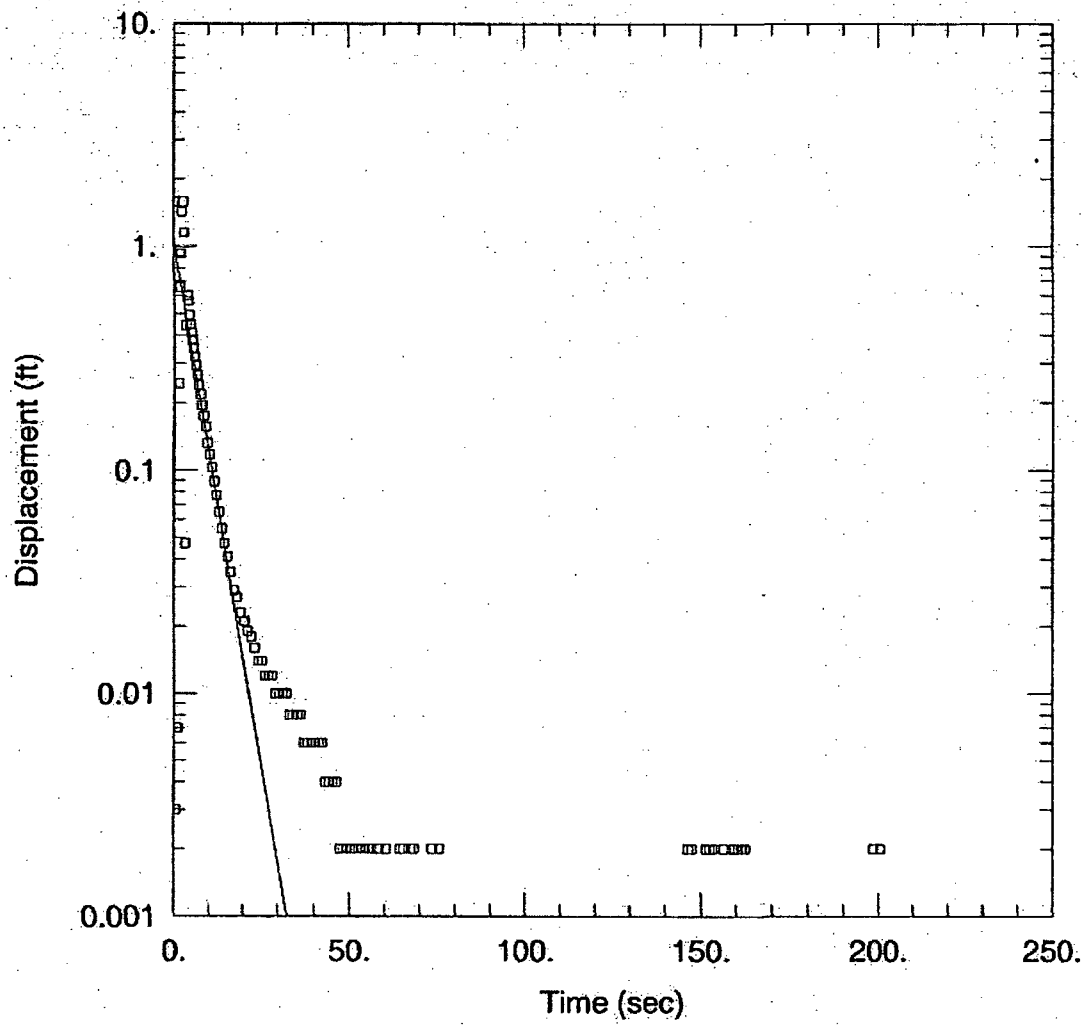
Saturated Thickness: 9. ft
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-103DS-RH1)

Initial Displacement: 0.917 ft
Casing Radius: 0.08 ft
Screen Length: 10. ft
Water Column Height: 7. ft
Wellbore Radius: 0.25 ft
Gravel Pack Porosity: 0.35

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 20.75 ft/day
y0 = 1.453 ft



MW-103-FH1

PROJECT INFORMATION

Company: CH2M HILL
Client: Honeywell
Project: 332898
Test Location: Quanta Resources Site, NJ
Test Well: MW-102A
Test Date: 12/01/05

AQUIFER DATA

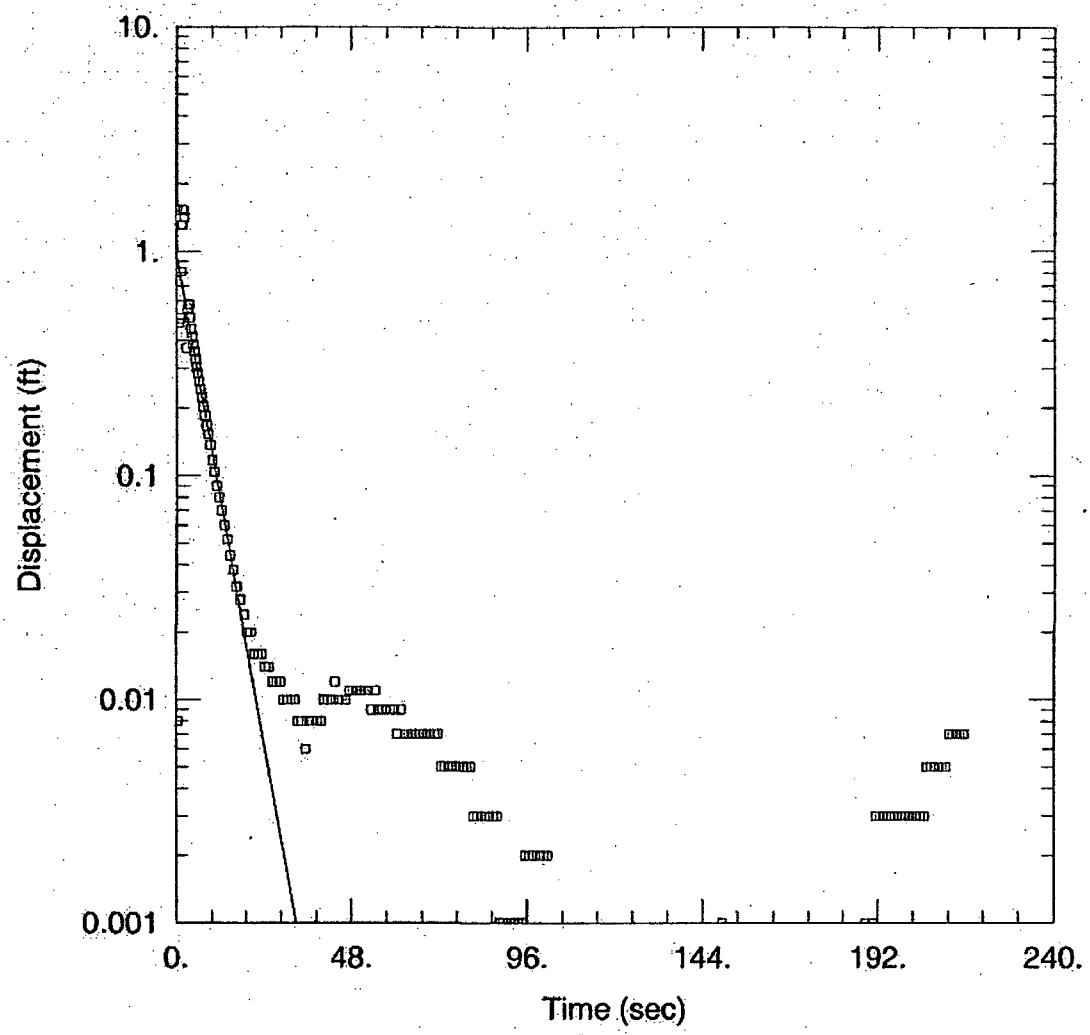
Saturated Thickness: 19.24 ft
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-103-FH1)

Initial Displacement: 1.587 ft
Casing Radius: 0.08 ft
Screen Length: 15. ft
Water Column Height: 20.54 ft
Wellbore Radius: 0.33 ft
Gravel Pack Porosity: 0.35

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 104.6 ft/day
y0 = 1.022 ft



MW-103-FH2

PROJECT INFORMATION

Company: CH2M HILL
Client: Honeywell
Project: 332898
Test Location: Quanta Resources Site, NJ
Test Well: MW-102A
Test Date: 12/01/05

AQUIFER DATA

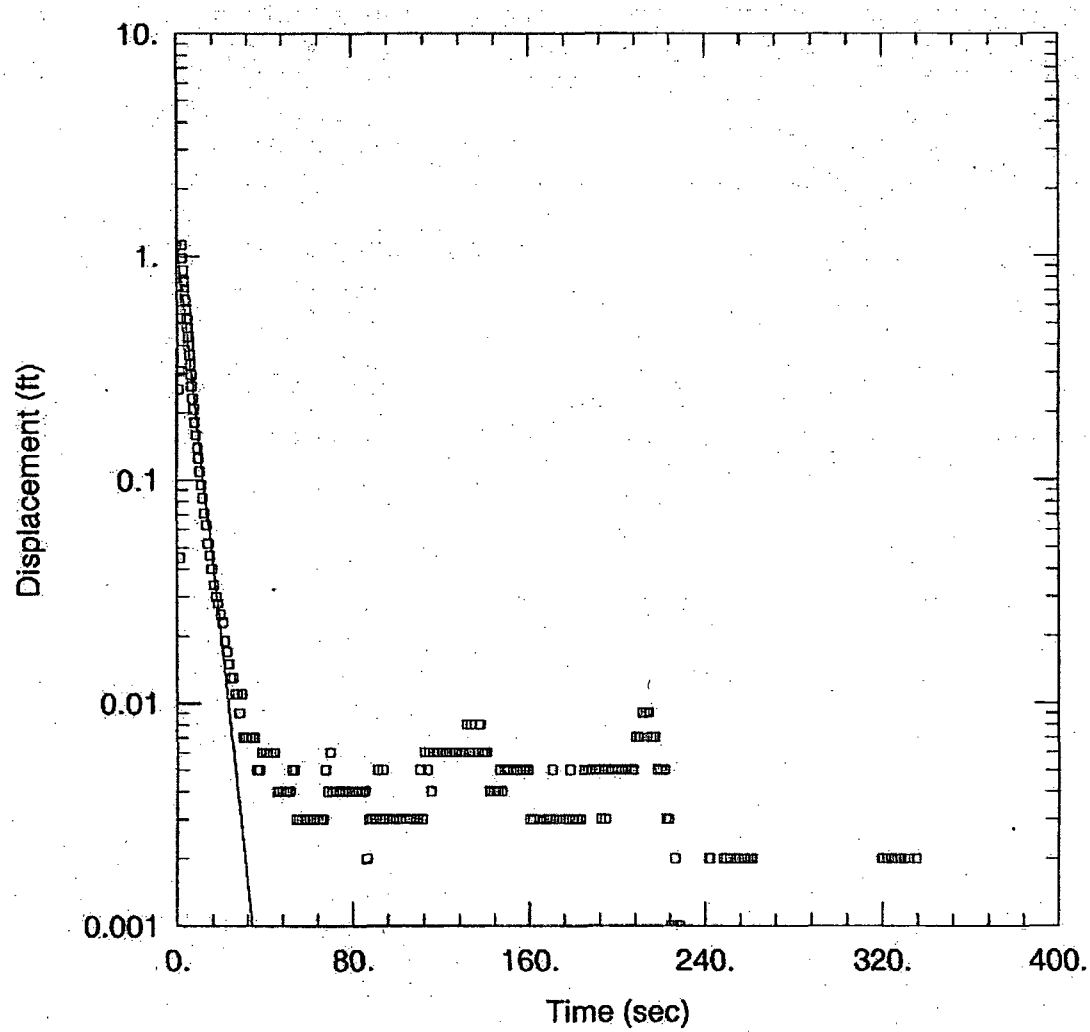
Saturated Thickness: 19.24 ft
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-103-FH2)

Initial Displacement: 1.524 ft
Casing Radius: 0.08 ft
Screen Length: 15. ft
Water Column Height: 20.54 ft
Wellbore Radius: 0.33 ft
Gravel Pack Porosity: 0.35

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 102.7 ft/day
y0 = 0.9498 ft



MW-103-RH1

PROJECT INFORMATION

Company: CH2M HILL
Client: Honeywell
Project: 332898
Test Location: Quanta Resources Site, NJ
Test Well: MW-102A
Test Date: 12/01/05

AQUIFER DATA

Saturated Thickness: 19.24 ft
Anisotropy Ratio (Kz/Kr): 0.1

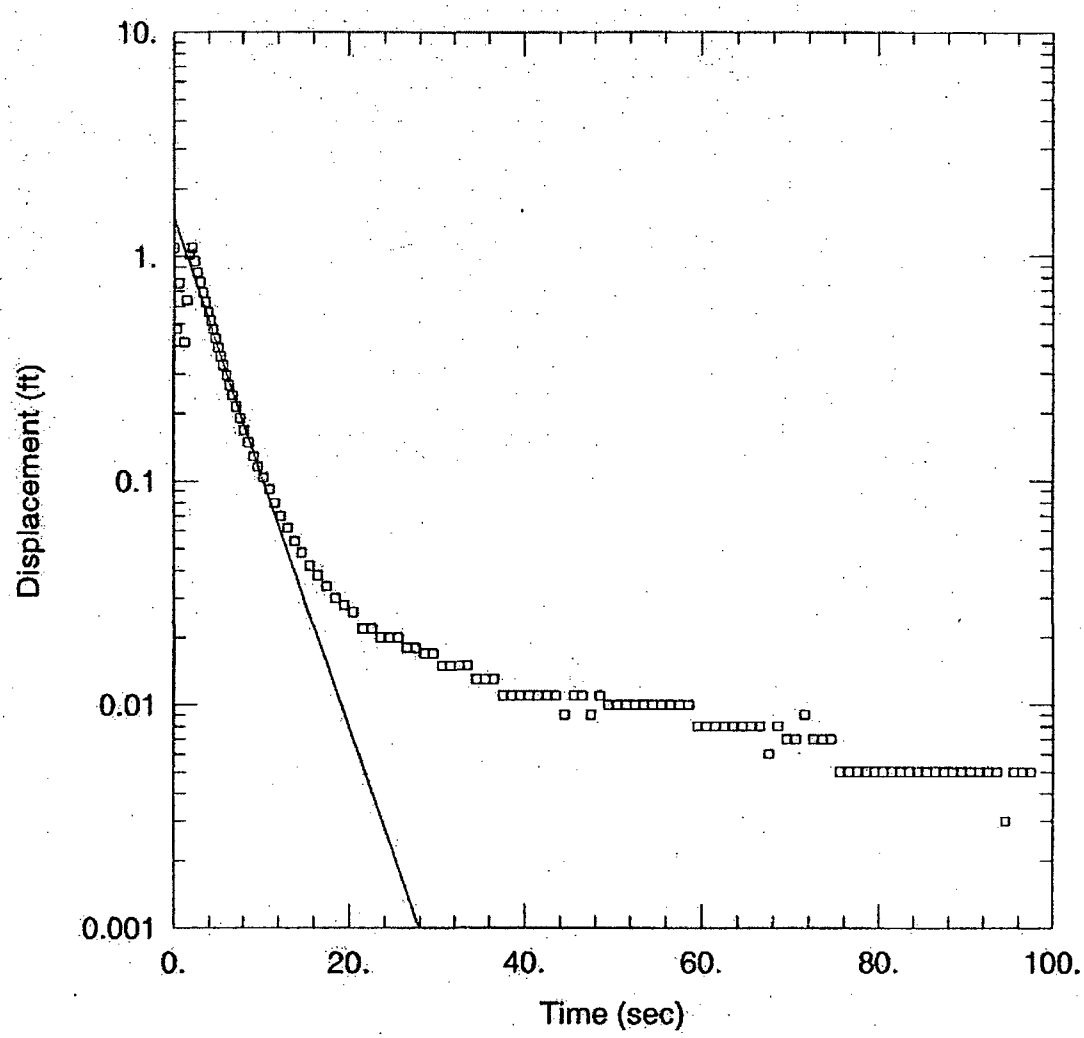
WELL DATA (MW-103-RH1)

Initial Displacement: 1.123 ft
Casing Radius: 0.08 ft
Screen Length: 15. ft
Water Column Height: 20.54 ft
Wellbore Radius: 0.33 ft
Gravel Pack Porosity: 0.35

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 101.5 ft/day
y0 = 1.174 ft



MW-103-RH2

PROJECT INFORMATION

Company: CH2M HILL
Client: Honeywell
Project: 332898
Test Location: Quanta Resources Site, NJ
Test Well: MW-102A
Test Date: 12/01/05

AQUIFER DATA

Saturated Thickness: 19.24 ft
Anisotropy Ratio (Kz/Kr): 0.1

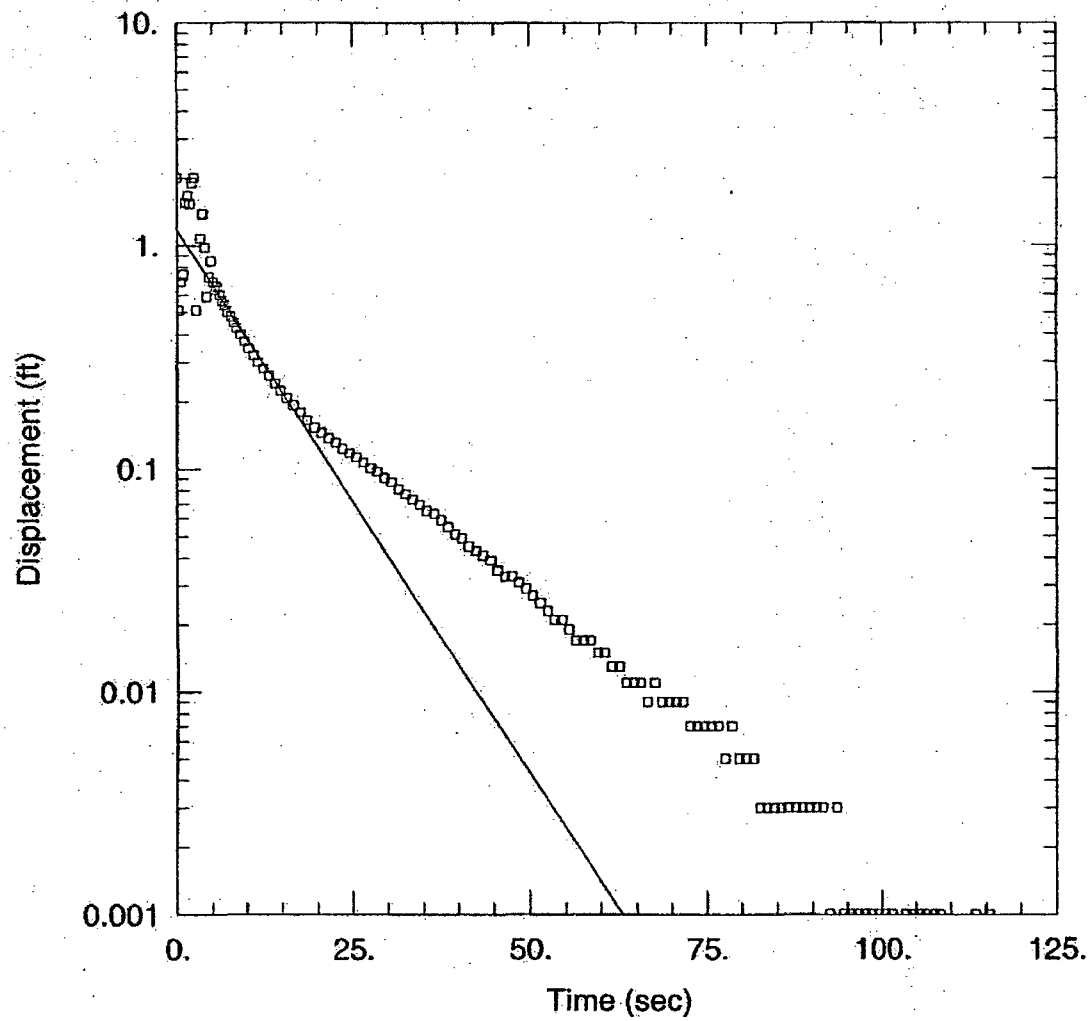
WELL DATA (MW-103-RH2)

Initial Displacement: 1.096 ft
Casing Radius: 0.08 ft
Screen Length: 15. ft
Water Column Height: 20.54 ft
Wellbore Radius: 0.33 ft
Gravel Pack Porosity: 0.35

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 128.9 ft/day
y0 = 1.486 ft



MW-107A-FH1

PROJECT INFORMATION

Company: CH2M HILL
Client: Honeywell
Project: 332898
Test Location: Quanta Resources Site, NJ
Test Well: MW-102A
Test Date: 12/01/05

AQUIFER DATA

Saturated Thickness: 18.62 ft
Anisotropy Ratio (Kz/Kr): 0.1

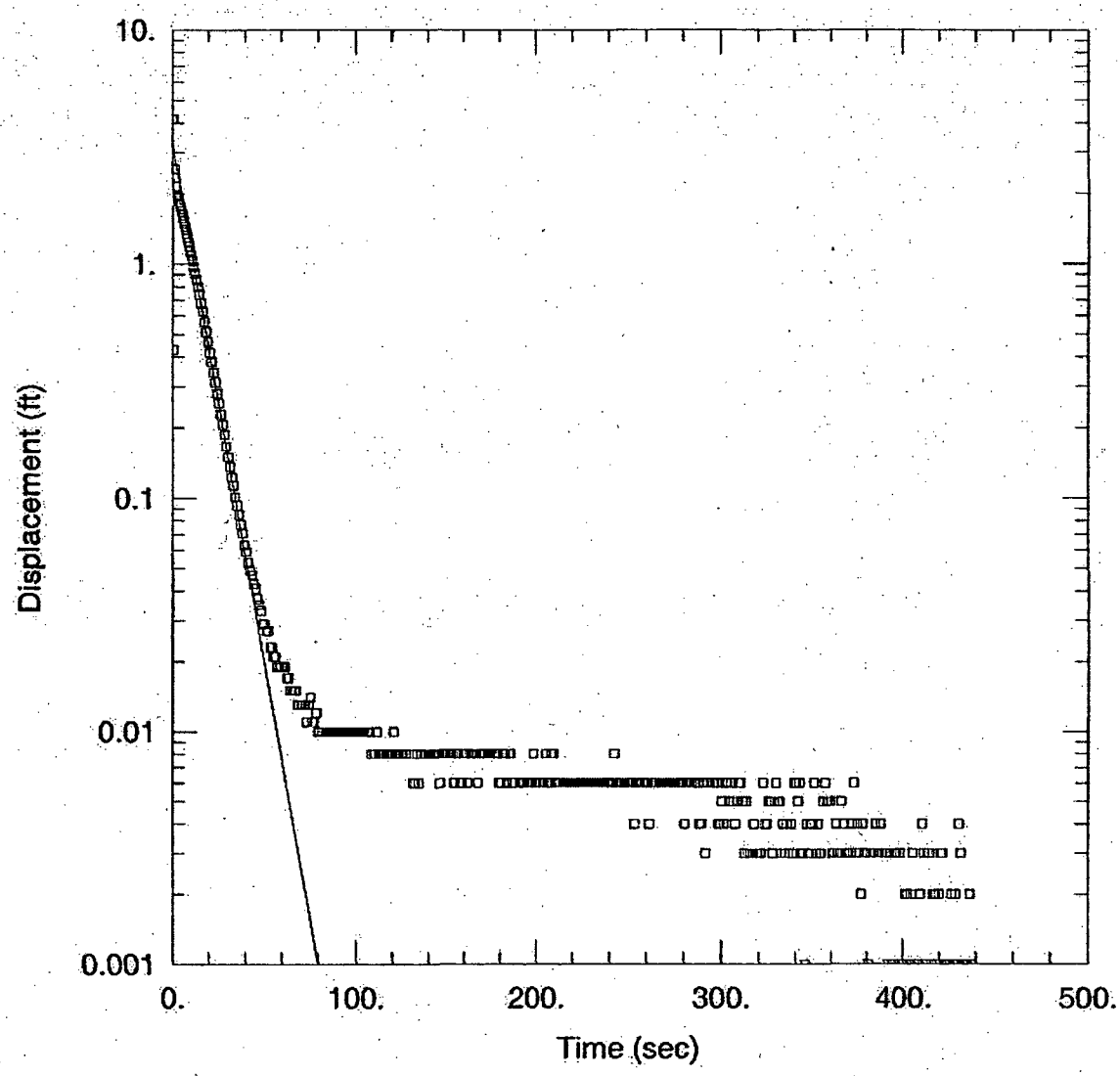
WELL DATA (MW-107A-FH1)

Initial Displacement: 2.016 ft
Casing Radius: 0.16 ft
Screen Length: 10. ft
Water Column Height: 9.62 ft
Wellbore Radius: 0.44 ft
Gravel Pack Porosity: 0.35

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 118.2 ft/day
y0 = 1.17 ft



MW-107A-RH1

PROJECT INFORMATION

Company: CH2M HILL
Client: Honeywell
Project: 332898
Test Location: Quanta Resources Site, NJ
Test Well: MW-102A
Test Date: 12/01/05

AQUIFER DATA

Saturated Thickness: 18.62 ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-107A-RH1)

Initial Displacement: 4.16 ft
Casing Radius: 0.16 ft
Screen Length: 10. ft

Water Column Height: 9.62 ft
Wellbore Radius: 0.44 ft
Gravel Pack Porosity: 0.35

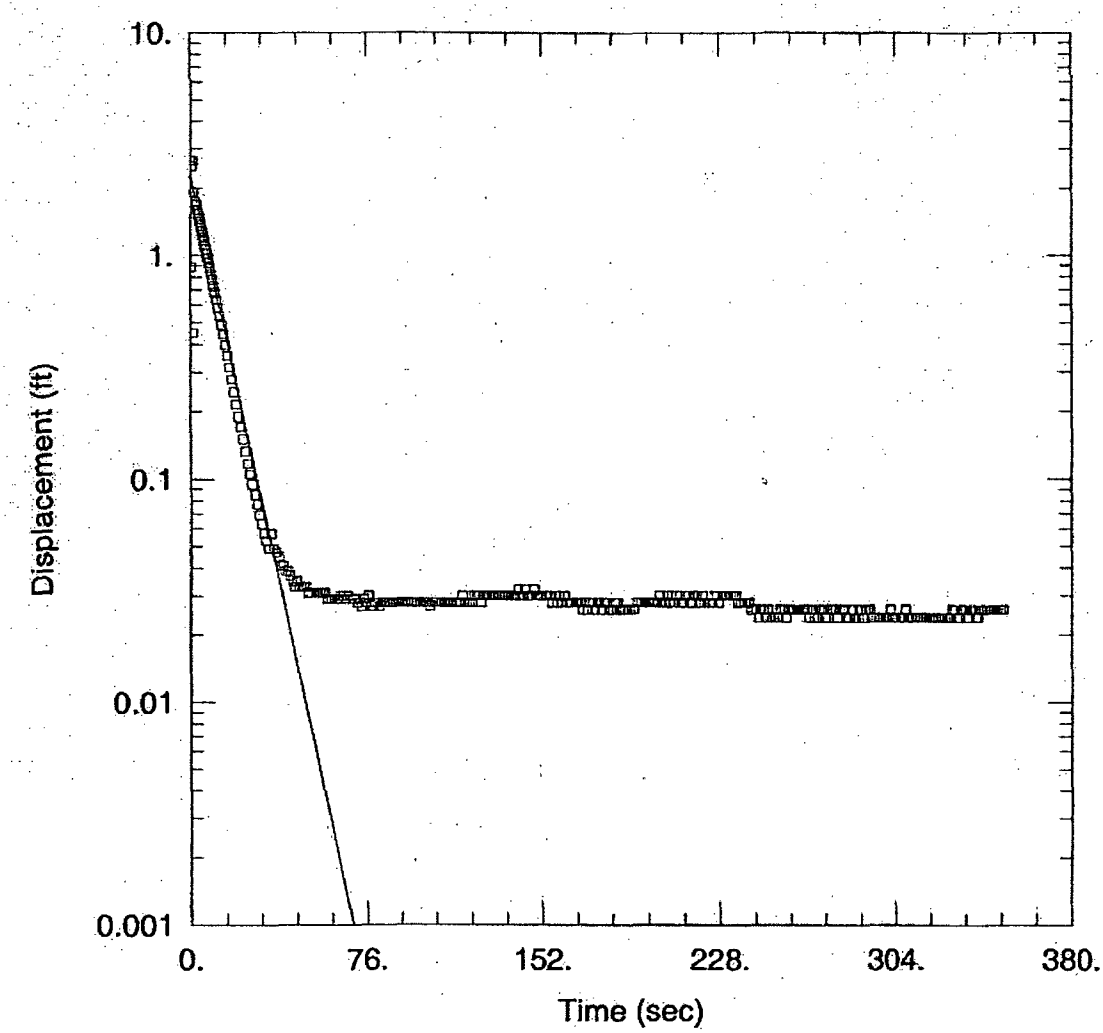
SOLUTION

Aquifer Model: Unconfined

Solution Method: Bouwer-Rice

K = 107.2 ft/day

y0 = 3.273 ft



MW-107A-RH2

Data Set: \...\MW-107A-RH2.aqt
Date: 02/09/06 Time: 13:30:03

PROJECT INFORMATION

Company: CH2M HILL
Client: Honeywell
Project: 332898
Test Location: Quanta Resources Site, NJ
Test Well: MW-102A
Test Date: 12/01/05

AQUIFER DATA

Saturated Thickness: 18.62 ft Anisotropy Ratio (Kz/Kr): 0.1

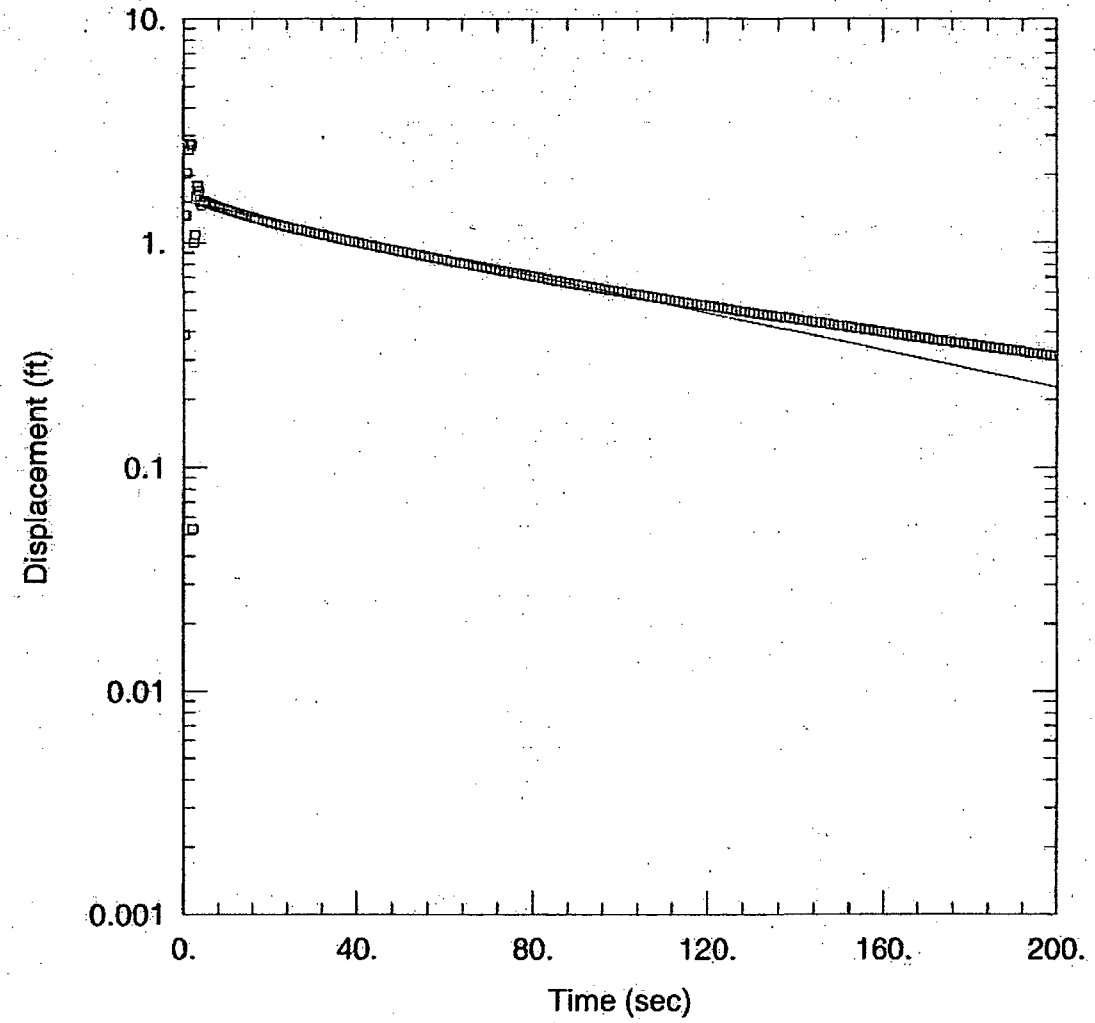
WELL DATA (MW-107A-RH2)

Initial Displacement: 2.67 ft Water Column Height: 9.62 ft
Casing Radius: 0.16 ft Wellbore Radius: 0.44 ft
Screen Length: 10. ft Gravel Pack Porosity: 0.35

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 116.7 ft/day y0 = 2.299 ft



MW-107DS-FH1

PROJECT INFORMATION

Company: CH2M HILL
Client: Honeywell
Project: 332898
Test Location: Quanta Resources Site, NJ
Test Well: MW-102A
Test Date: 12/01/05

AQUIFER DATA

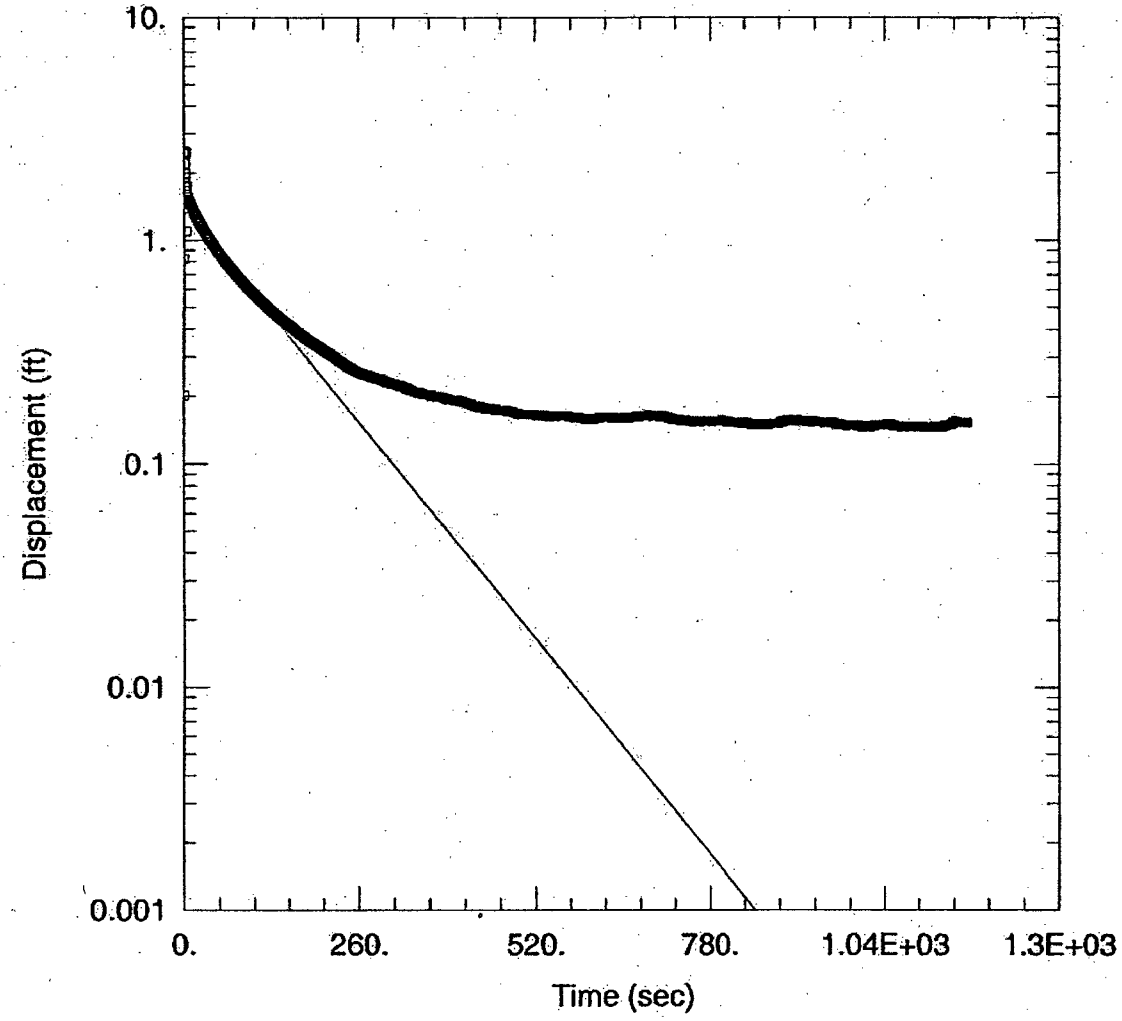
Saturated Thickness: 27.75 ft
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-107DS-FH1)

Initial Displacement: 2.765 ft
Casing Radius: 0.08 ft
Screen Length: 10. ft
Water Column Height: 27.75 ft
Wellbore Radius: 0.25 ft
Gravel Pack Porosity: 0.35

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 4.726 ft/day
y0 = 1.538 ft



MW-107DS-FH2

PROJECT INFORMATION

Company: CH2M HILL
Client: Honeywell
Project: 332898
Test Location: Quanta Resources Site, NJ
Test Well: MW-102A
Test Date: 12/01/05

AQUIFER DATA

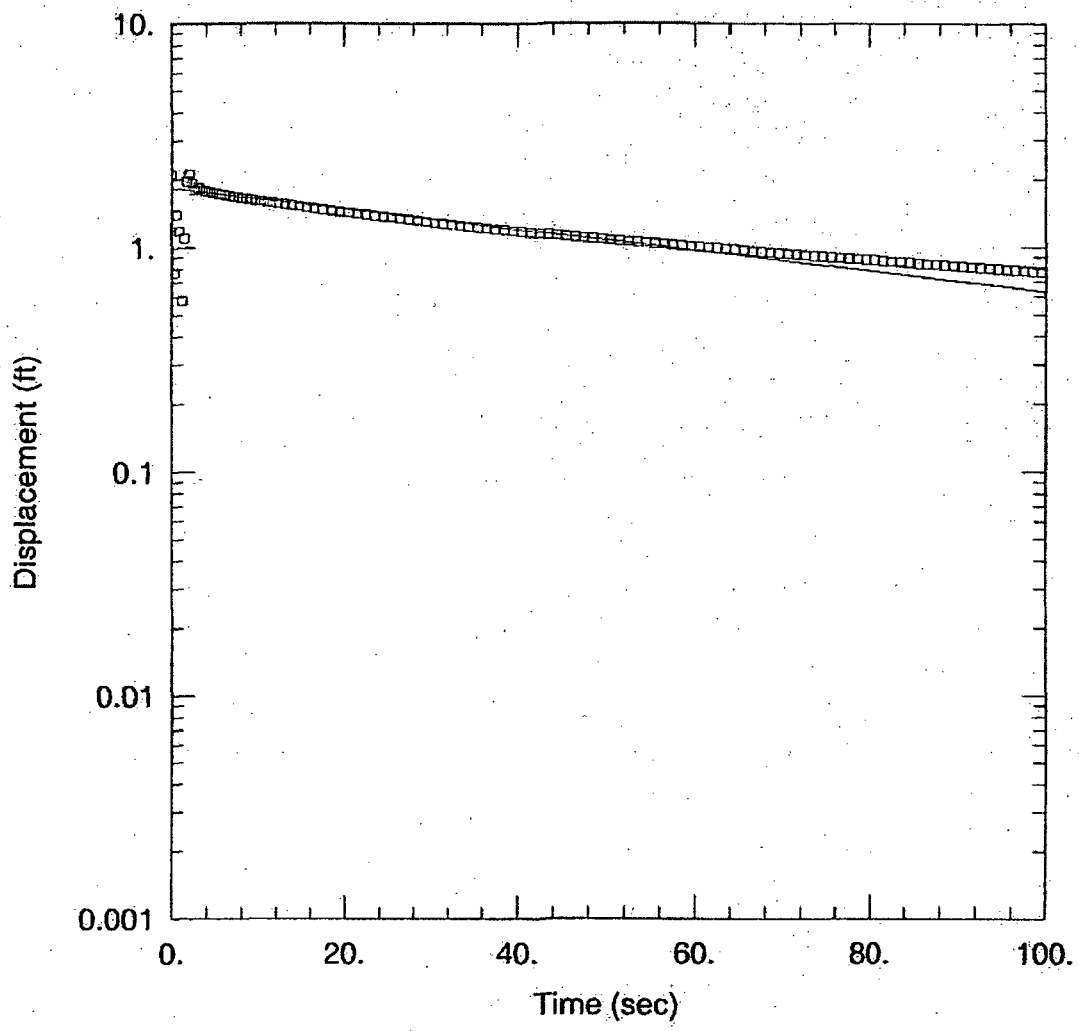
Saturated Thickness: 27.75 ft
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-107DS-FH2)

Initial Displacement: 2.49 ft
Casing Radius: 0.08 ft
Screen Length: 10. ft
Water Column Height: 27.75 ft
Wellbore Radius: 0.25 ft
Gravel Pack Porosity: 0.35

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 4.224 ft/day
y0 = 1.423 ft



MW-107DS-RH1

PROJECT INFORMATION

Company: CH2M HILL
Client: Honeywell
Project: 332898
Test Location: Quanta Resources Site, NJ
Test Well: MW-102A
Test Date: 12/01/05

AQUIFER DATA

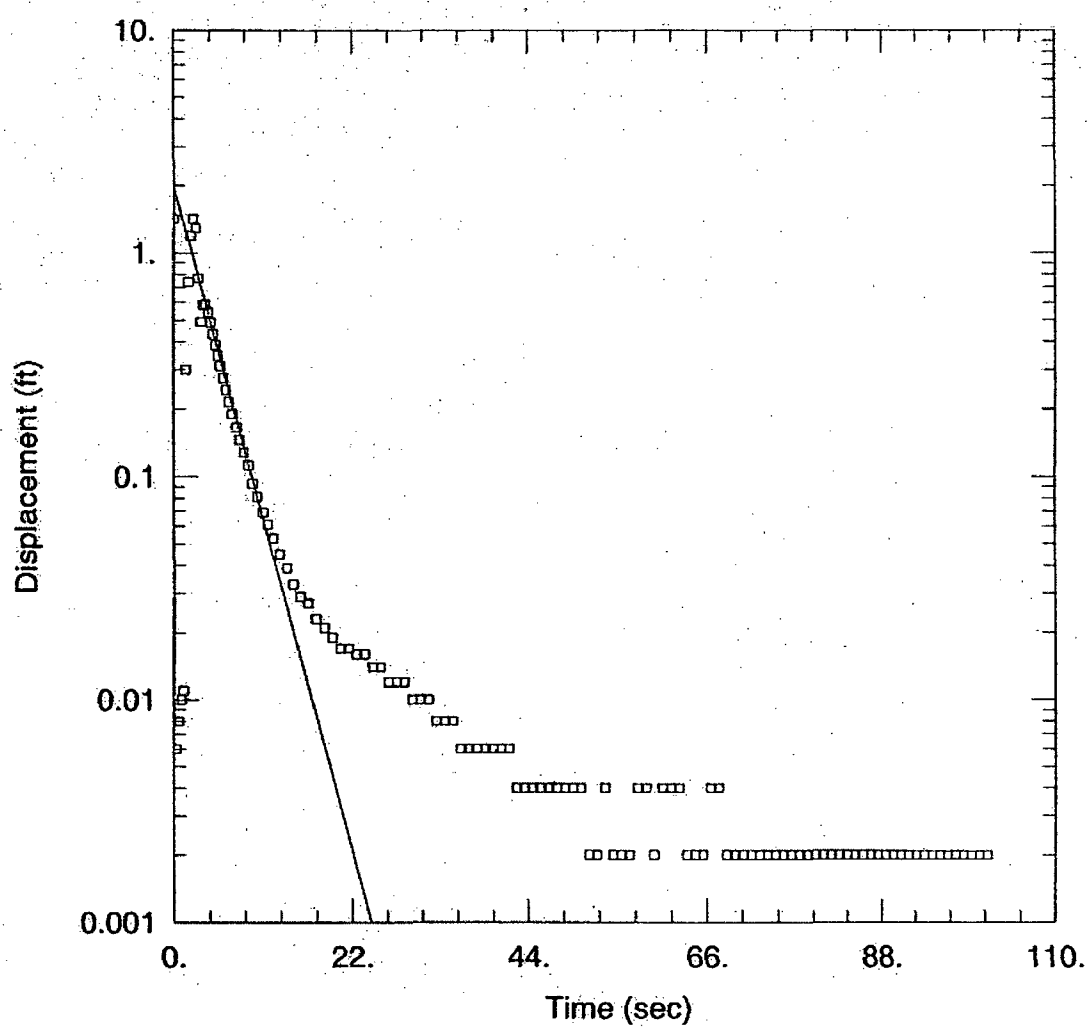
Saturated Thickness: 27.75 ft
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-107DS-RH1)

Initial Displacement: 2.12 ft
Casing Radius: 0.08 ft
Screen Length: 10. ft
Water Column Height: 27.75 ft
Wellbore Radius: 0.25 ft
Gravel Pack Porosity: 0.35

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 5.272 ft/day
y0 = 1.842 ft



MW-107-FH1

PROJECT INFORMATION

Company: CH2M HILL
Client: Honeywell
Project: 332898
Test Location: Quanta Resources Site, NJ
Test Well: MW-102A
Test Date: 12/01/05

AQUIFER DATA

Saturated Thickness: 19.78 ft
Anisotropy Ratio (Kz/Kr): 0.1

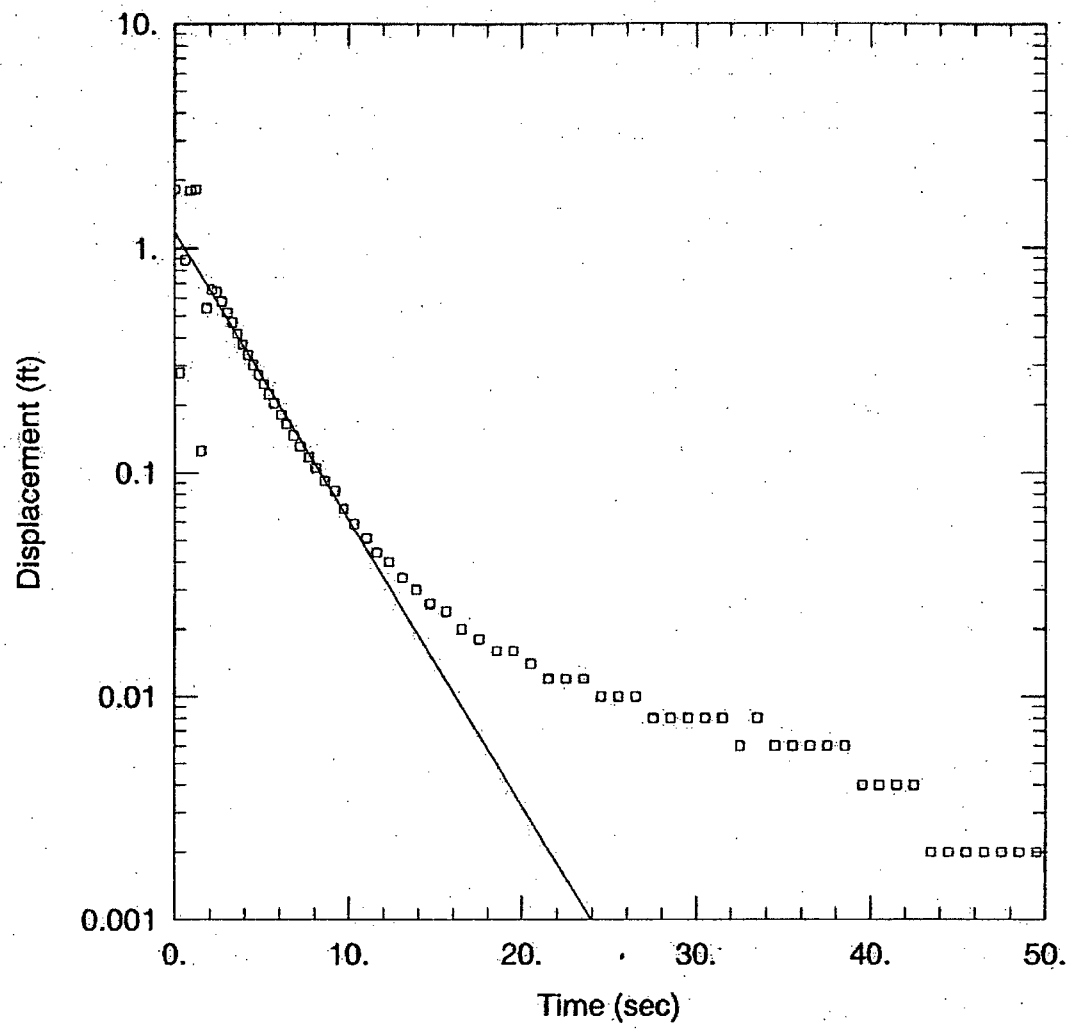
WELL DATA (MW-107-FH1)

Initial Displacement: 1.419 ft
Casing Radius: 0.08 ft
Screen Length: 10. ft
Water Column Height: 20.78 ft
Wellbore Radius: 0.33 ft
Gravel Pack Porosity: 0.35

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 226.6 ft/day
y0 = 1.997 ft



MW-107-FH2

PROJECT INFORMATION

Company: CH2M HILL
Client: Honeywell
Project: 332898
Test Location: Quanta Resources Site, NJ
Test Well: MW-102A
Test Date: 12/01/05

AQUIFER DATA

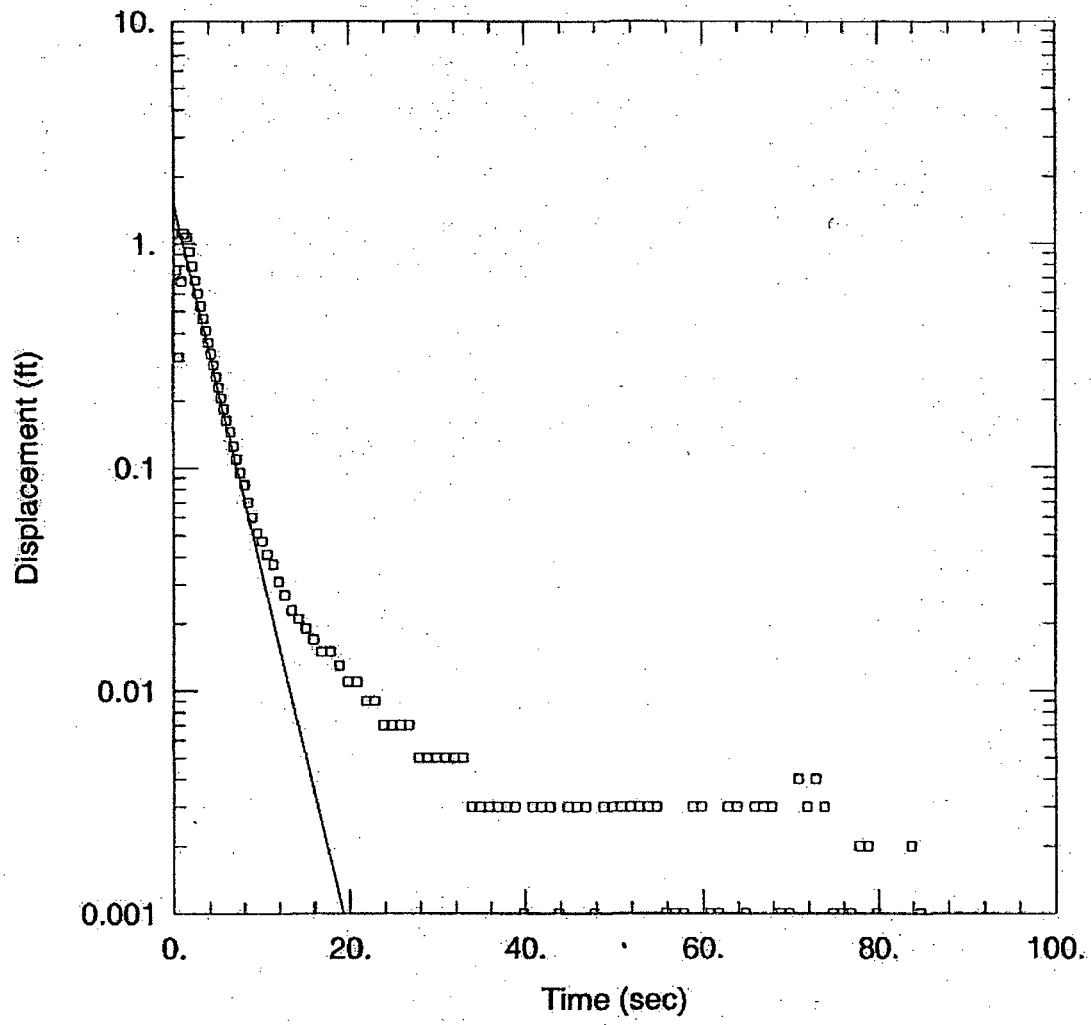
Saturated Thickness: 19.78 ft
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-107-FH2)

Initial Displacement: 1.824 ft
Casing Radius: 0.08 ft
Screen Length: 10. ft
Water Column Height: 20.78 ft
Wellbore Radius: 0.33 ft
Gravel Pack Porosity: 0.35

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 214.4 ft/day
y0 = 1.175 ft



MW-107-RH2

PROJECT INFORMATION

Company: CH2M HILL
Client: Honeywell
Project: 332898
Test Location: Quanta Resources Site, NJ
Test Well: MW-102A
Test Date: 12/01/05

AQUIFER DATA

Saturated Thickness: 19.78 ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-107-RH2)

Initial Displacement: 1.112 ft
Casing Radius: 0.08 ft
Screen Length: 10. ft

Water Column Height: 20.78 ft
Wellbore Radius: 0.33 ft
Gravel Pack Porosity: 0.35

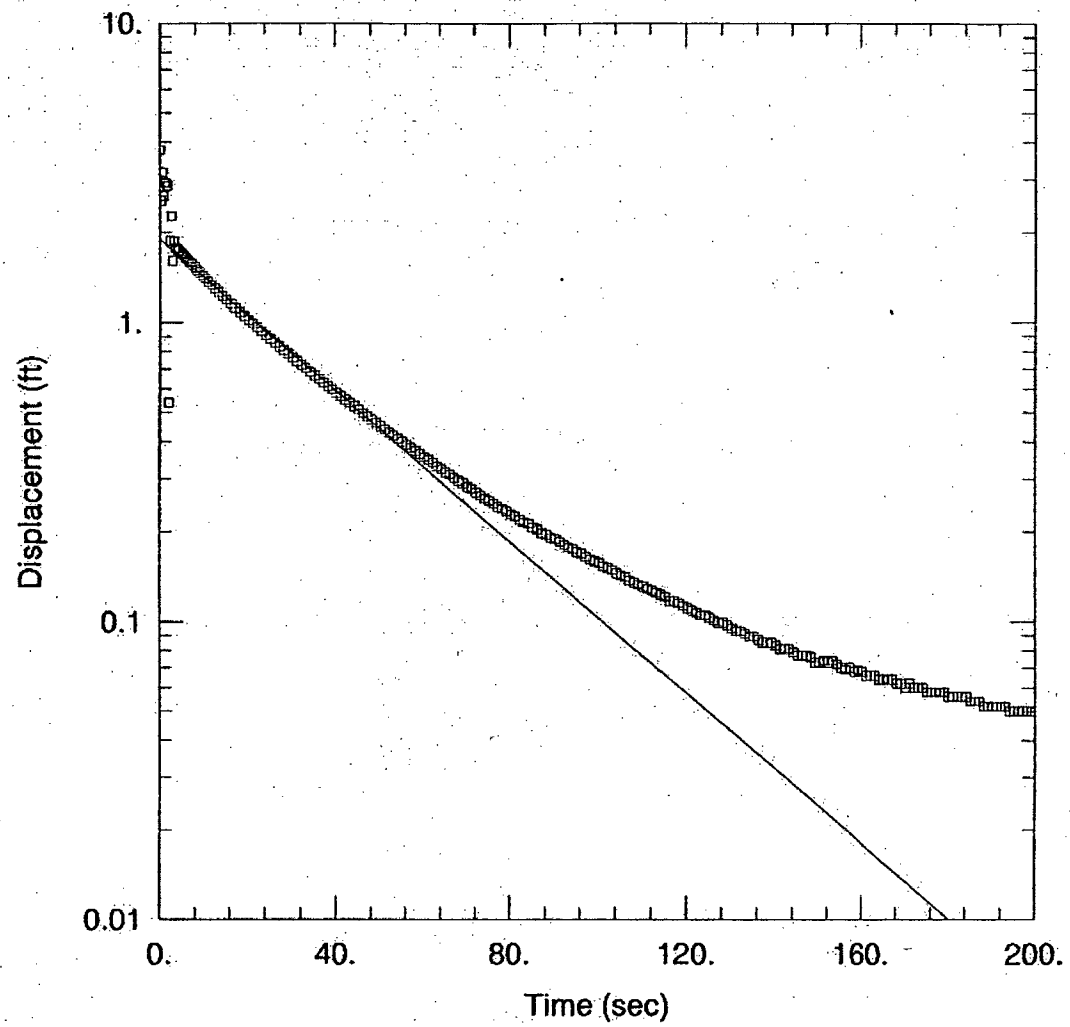
SOLUTION

Aquifer Model: Unconfined

Solution Method: Bouwer-Rice

K = 276.2 ft/day

y0 = 1.509 ft



MW-113A-FH1

PROJECT INFORMATION

Company: CH2MHILL
Client: Quanta Resources
Project: 332898
Test Location: Edgewater, NJ
Test Well: MW-113A-FH1
Test Date: 11/29/2005

AQUIFER DATA

Saturated Thickness: 17.3 ft
Anisotropy Ratio (Kz/Kr): 0.1

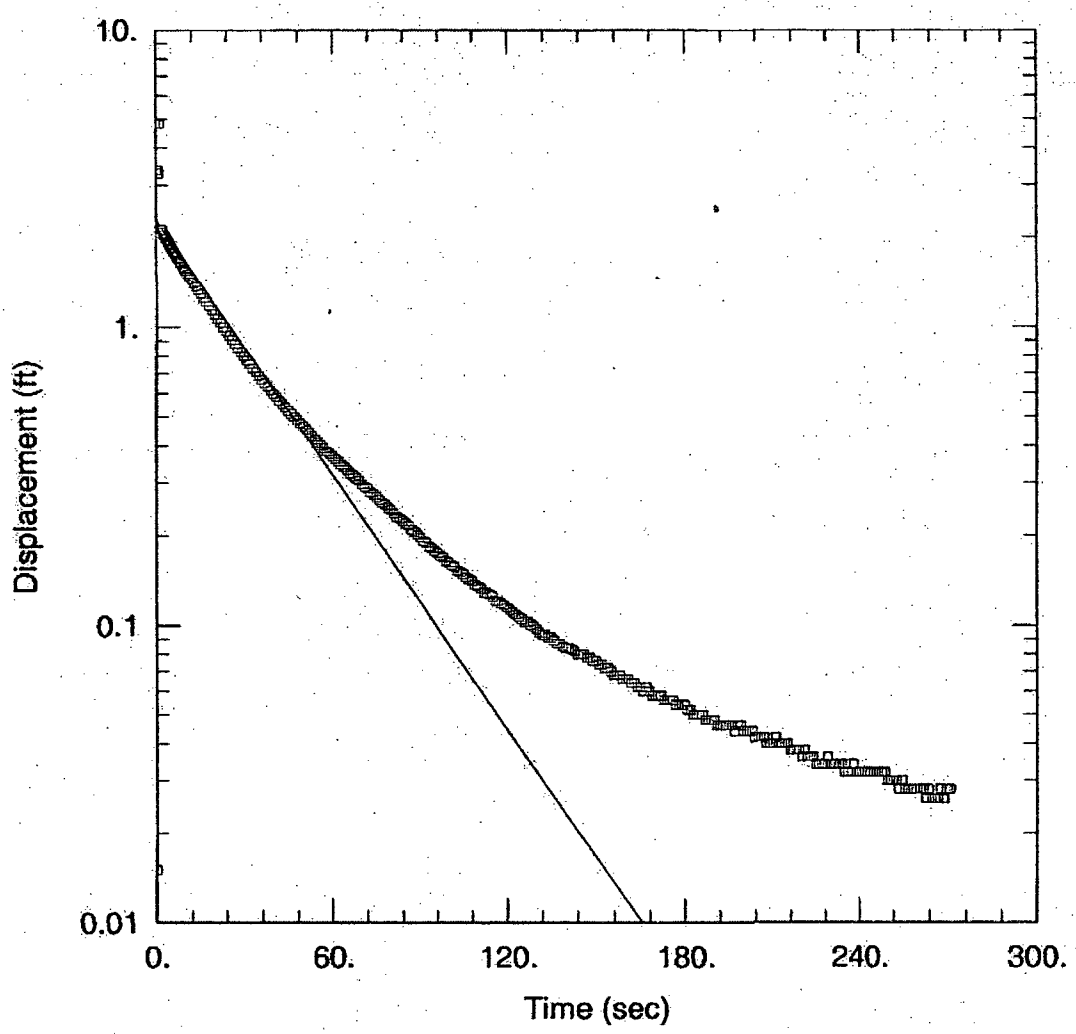
WELL DATA (MW-113A-FH1)

Initial Displacement: 3.766 ft
Casing Radius: 0.17 ft
Screen Length: 10. ft
Water Column Height: 9.35 ft
Wellbore Radius: 0.44 ft
Gravel Pack Porosity: 0.35

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 31.39 ft/day
y0 = 1.894 ft



MW-113A-RH1

PROJECT INFORMATION

Company: CH2MHILL
Client: Quanta Resources
Project: 332898
Test Location: Edgewater, NJ
Test Well: MW-113A-FH1
Test Date: 11/29/2005

AQUIFER DATA

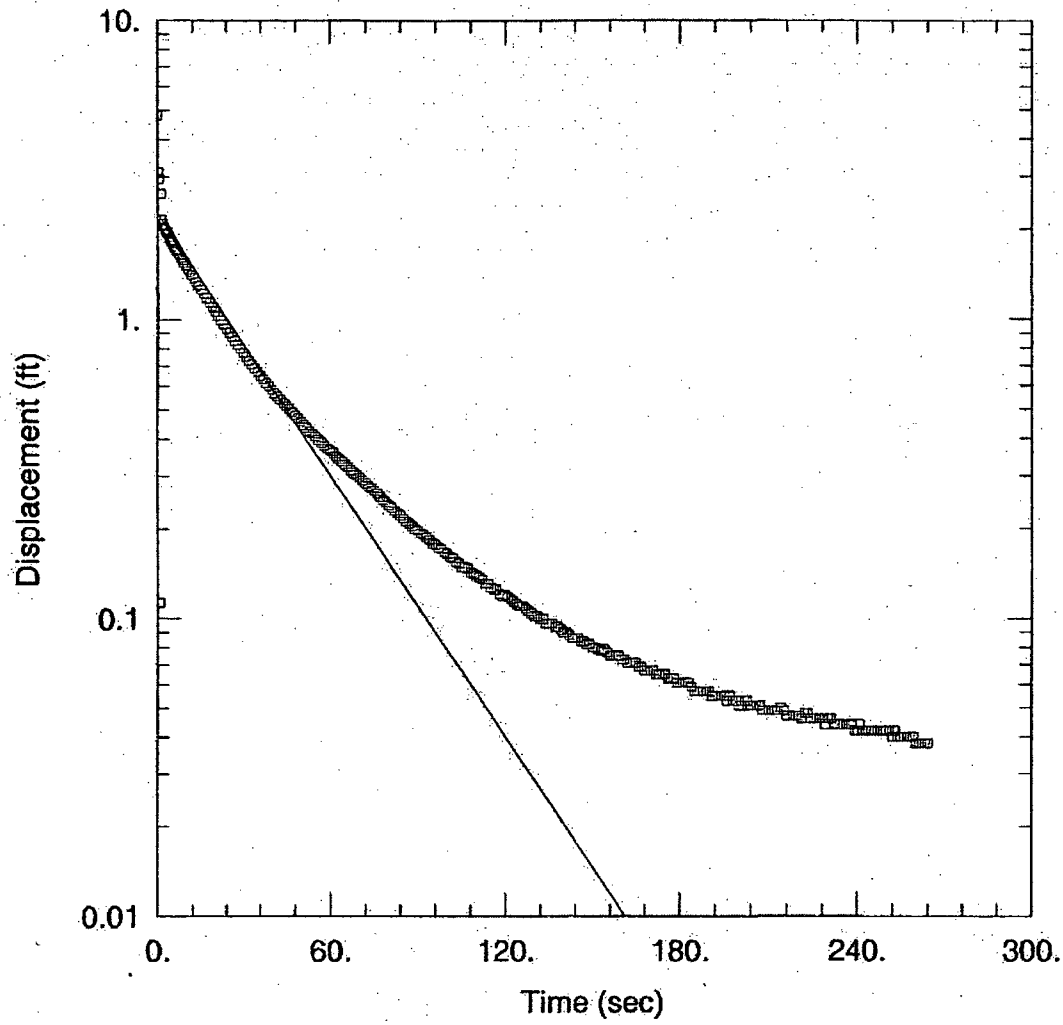
Saturated Thickness: 17.3 ft
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-113A-RH1)

Initial Displacement: 4.833 ft
Casing Radius: 0.17 ft
Screen Length: 10. ft
Water Column Height: 9.35 ft
Wellbore Radius: 0.44 ft
Gravel Pack Porosity: 0.35

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 35.45 ft/day
y0 = 2.289 ft



MW-113A-RH2

PROJECT INFORMATION

Company: CH2MHILL
Client: Quanta Resources
Project: 332898
Test Location: Edgewater, NJ
Test Well: MW-113A-FH1
Test Date: 11/29/2005

AQUIFER DATA

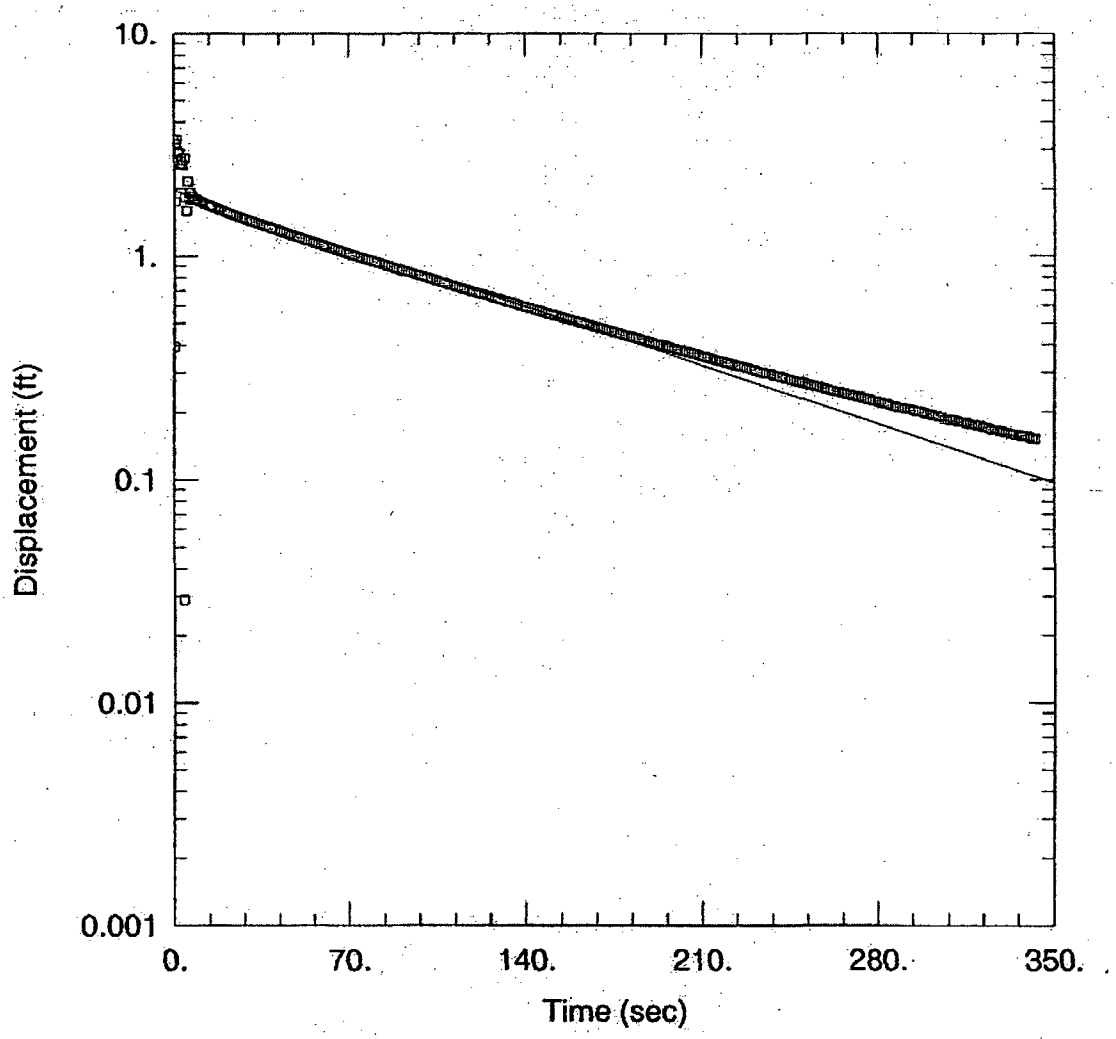
Saturated Thickness: 17.3 ft
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-113A-RH2)

Initial Displacement: 4.823 ft
Casing Radius: 0.17 ft
Screen Length: 10. ft
Water Column Height: 9.35 ft
Wellbore Radius: 0.44 ft
Gravel Pack Porosity: 0.35

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 36.3 ft/day
y0 = 2.266 ft



MW-113B-FH1

PROJECT INFORMATION

Company: CH2M HILL
Client: Honeywell
Project: 332898
Test Location: Quanta Resources Site, NJ
Test Well: MW-102A
Test Date: 12/01/05

AQUIFER DATA

Saturated Thickness: 17.14 ft
Anisotropy Ratio (Kz/Kr): 0.1

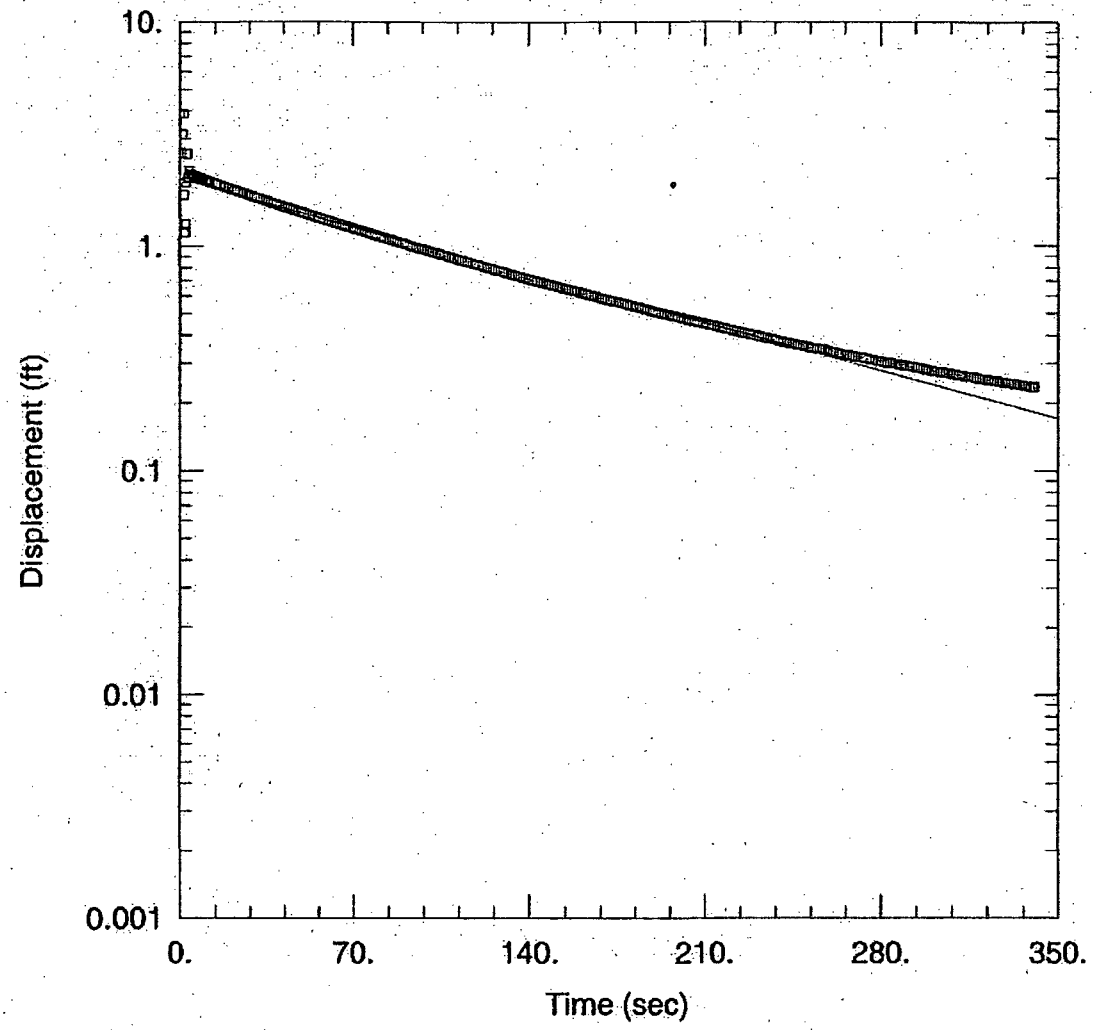
WELL DATA (MW-113B-FH1)

Initial Displacement: 3.336 ft
Casing Radius: 0.16 ft
Screen Length: 10. ft
Water Column Height: 17.14 ft
Wellbore Radius: 0.44 ft
Gravel Pack Porosity: 0.35

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 11.38 ft/day
y0 = 1.97 ft



MW-113B-RH1

PROJECT INFORMATION

Company: CH2M HILL
Client: Honeywell
Project: 332898
Test Location: Quanta Resources Site, NJ
Test Well: MW-102A
Test Date: 12/01/05

AQUIFER DATA

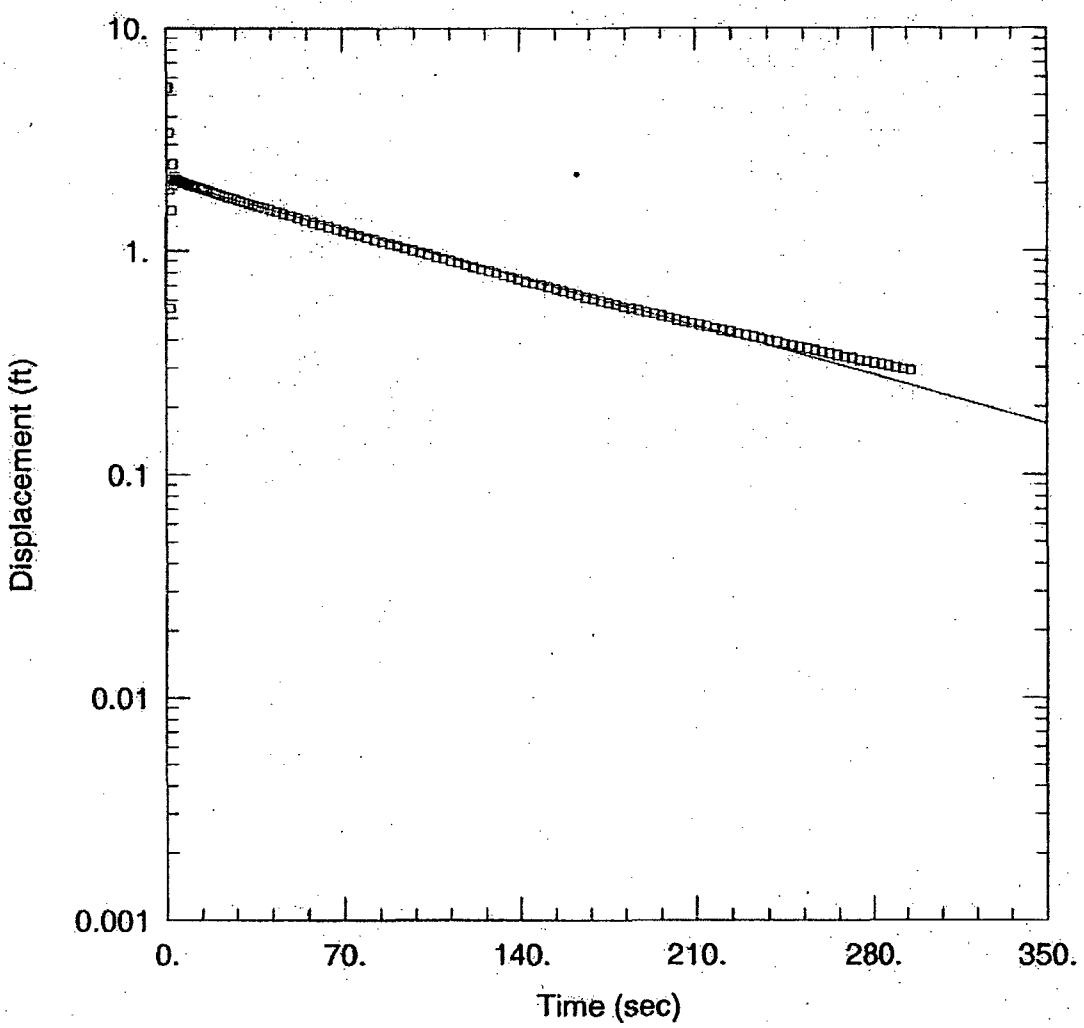
Saturated Thickness: 17.14 ft
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-113B-RH1)

Initial Displacement: 3.897 ft
Casing Radius: 0.16 ft
Screen Length: 10. ft
Water Column Height: 17.14 ft
Wellbore Radius: 0.44 ft
Gravel Pack Porosity: 0.35

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 9.274 ft/day
y0 = 1.987 ft



MW-113B-RH2

PROJECT INFORMATION

Company: CH2M HILL
Client: Honeywell
Project: 332898
Test Location: Quanta Resources Site, NJ
Test Well: MW-102A
Test Date: 12/01/05

AQUIFER DATA

Saturated Thickness: 17.14 ft
Anisotropy Ratio (Kz/Kr): 0.1

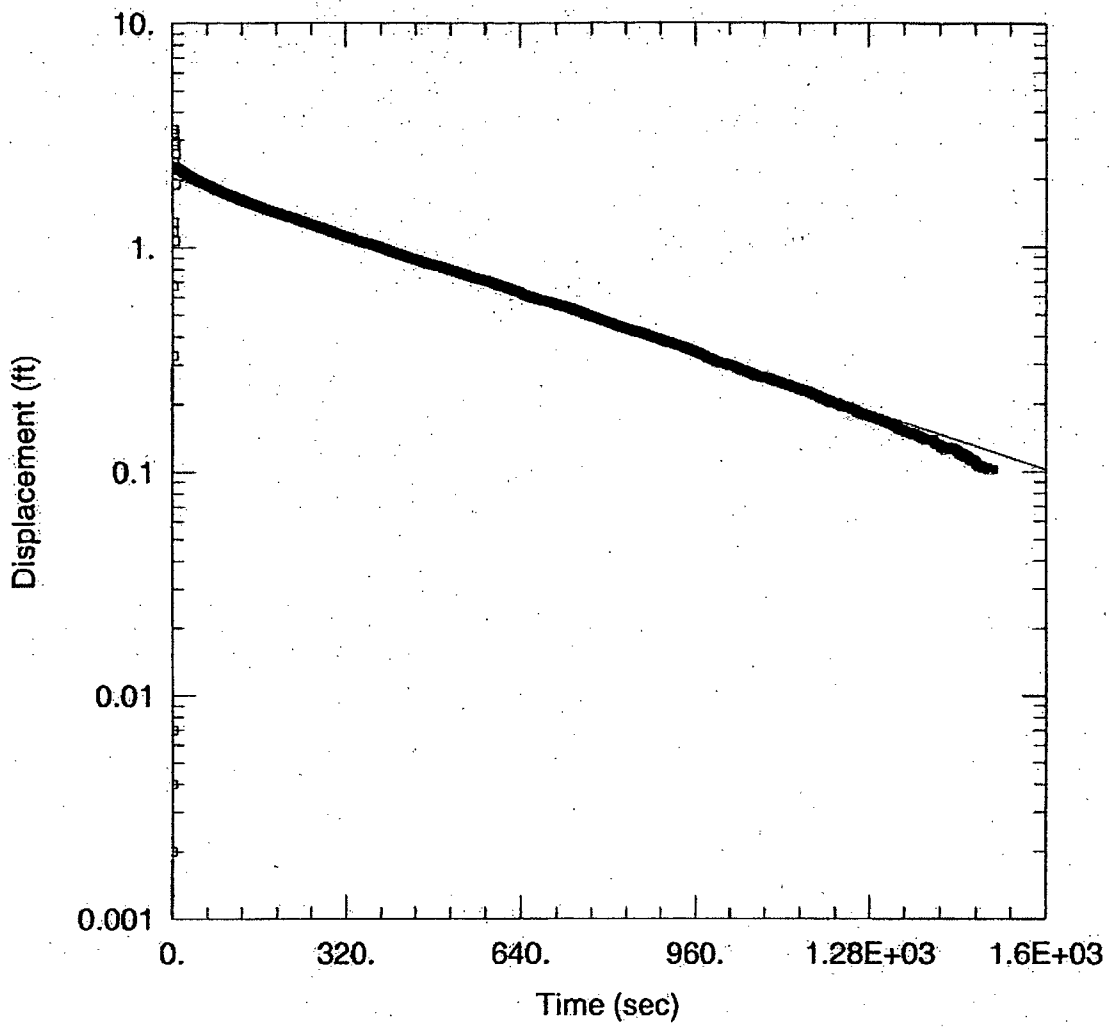
WELL DATA (MW-113B-RH2)

Initial Displacement: 5.398 ft
Casing Radius: 0.16 ft
Screen Length: 10. ft
Water Column Height: 17.14 ft
Wellbore Radius: 0.44 ft
Gravel Pack Porosity: 0.35

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 9.453 ft/day
y0 = 2.06 ft



MW-113C-FH1

PROJECT INFORMATION

Company: CH2M HILL
Client: Honeywell
Project: 332898
Test Location: Quanta Resources Site, NJ
Test Well: MW-102A
Test Date: 12/01/05

AQUIFER DATA

Saturated Thickness: 7. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-113C-FH1)

Initial Displacement: 3.358 ft
Casing Radius: 0.16 ft
Screen Length: 5. ft

Water Column Height: 28.53 ft
Wellbore Radius: 0.44 ft
Gravel Pack Porosity: 0.35

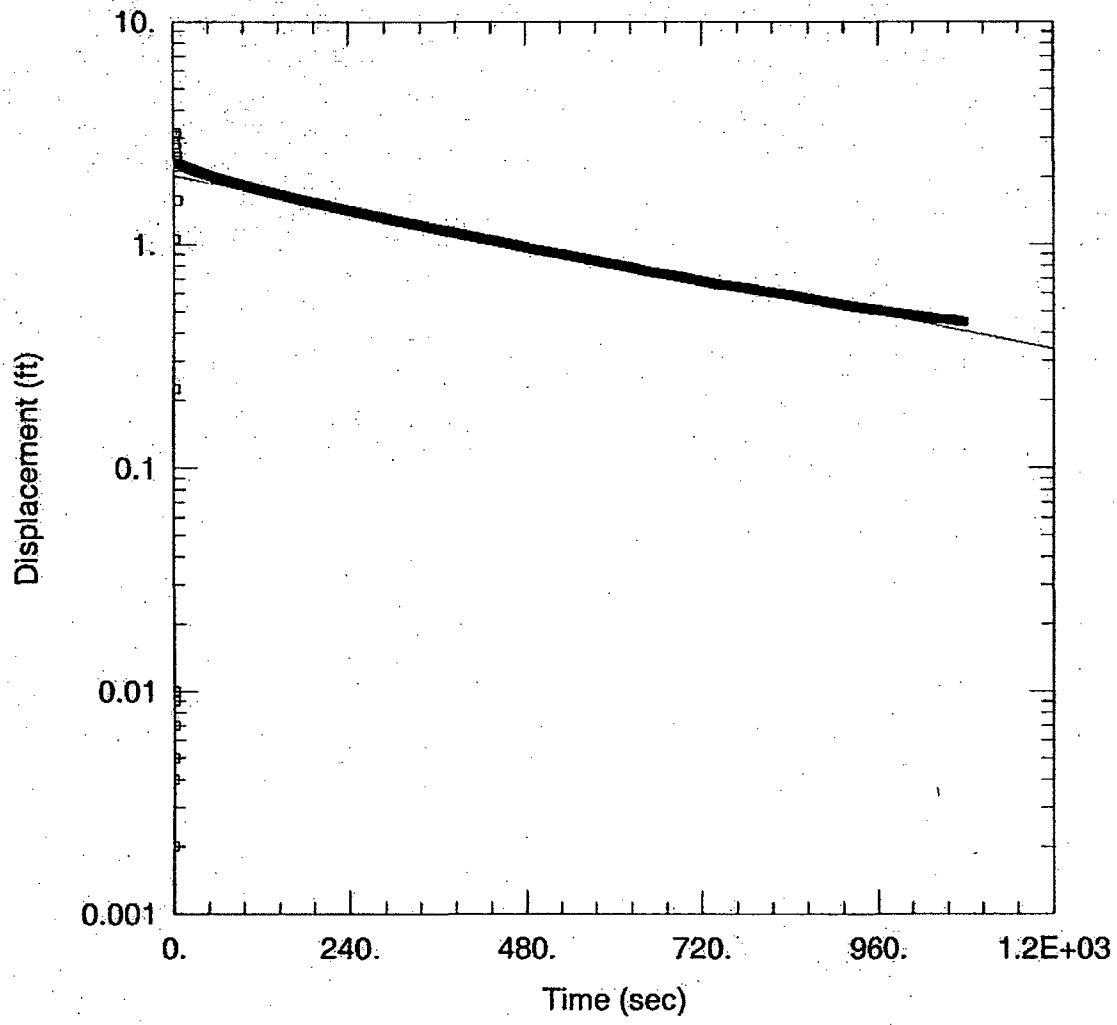
SOLUTION

Aquifer Model: Unconfined

Solution Method: Bouwer-Rice

K = 5.119 ft/day

y0 = 2.049 ft



MW-113C-FH2

PROJECT INFORMATION

Company: CH2M HILL
Client: Honeywell
Project: 332898
Test Location: Quanta Resources Site, NJ
Test Well: MW-102A
Test Date: 12/01/05

AQUIFER DATA

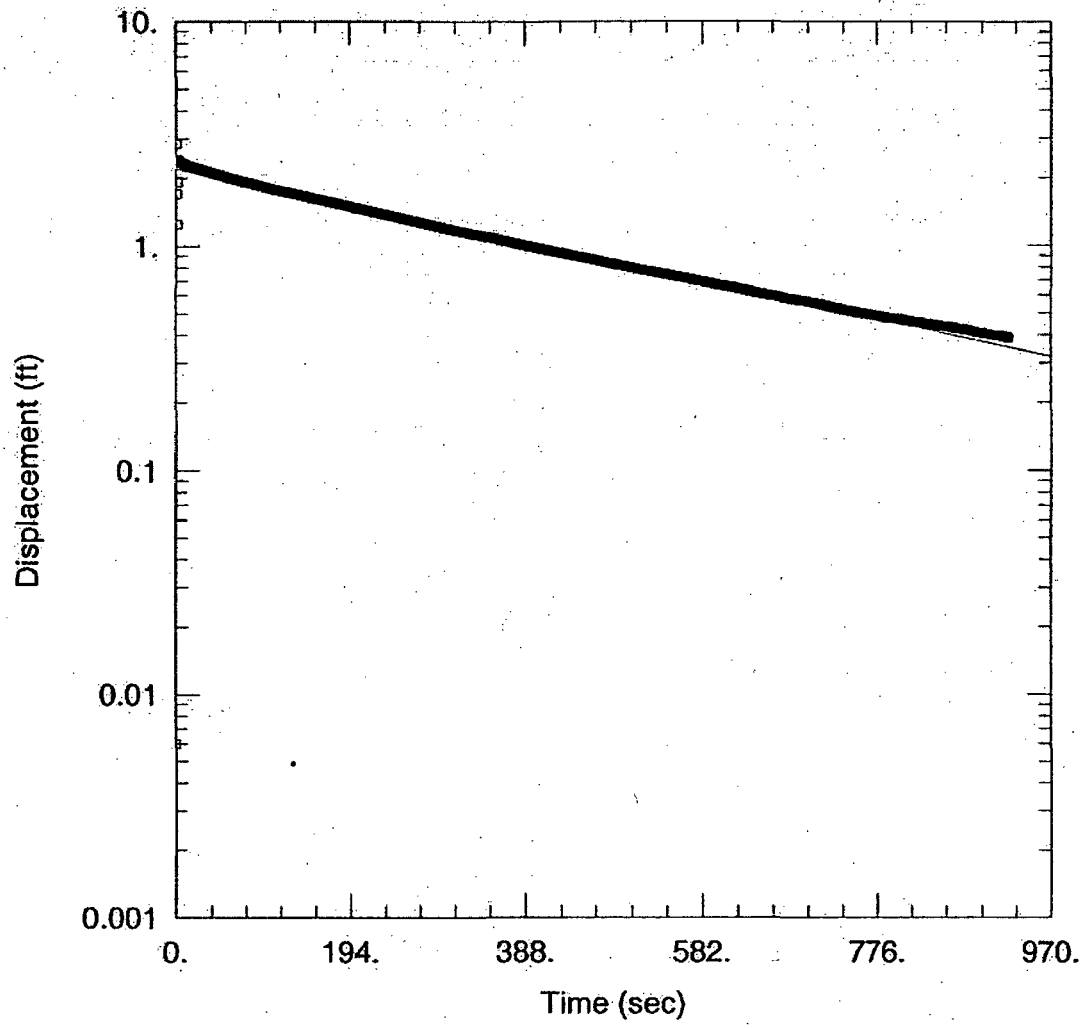
Saturated Thickness: 7. ft
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-113C-FH2)

Initial Displacement: 3.163 ft
Casing Radius: 0.16 ft
Screen Length: 5. ft
Water Column Height: 28.53 ft
Wellbore Radius: 0.44 ft
Gravel Pack Porosity: 0.35

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 4.059 ft/day
y0 = 2.021 ft



MW-113C-RH1

PROJECT INFORMATION

Company: CH2M HILL
Client: Honeywell
Project: 332898
Test Location: Quanta Resources Site, NJ
Test Well: MW-102A
Test Date: 12/01/05

AQUIFER DATA

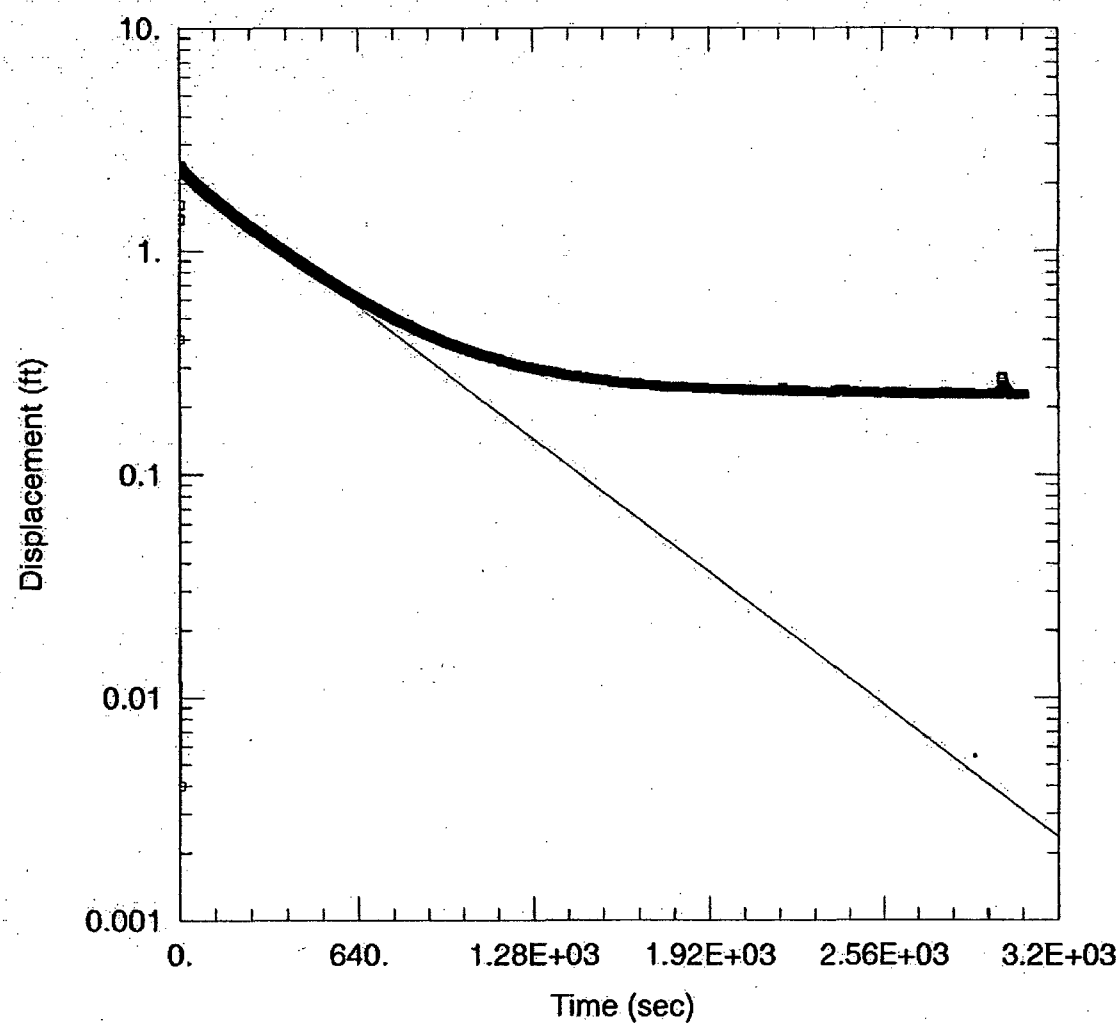
Saturated Thickness: 7. ft
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-113C-RH1)

Initial Displacement: 2.853 ft
Casing Radius: 0.16 ft
Screen Length: 5. ft
Water Column Height: 28.53 ft
Wellbore Radius: 0.44 ft
Gravel Pack Porosity: 0.35

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 5.428 ft/day
y0 = 2.198 ft



MW-113C-RH2

PROJECT INFORMATION

Company: CH2M HILL
Client: Honeywell
Project: 332898
Test Location: Quanta Resources Site, NJ
Test Well: MW-102A
Test Date: 12/01/05

AQUIFER DATA

Saturated Thickness: 7. ft
Anisotropy Ratio (Kz/Kr): 0.1

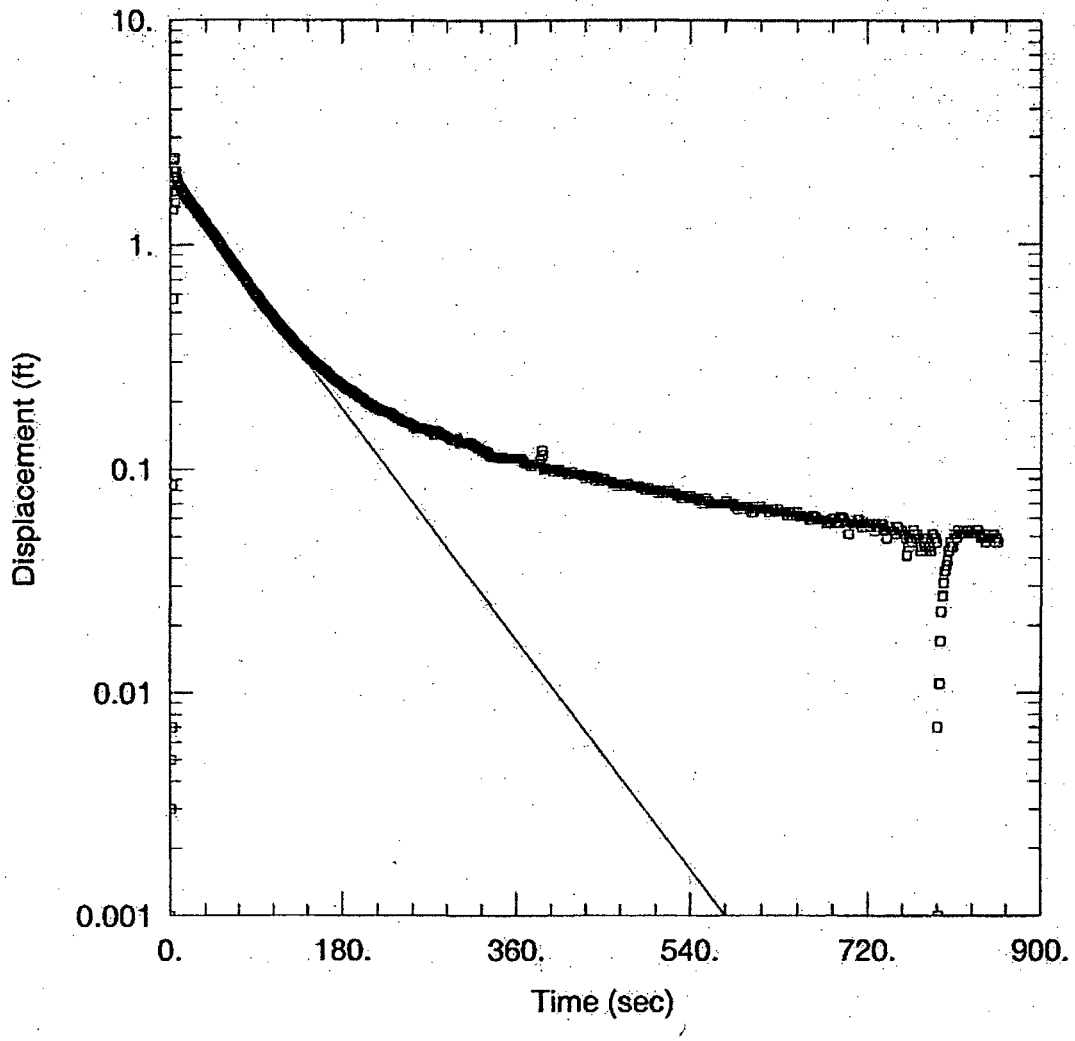
WELL DATA (MW-113C-RH2)

Initial Displacement: 2.427 ft
Casing Radius: 0.16 ft
Screen Length: 5. ft
Water Column Height: 28.53 ft
Wellbore Radius: 0.44 ft
Gravel Pack Porosity: 0.35

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 5.848 ft/day
y0 = 2.216 ft



MW-116A-FH1

PROJECT INFORMATION

Company: CH2M HILL
Client: Honeywell
Project: 332898
Test Location: Quanta Resources Site, NJ
Test Well: MW-102A
Test Date: 12/01/05

AQUIFER DATA

Saturated Thickness: 11.73 ft
Anisotropy Ratio (Kz/Kr): 0.1

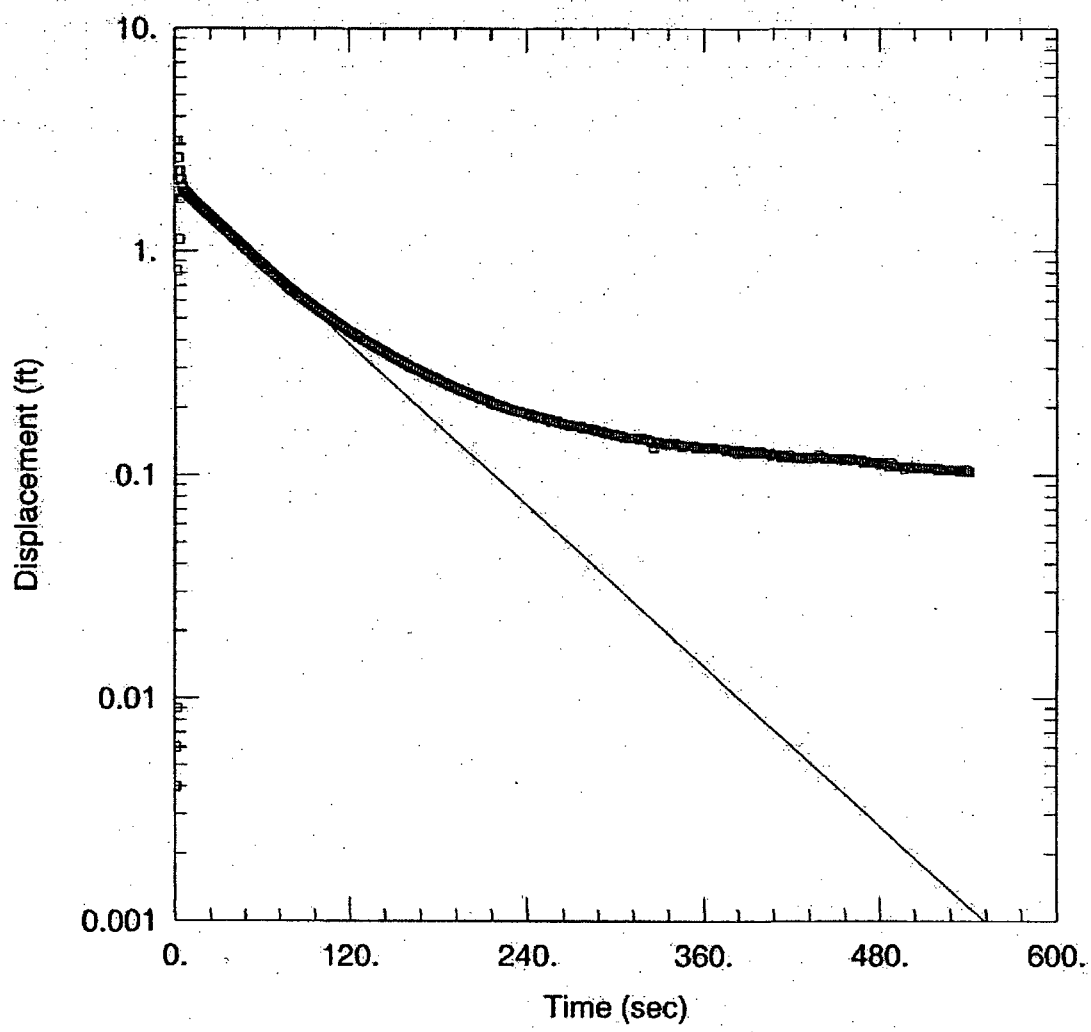
WELL DATA (MW-116A-FH1)

Initial Displacement: 2.433 ft
Casing Radius: 0.16 ft
Screen Length: 10. ft
Water Column Height: 11.53 ft
Wellbore Radius: 0.44 ft
Gravel Pack Porosity: 0.35

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 15.77 ft/day
y0 = 1.941 ft



MW-116A-FH2

PROJECT INFORMATION

Company: CH2M HILL
Client: Honeywell
Project: 332898
Test Location: Quanta Resources Site, NJ
Test Well: MW-102A
Test Date: 12/01/05

AQUIFER DATA

Saturated Thickness: 11.73 ft
Anisotropy Ratio (Kz/Kr): 0.1

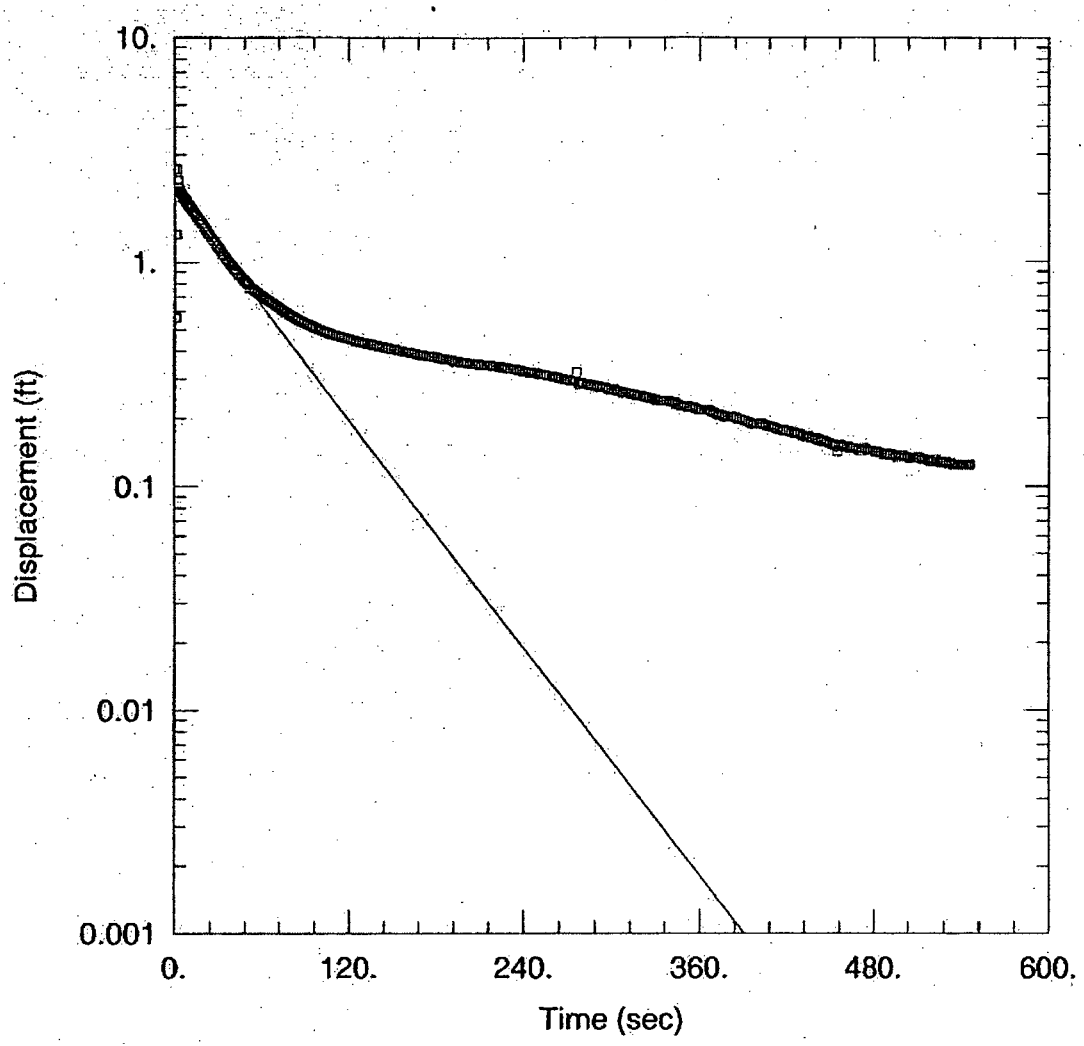
WELL DATA (MW-116A-FH2)

Initial Displacement: 3.113 ft
Casing Radius: 0.16 ft
Screen Length: 10. ft
Water Column Height: 11.53 ft
Wellbore Radius: 0.44 ft
Gravel Pack Porosity: 0.35

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 16.59 ft/day
y0 = 2.011 ft



MW-116A-RH1

PROJECT INFORMATION

Company: CH2M HILL
Client: Honeywell
Project: 332898
Test Location: Quanta Resources Site, NJ
Test Well: MW-102A
Test Date: 12/01/05

AQUIFER DATA

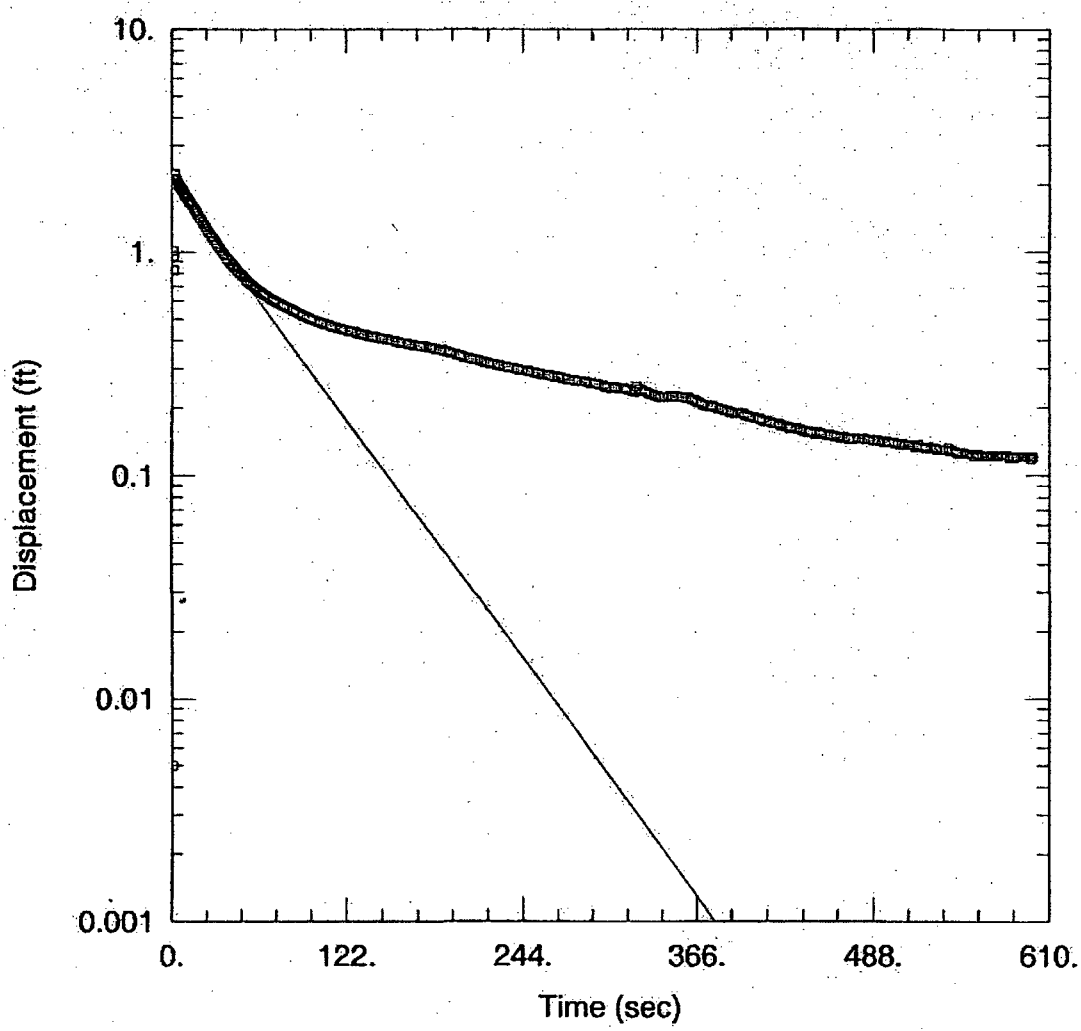
Saturated Thickness: 11.73 ft
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-116A-RH1)

Initial Displacement: 2.582 ft
Casing Radius: 0.16 ft
Screen Length: 10. ft
Water Column Height: 11.53 ft
Wellbore Radius: 0.44 ft
Gravel Pack Porosity: 0.35

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 23.46 ft/day
y0 = 2.049 ft



MW-116A-RH2

PROJECT INFORMATION

Company: CH2M HILL
Client: Honeywell
Project: 332898
Test Location: Quanta Resources Site, NJ
Test Well: MW-102A
Test Date: 12/01/05

AQUIFER DATA

Saturated Thickness: 11.73 ft
Anisotropy Ratio (Kz/Kr): 0.1

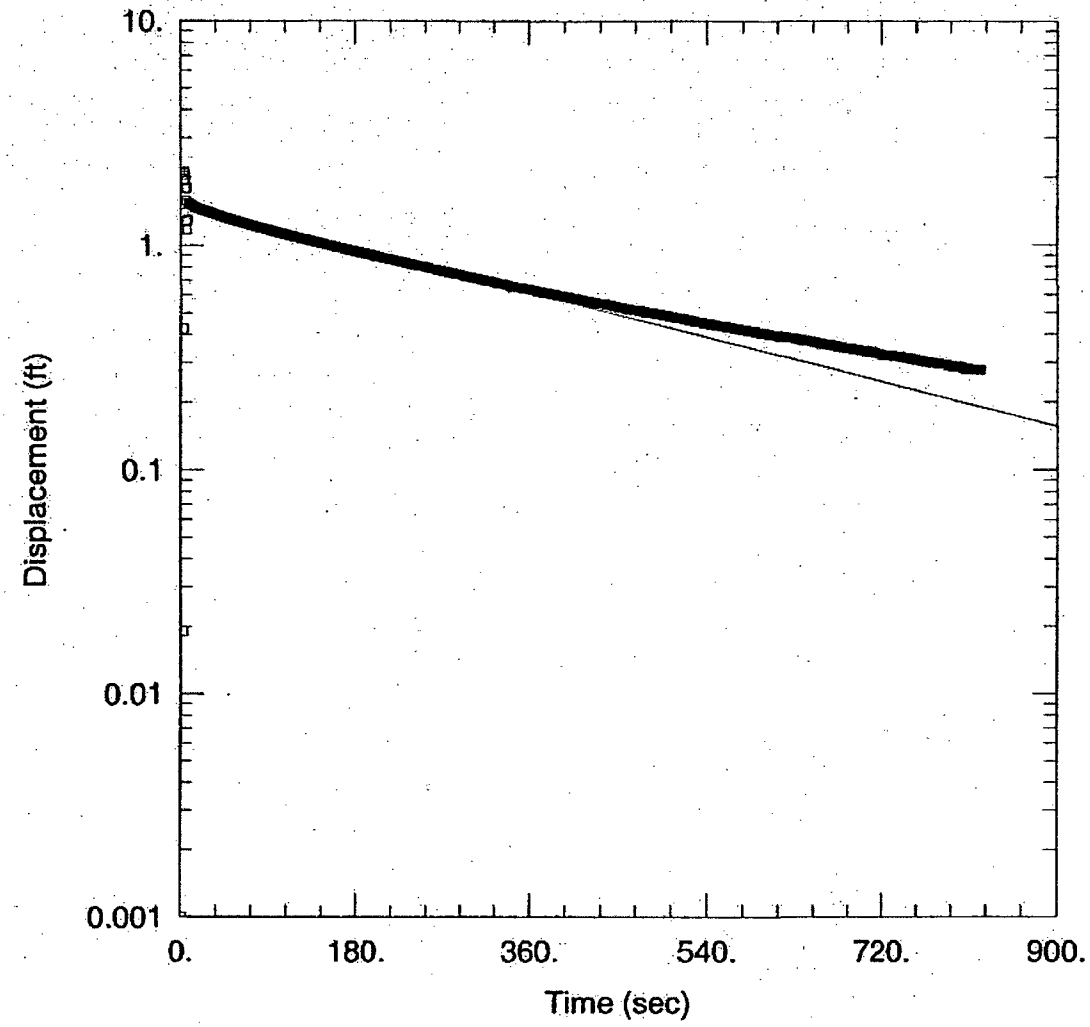
WELL DATA (MW-116A-RH2)

Initial Displacement: 2.235 ft
Casing Radius: 0.16 ft
Screen Length: 10. ft
Water Column Height: 11.53 ft
Wellbore Radius: 0.44 ft
Gravel Pack Porosity: 0.35

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 24.17 ft/day
y0 = 2.056 ft



MW-116B-FH1

PROJECT INFORMATION

Company: CH2M HILL
Client: Honeywell
Project: 332898
Test Location: Quanta Resources Site, NJ
Test Well: MW-102A
Test Date: 12/01/05

AQUIFER DATA

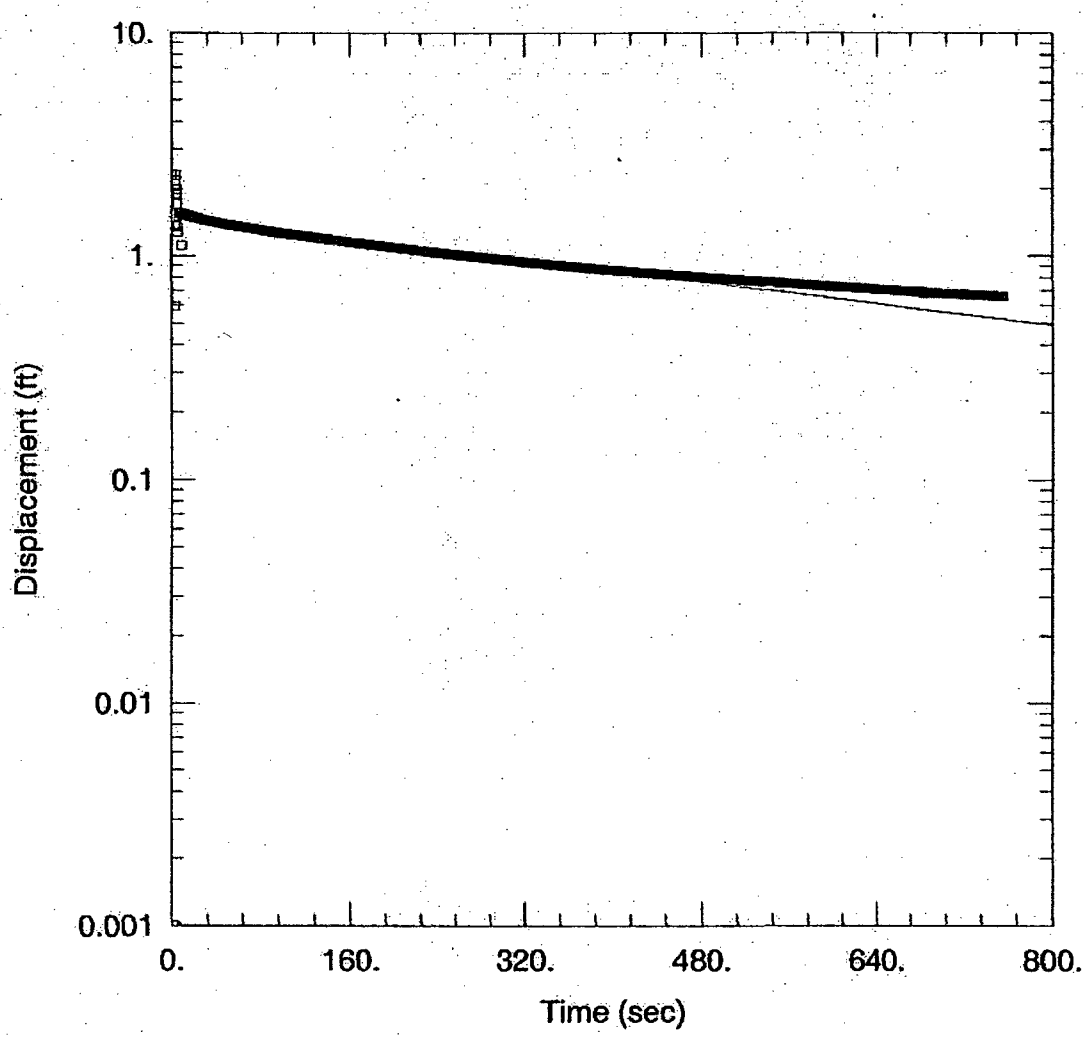
Saturated Thickness: 11.37 ft
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-116B-FH1)

Initial Displacement: 2.118 ft
Casing Radius: 0.16 ft
Screen Length: 10. ft
Water Column Height: 11.17 ft
Wellbore Radius: 0.44 ft
Gravel Pack Porosity: 0.35

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 3.019 ft/day
y0 = 1.522 ft



MW-116B-FH2

PROJECT INFORMATION

Company: CH2M HILL
Client: Honeywell
Project: 332898
Test Location: Quanta Resources Site, NJ
Test Well: MW-102A
Test Date: 12/01/05

AQUIFER DATA

Saturated Thickness: 11.37 ft
Anisotropy Ratio (Kz/Kr): 0.1

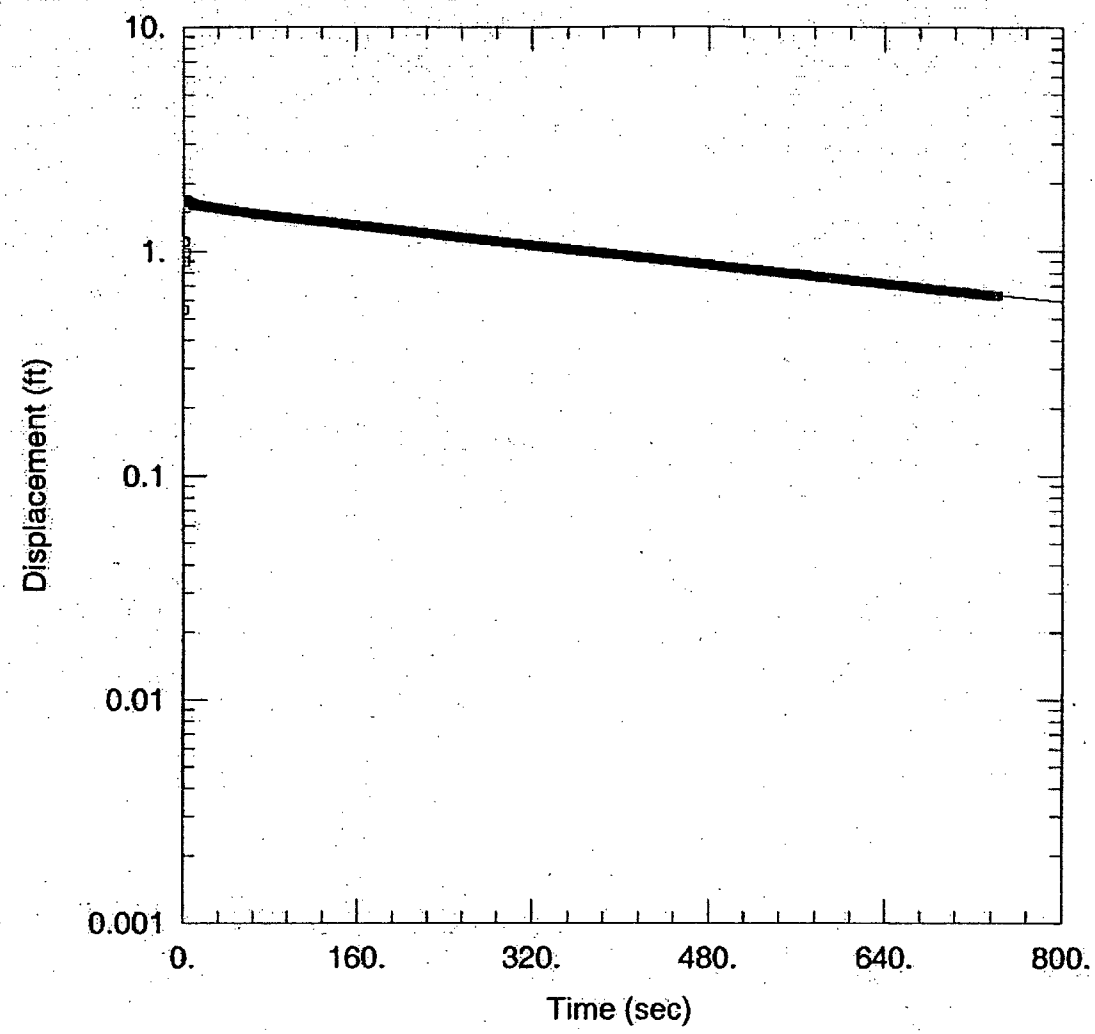
WELL DATA (MW-116B-FH2)

Initial Displacement: 2.294 ft
Casing Radius: 0.16 ft
Screen Length: 10. ft
Water Column Height: 11.17 ft
Wellbore Radius: 0.44 ft
Gravel Pack Porosity: 0.35

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 1.647 ft/day
y0 = 1.473 ft



MW-116B-RH2

PROJECT INFORMATION

Company: CH2M HILL
Client: Honeywell
Project: 332898
Test Location: Quanta Resources Site, NJ
Test Well: MW-102A
Test Date: 12/01/05

AQUIFER DATA

Saturated Thickness: 11.37 ft
Anisotropy Ratio (Kz/Kr): 0.1

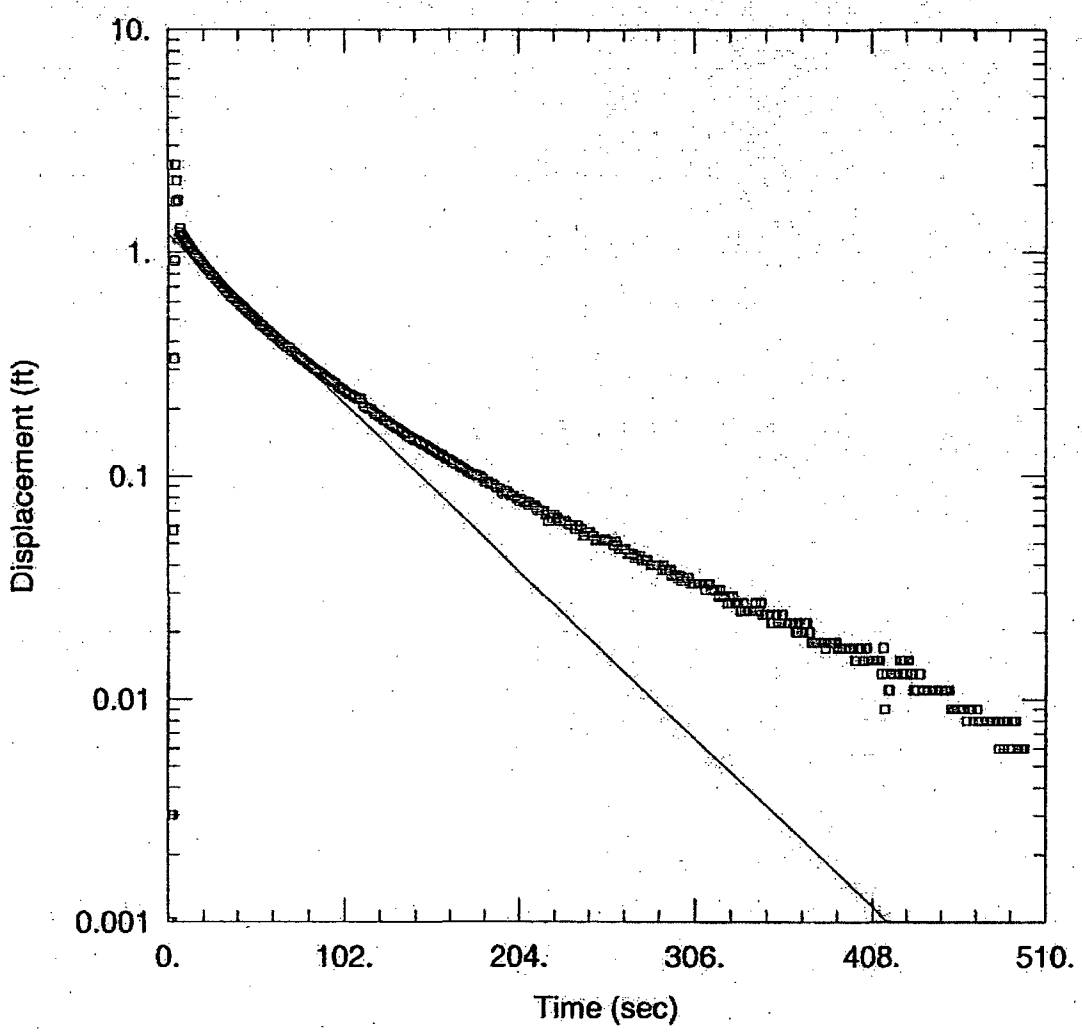
WELL DATA (MW-116B-RH2)

Initial Displacement: 1.692 ft
Casing Radius: 0.16 ft
Screen Length: 10. ft
Water Column Height: 11.17 ft
Wellbore Radius: 0.44 ft
Gravel Pack Porosity: 0.35

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 1.432 ft/day
y0 = 1.551 ft



MW-116DS-FH1

PROJECT INFORMATION

Company: CH2M HILL
Client: Honeywell
Project: 332898
Test Location: Quanta Resources Site, NJ
Test Well: MW-102A
Test Date: 12/01/05

AQUIFER DATA

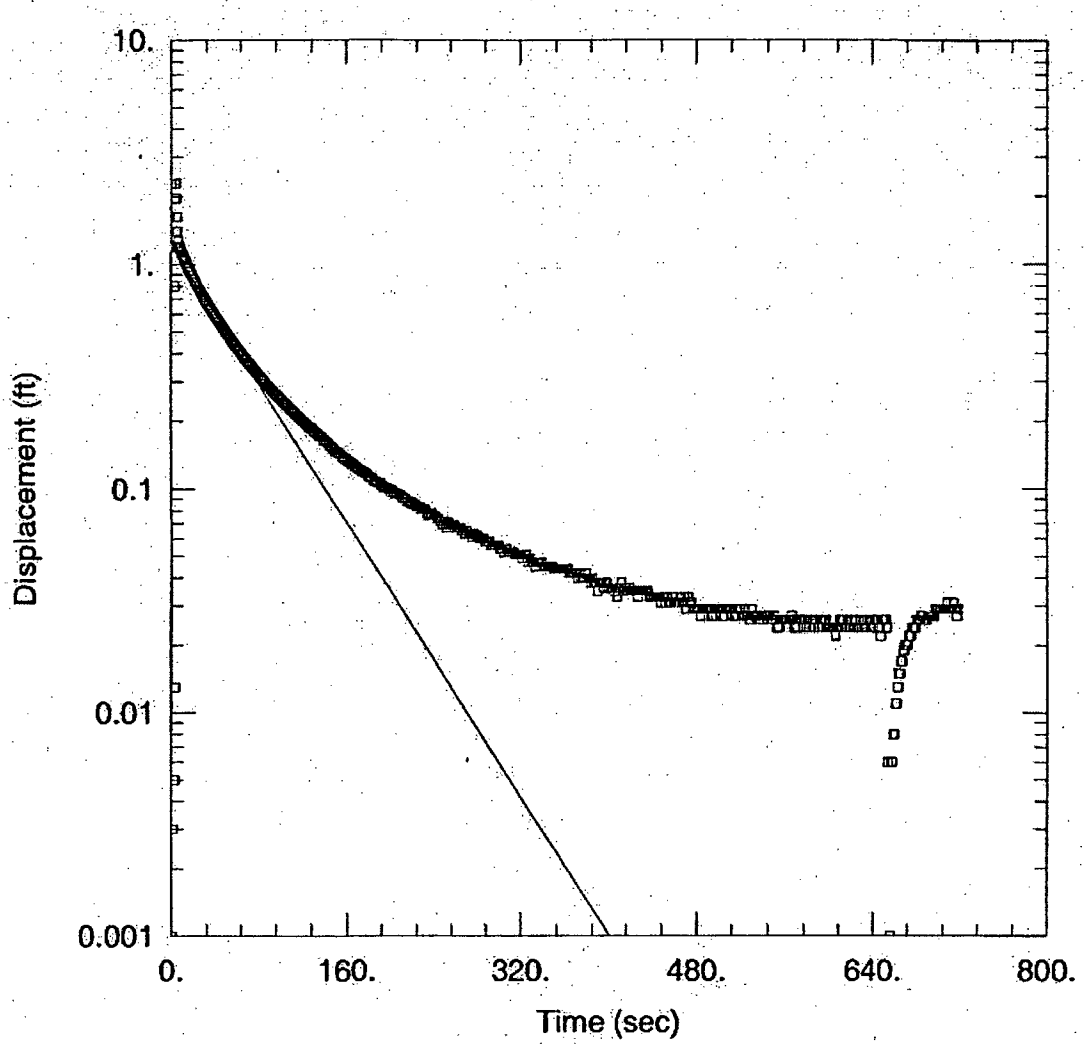
Saturated Thickness: 6.7 ft
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-116DS-FH1)

Initial Displacement: 2.469 ft
Casing Radius: 0.08 ft
Screen Length: 10. ft
Water Column Height: 6.7 ft
Wellbore Radius: 0.25 ft
Gravel Pack Porosity: 0.35

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 4.875 ft/day
y0 = 1.197 ft



MW-116DS-FH2

PROJECT INFORMATION

Company: CH2M HILL
Client: Honeywell
Project: 332898
Test Location: Quanta Resources Site, NJ
Test Well: MW-102A
Test Date: 12/01/05

AQUIFER DATA

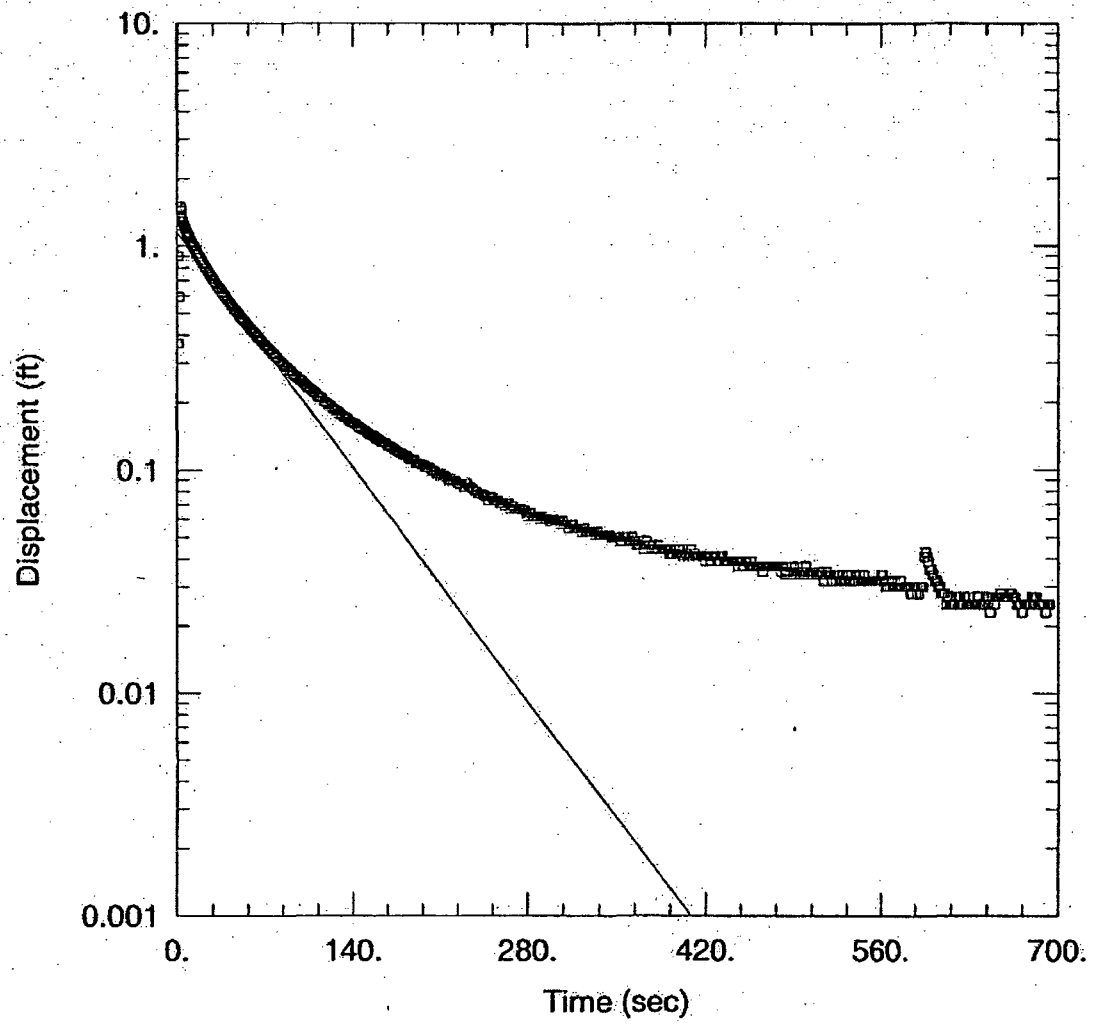
Saturated Thickness: 6.7 ft
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-116DS-FH2)

Initial Displacement: 2.297 ft
Casing Radius: 0.08 ft
Screen Length: 10. ft
Water Column Height: 6.7 ft
Wellbore Radius: 0.25 ft
Gravel Pack Porosity: 0.35

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 5.089 ft/day
y0 = 1.21 ft



MW-116DS-RH1

PROJECT INFORMATION

Company: CH2M HILL
Client: Honeywell
Project: 332898
Test Location: Quanta Resources Site, NJ
Test Well: MW-102A
Test Date: 12/01/05

AQUIFER DATA

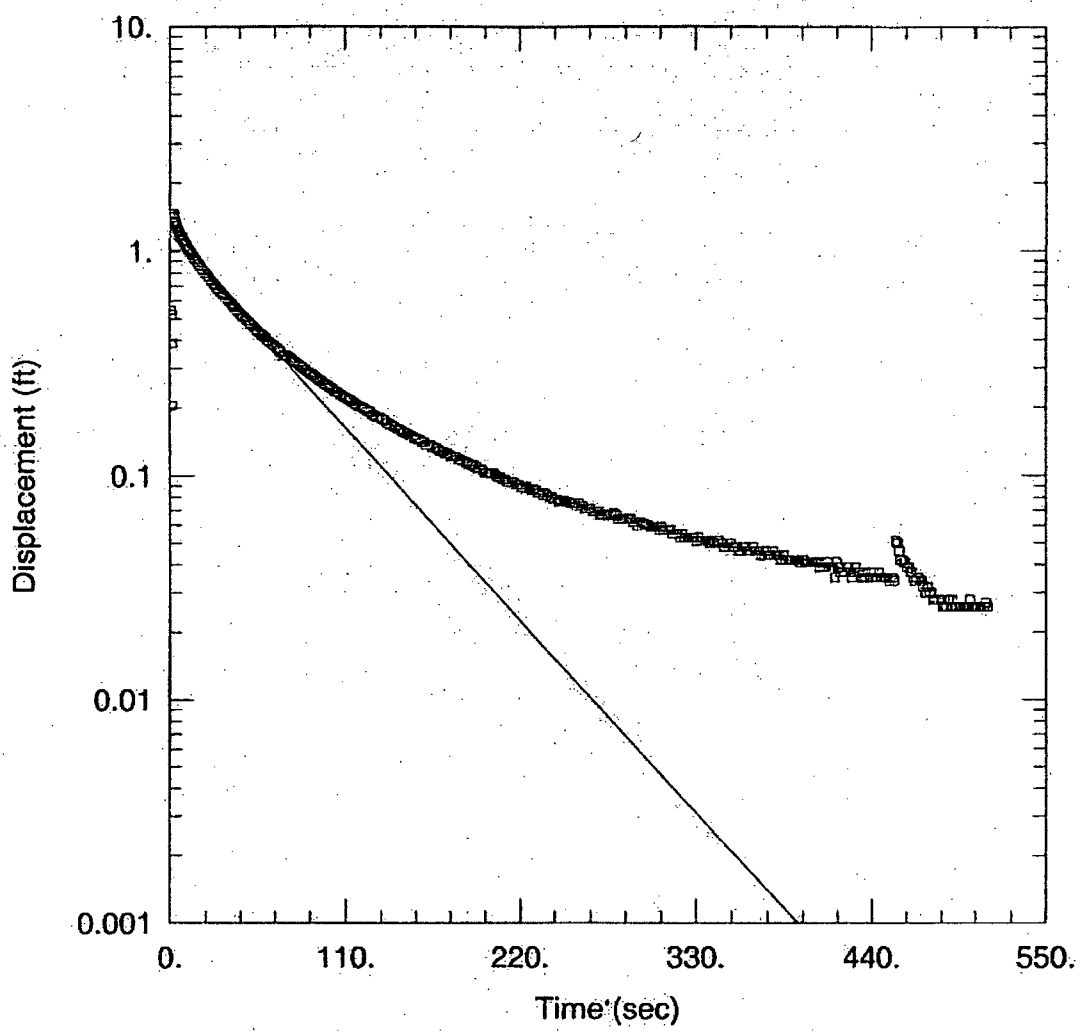
Saturated Thickness: 6.7 ft
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-116DS-RH1)

Initial Displacement: 1.497 ft
Casing Radius: 0.08 ft
Screen Length: 10. ft
Water Column Height: 6.7 ft
Wellbore Radius: 0.25 ft
Gravel Pack Porosity: 0.35

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 4.945 ft/day
y0 = 1.14 ft



MW-116DS-RH2

PROJECT INFORMATION

Company: CH2M HILL
Client: Honeywell
Project: 332898
Test Location: Quanta Resources Site, NJ
Test Well: MW-102A
Test Date: 12/01/05

AQUIFER DATA

Saturated Thickness: 6.7 ft
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-116DS-RH2)

Initial Displacement: 1.462 ft
Casing Radius: 0.08 ft
Screen Length: 10. ft
Water Column Height: 6.7 ft
Wellbore Radius: 0.25 ft
Gravel Pack Porosity: 0.35

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice

K = 5.169 ft/day
y0 = 1.183 ft

Appendix E

Appendix E
Utility Survey Memorandum

Summary of Subsurface Utilities and Potential Preferential Pathways Field Survey

August 2005

PREPARED FOR: Scott Stoldt/NJO

PREPARED BY: Narendra De/NJO

COPIES: Austin Harclerode/NJO

DATE: August 30, 2005 (edited January 25, 2006)

1.0 Introduction

Historic geophysical surveys, subsurface utility surveys and maps indicate the presence of various subsurface features at the Quanta site including active/inactive utilities, process lines and conduits. The nature and extent of these features were investigated and documented in the Removal Site Investigation (RSI) Report, Revision 1, (GeoSyntec, 2000). The investigation consisted of a geophysical survey with a terrain conductivity meter (EM-31) and high resolution metal detector (EM-61) followed by test trenching designed to verify the nature and extent of identified subsurface geophysical anomalies. The results of this geophysical survey were plotted and used to guide test trenching activities. Numerous small diameter anomalies were identified around the Quanta and Celotex properties. These features seem to extend for only a few feet before terminating, indicative of buried metallic objects and reinforced concrete. An 18-inch diameter metallic pipe was identified and tracked for approximately 190 feet trending eastward towards the Hudson River. The feature terminates approximately 325 ft west of the bulkhead. Historically, this pipe was thought to extend to the Hudson River; however the section that extended to the river may have been removed during a removal action.

A field survey was conducted to augment Geosyntec's subsurface utility investigation. The purpose of this memorandum is to describe and present the results of this field survey conducted at the Quanta site located on 163 River Road in Edgewater, New Jersey (the site). The objective of this task was to identify potential subsurface preferential pathways for contaminants to migrate onsite and offsite into the Hudson River and adjacent properties. Using existing drawings (i.e. utility survey map, topographical survey map, insurance map, and a hand drawn sketch), potential utilities that may act as a conduits were identified.

2.0 Pre-Investigation Survey

Reconnaissance of subsurface utilities began by reviewing available archived maps of the site and its adjacent properties. Four figures were obtained to study the potential locations of subsurface utilities: a utility survey map, 1911; a topographical survey map, 1997; an insurance map, 1958; and a hand drawn sketch, unknown date. Each map uses different scales, so locating underground pipes in the field was difficult. Listed below are subsurface utilities and potential preferential pathways identified during research of the aforementioned

historical maps, from USEPA communications, and/or from the August 2005 field survey (see attached Figure 1 for locations).

A) 8-inch potable water pipes (steel) border the east, north, and south edges of the site (trending east-west) connecting the onsite fire hydrants to River Road. A series of manholes were noted that may be used to access the pipes. No discharge points to the Hudson or adjacent properties were observed. A smaller network of 8-inch waterlines bisecting the eastern portion of the site and bordering the concrete pier was also identified (1911 utility survey map).

B) A large pipe running into the Hudson remains from a demolished former fire station pump house (1911 utility survey map and 1997 topographical survey map).

C) A 12-inch underground pipeline (oriented north-south) runs approximately 40 feet from Quanta to the property to the north (1911 utility survey map).

D) A sewer line (8-inch diameter), oriented east-west along the north border of the property was observed. This line appears to discharge directly into the Hudson River (1958 Insurance Map).

E) An 8-inch potable water line was identified that spanned the wooden pier departing the site (underground), leading to the pier (above ground) (1958 Insurance Map).

F) An oil water separator underground line (unknown diameter) trends east-west along the north border of the site and appears to discharge to the adjacent property to the north and/or into the Hudson River (hand drawn sketch).

G) A 4-inch discharge pipe, oriented west to east the 115 River Road property discharging onto the tidal mudflat (the pipe is only visible at low tide) of the Hudson River (information provided by USEPA).

3.0 Field Activities

Field reconnaissance activities were conducted on August 25, 2005 by walking the accessible portions of the Quanta site.

3.1 Site Conditions

Approximately 60 percent of the site is covered with brush, small trees, standing water, and building debris. The fenced perimeter of the Quanta site, where most of the water and sewer lines are potentially located (based on the aforementioned historical documents), is inaccessible by foot. However, existing fire hydrants located along the south border and center of the site were used to try to identify waterlines connecting the hydrants (if they have not been removed). Along the Hudson River the existing concrete pier is approximately 30 feet in width by 180 feet in length and is raised approximately 10 feet above the tidal mudflat of the Hudson River. Potential outflow conduits located beneath the pier leading from the site are hidden from view when observed from on the surface of the concrete pier or from

the adjacent properties. A dilapidated wooden pier is located toward the southern site boundary and extends into the Hudson River. Rotting wood and gaps in the wood beams make walking on the pier dangerous.

3.2 Utility identification

Per Section 2.0, confirmation of existing onsite water pipes (A) was established during drilling operations (hand digging to approximately 4 feet bgs) and fire hydrant reconnaissance during the site walkthrough. An 8-inch pipe was observed to the west of the concrete pier (40 feet from the Hudson River) and additional 8-inch water pipes may connect the existing onsite fire hydrants.

Using a motor boat, flashlight, and mirror (to redirect natural light) three utility pipes were identified beneath the concrete pier. On the north side of the site, located beneath the concrete pier, a 36-inch pipe was identified (B). Most of the pipe is covered with sediment and appears to discharge into the river to an unknown distance. The pipe can be viewed from the surface of the concrete pier through a metal grate and probably remains from the onsite fire station (influent pipe). Also noted is an adjacent pipe (8-inch diameter) running parallel to the large pipe that runs from beneath the pier to the surface of the pier. The origin of this pipe is unclear and may also be part of the old fire station. A third pipe (8-10-inch diameter) was identified beneath the concrete pier at the northern extent of the site. This may be the remains of an oil water separator (F) or a sewer pipe (D). The termination of the pipe was unable to be observed.

Towards the south edge of the property (south of the concrete pier), two 8-inch diameter pipes spaced approximately 1 foot apart, were identified jutting from the subsurface of the site to the underside of the dilapidated wooden pier (E). It is unclear if the pipes were discharging from the site or are a component of the pier's construction. However, the 1958 Insurance Map indicates at least one of these pipes may have been a potable fire line that once spanned the pier. Both pipes are composed of steel and are open ended. An aboveground concrete trough is also located in the same general area and could potentially act as an outflow the Hudson. Figure 1 displays the approximate location of each of the utilities described above based on the field survey findings.

4.0 Setbacks and Future Considerations

Due to dense vegetation along the perimeter of the site, it is difficult to identify potential utilities that might extend to the adjacent properties. Clearing debris at strategic points and using standard survey techniques along the border may help identify additional buried utilities (C).

At Low Tide, (0800) it is not feasible to view utilities from the shore due to the distance from the adjacent properties and the dark conditions beneath the concrete pier. At high tide (1430), viewing underlying utilities can only be achieved using a boat and high powered light source. During the next site visit both items should be utilized to fully scan beneath the pier.

5.0 Conclusions

Underground utilities exist at several locations at the site and may act as conduits for contaminant flow. Of these, at least four pipes exit the subsurface beneath the underside of the concrete pier. These large diameter pipes (8 – 36-inch) coupled with surrounding coarse fill can act as preferential pathways for contaminants to migrate into the Hudson River.

Attachments

Figure 1: Underground Utility and Discharge Pipe Identification. Quanta Superfund Site: August 25th, 2005.

Appendix F

Appendix F
Summary of Laboratory Analytical Soil Data for Constituents Exceeding Screening Criteria

TABLE F-1
Summary of Laboratory Analytical Data for Soil
SVOCs
Quanta Resources Site
Edgewater, New Jersey

Parameter Name	Field Sample ID Location Sample Date Sample Depth Units	SS-01A-001 SB-01A 12/11/2005 1-1.5 ft	SB-01A-003* SB-01A 12/11/2005 9-10 Ft	SB-01A-004 SB-01A 12/11/2005 14-15 ft	SB-02B-003 SB-02B 8/18/2005 9.5-10 Ft	SB-02B-004 SB-02B 8/18/2005 29-30 Ft	SB-03C-002 SB-03C 8/22/2005 3.5-4 ft	SB-03C-003 SB-03C 8/22/2005 11-12 ft	SB-03C-004 SB-03C 8/22/2005 21-22 ft	SS-04D-001 SB-04D 12/10/2005 1.0-1.5 ft
1,1'-BIPHENYL	mg/kg	0.68	2.1U	42	320	0.35	400	1U	0.22U	0.054J
2,2'-OXYBIS(1-CHLOROPROPANE)	mg/kg	0.29U	2.1U	1.5U	22U	0.2U	54U	1U	0.22U	0.2U
2,4,5-TRICHLOROPHENOL	mg/kg	0.29U	2.1U	1.5U	22U	0.2U	54U	1U	0.22U	0.2U
2,4,6-TRICHLOROPHENOL	mg/kg	0.29U	2.1U	1.5U	22U	0.2U	54U	1U	0.22U	0.2U
2,4-DICHLOROPHENOL	mg/kg	0.29U	2.1U	1.5U	22U	0.2U	54U	1U	0.22U	0.2U
2,4-DIMETHYLPHENOL	mg/kg	0.29U	2.1U	1.5U	76	0.2U	340	1U	0.22U	0.2U
2,4-DINITROPHENOL	mg/kg	3.4U	24U	18U	260UJ	2.4UJ	650U	12UJ	2.5UJ	2.4U
2,4-DINITROTOLUENE	mg/kg	0.29U	2.1U	1.5U	22U	0.2U	54U	1U	0.22U	0.2U
2,6-DINITROTOLUENE	mg/kg	0.29U	2.1U	1.5U	22U	0.2U	54U	1U	0.22U	0.2U
2-CHLORONAPHTHALENE	mg/kg	0.29U	2.1U	1.5U	22U	0.2U	54U	1U	0.22U	0.2U
2-CHLOROPHENOL	mg/kg	0.29U	2.1U	1.5U	22U	0.2U	54U	1U	0.22U	0.2U
2-METHYLNAPHTHALENE	mg/kg	4.4	1.3J	290	1900	1.5	2200J	0.64J	0.22U	0.15J
2-METHYLPHENOL	mg/kg	0.29U	2.1U	1.5U	31	0.2U	260	1U	0.22U	0.2U
2-NITROANILINE	mg/kg	0.29U	2.1U	1.5U	22U	0.2U	54U	1U	0.22U	0.2U
2-NITROPHENOL	mg/kg	0.29U	2.1U	1.5U	22U	0.2U	54U	1U	0.22U	0.2U
3,3'-DICHLOROBENZIDINE	mg/kg	0.56U	4U	3U	42U	0.4U	110U	2U	0.42U	0.39U
3-NITROANILINE	mg/kg	0.29U	2.1U	1.5U	22U	0.2U	54U	1U	0.22U	0.2U
4,6-DINITRO-2-METHYLPHENOL	mg/kg	0.85U	6.1U	4.5U	64UJ	0.6UJ	160UJ	3UJ	0.63UJ	0.59U
4-BROMOPHENYL PHENYL ETHER	mg/kg	0.29U	2.1U	1.5U	22U	0.2U	54U	1U	0.22U	0.2U
4-CHLORO-3-METHYLPHENOL	mg/kg	0.29U	2.1U	1.5U	22U	0.2U	54U	1U	0.22U	0.2U
4-CHLOROANILINE	mg/kg	0.29U	2.1U	1.5U	22U	0.2U	54U	1U	0.22U	0.2U
4-CHLOROPHENYL PHENYL ETHER	mg/kg	0.29U	2.1U	1.5U	22U	0.2U	54U	1U	0.22U	0.2U
4-METHYLPHENOL	mg/kg	0.29U	2.1U	1.5U	66	0.2U	630	1U	0.22U	0.2U
4-NITROANILINE	mg/kg	0.29U	2.1U	1.5U	22U	0.2U	49J	1U	0.22U	0.2U
4-NITROPHENOL	mg/kg	0.85U	6.1U	4.5U	64U	0.6U	160U	3U	0.63U	0.59U
ACENAPHTHENE	mg/kg	3.2	0.91J	160	1300	1.7	1900J	0.77J	0.058J	0.051J
ACENAPHTHYLENE	mg/kg	0.3	0.62J	11	270	0.2	26J	1U	0.22U	0.2U
ACETOPHENONE	mg/kg	0.29U	2.1U	1.1J	22U	0.2U	54U	1U	0.22U	0.2U
ANTHRACENE	mg/kg	1.5	2.2	73	1100	2.3	1500J	0.95J	0.11J	0.13J
ATRAZINE	mg/kg	0.29U	2.1U	1.5U	22U	0.2U	54U	1U	0.22U	0.2U
BENZALDEHYDE	mg/kg	0.29U	2.1U	1.5U	22U	0.2U	54U	1U	0.22U	0.2U
BENZO(A)ANTHRACENE	mg/kg	1	4.1	42	840	1.7	3700J	1.8	0.21J	0.26
BENZO(A)PYRENE	mg/kg	0.66	4.8	24	730	1.5	3500J	1.7	0.22	0.25
BENZO(B)FLUORANTHENE	mg/kg	0.77	6.2	25	780	1.8	4100J	1.9	0.26	0.36
BENZO(G,H,I)PERYLENE	mg/kg	0.35	5.2	12	350	0.76	1900J	0.99J	0.13J	0.22
BENZO(K)FLUORANTHENE	mg/kg	0.28J	3.3	12	380	0.66	2000J	1	0.11J	0.16J
BIS(2-CHLOROETHOXY)METHANE	mg/kg	0.29U	2.1U	1.5U	22U	0.2U	54U	1U	0.22U	0.2U
BIS(2-CHLOROETHYL)ETHER	mg/kg	0.29U	2.1U	1.5U	22U	0.2U	54U	1U	0.22U	0.2U
BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	0.56U	4U	3U	42U	0.6	110U	2U	0.39J	0.39U
BUTYLBENZYL PHTHALATE	mg/kg	0.29U	2.1U	1.5U	22U	0.2U	54U	1U	0.22U	0.2U
CAPROLACTAM	mg/kg	0.29U	2.1U	1.5U	22U	0.2U	54U	1U	0.22U	0.2U
CARBAZOLE	mg/kg	0.36	0.57J	18	460	0.86	1200	0.58J	0.069J	0.2U
CHRYSENE	mg/kg	0.91	4.6	36	800	1.6	4200J	1.7	0.25	0.39
DI-N-BUTYL PHTHALATE	mg/kg	0.29U	2.1U	1.5U	22U	0.2U	54U	1U	0.22U	0.2U
DI-N-OCTYL PHTHALATE	mg/kg	0.29U	2.1U	1.5U	22U	0.2U	54U	1U	0.22U	0.2U
DIBENZO(A,H)ANTHRACENE	mg/kg	0.096J	1.4J	3.7	110	0.22	510	0.3J	0.22U	0.06J
DIBENZOFURAN	mg/kg	2.1	0.9J	110	1100	1.4	1300	0.54J	0.046J	0.13J
DIETHYL PHTHALATE	mg/kg	0.29U	2.1U	1.5U	22U	0.2U	54U	1U	0.22U	0.2U
DIMETHYL PHTHALATE	mg/kg	0.29U	2.1U	1.5U	22U	0.2U	54U	1U	0.22U	0.2U
FLUORANTHENE	mg/kg	3.6	8.1	150	2800	4.4	10000J	4.2	0.5	0.53
FLUORENE	mg/kg	2.5	1.1J	120	1500	1.9	1400J	0.78J	0.062J	0.069J
HEXACHLOROBENZENE	mg/kg	0.29U	2.1U	1.5U	22U	0.2U	54U	1U	0.22U	0.2U
HEXACHLOROBUTADIENE	mg/kg	0.29U	2.1U	1.5U	22U	0.2U	54U	1U	0.22U	0.2U
HEXACHLOROCYCLOPENTADIENE	mg/kg	0.85U	6.1U	4.5U	64UJ	0.6UJ	160UJ	3UJ	0.63UJ	0.59U
HEXACHLOROETHANE	mg/kg	0.29U	2.1UJ	1.5U	22U	0.2U	54U	1U	0.22U	0.2U
INDENO(1,2,3-CD)PYRENE	mg/kg	0.3	3.8	9.8	320	0.69	1700J	0.79J	0.092J	0.18J
ISOPHORONE	mg/kg	0.29U	2.1U	1.5U	22U	0.2U	54U	1U	0.22U	0.2U
N-NITROSO-DI-N-PROPYLAMINE	mg/kg	0.29U	2.1U	1.5U	22U	0.2U	54U	1U	0.22U	0.2U
N-NITROSODIPHENYLAMINE	mg/kg	0.12J	2.1U	1.5U	22U	0.2U	54U	1U	0.22U	0.2U
NAPHTHALENE	mg/kg	12	2.5	890	7300	4.1	10000J	2.8	0.17J	0.32
NITROBENZENE	mg/kg	0.29U	2.1U	1.5U	22U	0.2U	54U	1U	0.22U	0.2U
PENTACHLOROPHENOL	mg/kg	0.85U	6.1U	4.5U	64U	0.6U	160UJ	3UJ	0.63UJ	0.59U
PHENANTHRENE	mg/kg	6.8	7.9	270	4700	7.5	11000J	5	0.51	0.61
PHENOL	mg/kg	0.29U	2.1U	1.5U	22	0.056J	460	1U	0.22U	0.2U
PYRENE	mg/kg	2.9	7	130	2100	3.9	8700J	3.6	0.46	0.48

Notes:
mg/kg - milligrams per kilogram [parts per million (PPM)]
Semi-volatile organic compounds (SVOCs) analyzed using Method SW8270.

TABLE F-1
Summary of Laboratory Analytical Data for Soil
SVOCs
Quanta Resources Site
Edgewater, New Jersey

Parameter Name	Field Sample ID Location Sample Date Sample Depth Units	SB-04D-002 SB-04D 12/10/2005 3-3.5 ft	SB-04D-003* SB-04D 12/10/2005 14-15 ft	SB-04D-004 SB-04D 12/10/2005 29.5-30 ft	SB-06F-002 SB-06F 8/2/2005 1.5-2 ft	SB-06F-004 SB-06F 8/2/2005 23-24 ft	SB-07G-003 SB-07G 8/17/2005 16.5-17 ft	SB-07G-004 SB-07G 8/17/2005 23-24 ft	SB-08H-002 SB-08H 10/9/2005 1-1.5 ft	SB-08H-003 SB-08H 10/9/2005 8.5-9 ft
1,1'-BIPHENYL	mg/kg	0.79	63	0.32	190	0.78	0.26	0.24	0.2J	380
2,2'-OXYBIS(1-CHLOROPROPANE)	mg/kg	0.6U	2U	0.2U	9.8U	0.2U	0.2U	0.21U	0.94U	37U
2,4,5-TRICHLOROPHENOL	mg/kg	0.6U	2U	0.2U	9.8U	0.2U	0.2U	0.21U	0.94U	37U
2,4,6-TRICHLOROPHENOL	mg/kg	0.6U	2U	0.2U	9.8U	0.2U	0.2U	0.21U	0.94U	37U
2,4-DICHLOROPHENOL	mg/kg	0.6U	2U	0.2U	9.8U	0.2U	0.2U	0.21U	0.94U	37U
2,4-DIMETHYLPHENOL	mg/kg	0.6U	2U	0.2U	9.8U	0.2U	0.2U	0.21U	0.94U	37U
2,4-DINITROPHENOL	mg/kg	7.1U	24U	2.4U	120UJ	2.3UJ	2.3UJ	2.5UJ	11UJ	440UJ
2,4-DINITROTOLUENE	mg/kg	0.6U	2U	0.2U	17	0.082J	0.2U	0.21U	0.94U	29J
2,6-DINITROTOLUENE	mg/kg	0.6U	2U	0.2U	9.8U	0.2U	0.2U	0.21U	0.94U	37U
2-CHLORONAPHTHALENE	mg/kg	0.6U	2U	0.2U	9.8U	0.2U	0.2U	0.21U	0.94U	37U
2-CHLOROPHENOL	mg/kg	0.6U	2U	0.2U	9.8U	0.2U	0.2U	0.21U	0.94U	37U
2-METHYLNAPHTHALENE	mg/kg	3.5	570	1.4	810	3.5	0.94	0.92	0.65J	2100
2-METHYLPHENOL	mg/kg	0.6U	2U	0.2U	9.8U	0.2U	0.2U	0.21U	0.94U	37U
2-NITROANILINE	mg/kg	0.6U	2U	0.2U	9.8U	0.2U	0.2U	0.21U	0.94U	37U
2-NITROPHENOL	mg/kg	0.6U	2U	0.2U	9.8U	0.2U	0.2U	0.21U	0.94U	37U
3,3'-DICHLOROBENZIDINE	mg/kg	1.2U	3.9U	0.4U	20U	0.38U	0.38U	0.41U	1.9U	74U
3-NITROANILINE	mg/kg	0.6U	2U	0.2U	9.8U	0.2U	0.2U	0.21U	0.94U	37U
4,6-DINITRO-2-METHYLPHENOL	mg/kg	1.8U	6U	0.6U	29UJ	0.57UJ	0.57UJ	0.62UJ	2.8U	110U
4-BROMOPHENYL PHENYL ETHER	mg/kg	0.6U	2U	0.2U	9.8U	0.2U	0.2U	0.21U	0.94U	37U
4-CHLORO-3-METHYLPHENOL	mg/kg	0.6U	2U	0.2U	9.8U	0.2U	0.2U	0.21U	0.94U	37U
4-CHLOROANILINE	mg/kg	0.6U	2U	0.2U	9.8U	0.2U	0.2U	0.21U	0.94U	37U
4-CHLOROPHENYL PHENYL ETHER	mg/kg	0.6U	2U	0.2U	9.8U	0.2U	0.2U	0.21U	0.94U	37U
4-METHYLPHENOL	mg/kg	0.6U	2U	0.2U	9.8U	0.2U	0.2U	0.21U	0.94U	19J
4-NITROANILINE	mg/kg	0.6U	2U	0.2U	9.8U	0.2U	0.2U	0.21U	0.94U	37U
4-NITROPHENOL	mg/kg	1.8U	6U	0.6U	29U	0.57U	0.57U	0.62U	2.8U	110U
ACENAPHTHENE	mg/kg	7.6	120	1.1	760	3.9	0.72	0.61	4.6	1300
ACENAPHTHYLENE	mg/kg	0.86	2U	0.1J	94	0.46	0.11J	0.097J	1.4	110
ACETOPHENONE	mg/kg	0.6U	2U	0.2U	9.8U	0.2U	0.2U	0.21U	0.94U	37U
ANTHRACENE	mg/kg	11	55	0.7	710	1.6	0.72	0.52	12	920
ATRAZINE	mg/kg	0.6U	2U	0.2U	9.8U	0.2U	0.2U	0.21U	0.94U	37U
BENZALDEHYDE	mg/kg	0.6U	2U	0.2U	9.8U	0.2U	0.2U	0.21U	0.94U	37U
BENZO(A)ANTHRACENE	mg/kg	14	12	0.27	500	0.88	0.62	0.45	28	660
BENZO(A)PYRENE	mg/kg	15	7.2	0.14J	380	0.37	0.52	0.35	25	460
BENZO(B)FLUORANTHENE	mg/kg	15	9	0.16J	490	0.46	0.63	0.42	31	530
BENZO(G,H,I)PERYLENE	mg/kg	13	3.7	0.063J	230	0.18J	0.25	0.17J	15	230
BENZO(K)FLUORANTHENE	mg/kg	7.7	3.1	0.061J	220	0.25	0.24	0.16J	16	200
BIS(2-CHLOROETHOXY)METHANE	mg/kg	0.6U	2U	0.2U	9.8U	0.2U	0.2U	0.21U	0.94U	37U
BIS(2-CHLOROETHYL)ETHER	mg/kg	0.6U	2U	0.2U	9.8U	0.2U	0.2U	0.21U	0.94U	37U
BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	1.2U	3.9U	0.19J	4J	0.51	0.34J	0.16J	0.49J	74U
BUTYLBENZYL PHTHALATE	mg/kg	0.6U	2U	0.2U	9.8U	0.2U	0.2U	0.21U	0.94U	37U
CAPROLACTAM	mg/kg	0.6U	2U	0.2U	9.8U	0.2U	0.2U	0.21U	0.94U	37U
CARBAZOLE	mg/kg	1.1	11	0.26	270	0.54	0.28	0.2J	3.7	340
CHRYSENE	mg/kg	16	12	0.25	430	0.68	0.58	0.4	25	610
DI-N-BUTYL PHTHALATE	mg/kg	0.6U	2U	0.2U	9.8U	0.2U	0.2U	0.21U	0.94U	37U
DI-N-OCTYL PHTHALATE	mg/kg	0.6U	2U	0.2U	9.8U	0.2U	0.2U	0.21U	0.94U	37U
DIBENZO(A,H)ANTHRACENE	mg/kg	2.5	1.3J	0.2U	68	0.06J	0.071J	0.055J	4.6	58
DIBENZOFURAN	mg/kg	3.7	36	0.78	650	3	0.65	0.55	2.1	960
DIETHYL PHTHALATE	mg/kg	0.6U	2U	0.2U	9.8U	0.2U	0.2U	0.21U	0.94U	37U
DIMETHYL PHTHALATE	mg/kg	0.6U	2U	0.2U	9.8U	0.2U	0.2U	0.21U	0.94U	37U
FLUORANTHENE	mg/kg	33	49	1.3	1600	4.1	1.7	1.2	56	2000
FLUORENE	mg/kg	8.2	120	0.98	880	3.5	0.85	0.71	4	1200
HEXACHLOROBENZENE	mg/kg	0.6U	2U	0.2U	9.8U	0.2U	0.2U	0.21U	0.94U	37U
HEXACHLOROBUTADIENE	mg/kg	0.6U	2U	0.2U	9.8U	0.2U	0.2U	0.21U	0.94U	37U
HEXACHLOROCYCLOPENTADIENE	mg/kg	1.8U	6U	0.6U	29U	0.57UJ	0.57UJ	0.62UJ	2.8U	110U
HEXACHLOROETHANE	mg/kg	0.6U	2U	0.2U	9.8U	0.2U	0.2U	0.21U	0.94U	37U
INDENO(1,2,3-CD)PYRENE	mg/kg	8.9	3.3	0.051J	210	0.15J	0.23	0.17J	15	210
ISOPHORONE	mg/kg	0.6U	2U	0.2U	9.8U	0.2U	0.2U	0.21U	0.94U	37U
N-NITROSO-DI-N-PROPYLAMINE	mg/kg	0.6U	2U	0.2U	9.8U	0.2U	0.2U	0.21U	0.94U	37U
N-NITROSODIPHENYLAMINE	mg/kg	0.6U	2U	0.2U	9.8U	0.2U	0.2U	0.21U	0.94U	37U
NAPHTHALENE	mg/kg	6.9	1500	3.4	2600	7.4	1.4	1.4	1.1	5800
NITROBENZENE	mg/kg	0.6U	2U	0.2U	9.8U	0.2U	0.2U	0.21U	0.94U	37U
PENTACHLOROPHENOL	mg/kg	1.8U	6U	0.6U	29U	0.57U	0.57U	0.62U	2.8U	110U
PHENANTHRENE	mg/kg	19	230	3.5	2800	11	3.2	2.4	36	3900
PHENOL	mg/kg	0.6U	2U	0.2U	2J	0.2U	0.2U	0.21U	0.94U	37U
PYRENE	mg/kg	31	43	0.98	1200	3.7	1.6	1.1	47	1600

Notes:
mg/kg - milligrams per kilogram [parts per million (PPM)]
Semi-volatile organic compounds (SVOCs) analyzed using Method SW8270.

TABLE F-1
Summary of Laboratory Analytical Data for Soil
SVOCs
Quanta Resources Site
Edgewater, New Jersey

Parameter Name	Field Sample ID Location Sample Date Sample Depth Units	SB-08H-004 SB-08H 10/9/2005 24-25 ft	SB-09I-002 SB-09I 8/18/2005 0.8-1.3 ft	SB-09I-003 SB-09I 8/18/2005 9.5-10 ft	SB-09I-004 SB-09I 8/18/2005 27.5-28 ft	SS-10J-001 SB-10J 8/23/2005 0-0.16 ft	SB-10J-003 SB-10J 8/23/2005 3-4 ft	SB-10J-004 SB-10J 8/23/2005 25.5-26 Ft	SS-11K-001 SB-11K 8/23/2005 0-0.16 ft	SB-11K-002 SB-11K 8/23/2005 1.5-2 ft
1,1'-BIPHENYL	mg/kg	0.2U	29	1.5	1.4	0.95U	35	0.044J	4.7J	3.7J
2,2'-OXYBIS(1-CHLOROPROPANE)	mg/kg	0.2U	9U	0.46U	0.22U	0.95U	2.1U	0.22U	9U	9.3U
2,4,5-TRICHLOROPHENOL	mg/kg	0.2U	9U	0.46U	0.22U	0.95UJ	2.1U	0.22U	9U	9.3U
2,4,6-TRICHLOROPHENOL	mg/kg	0.2U	9U	0.46U	0.22U	0.95UJ	2.1U	0.22U	9U	9.3U
2,4-DICHLOROPHENOL	mg/kg	0.2U	9U	0.46U	0.22U	0.95UJ	2.1U	0.22U	9U	9.3U
2,4-DIMETHYLPHENOL	mg/kg	0.2U	9U	23	0.3	0.95U	2.1U	0.22U	9U	9.3U
2,4-DINITROPHENOL	mg/kg	2.4UJ	110UJ	5.4UJ	2.5UJ	11UJ	25UJ	2.6UJ	110UJ	110UJ
2,4-DINITROTOLUENE	mg/kg	0.2U	9U	0.46U	0.22U	0.95U	2.1U	0.22U	9U	9.3U
2,6-DINITROTOLUENE	mg/kg	0.2U	9U	0.46U	0.22U	0.95U	2.1U	0.22U	9U	9.3U
2-CHLORONAPHTHALENE	mg/kg	0.2U	9U	0.46U	0.22U	0.95U	2.1U	0.22U	9U	9.3U
2-CHLOROPHENOL	mg/kg	0.2U	9U	0.46U	0.22U	0.95U	2.1U	0.22U	9U	9.3U
2-METHYLNAPHTHALENE	mg/kg	0.083J	100	8.7	7.9	0.51J	190	0.1J	19	26
2-METHYLPHENOL	mg/kg	0.2U	9U	1.2	0.086J	0.95U	2.1U	0.22U	9U	9.3U
2-NITROANILINE	mg/kg	0.2U	9U	0.46U	0.22U	0.95U	2.1U	0.22U	9U	9.3U
2-NITROPHENOL	mg/kg	0.2U	9U	0.46U	0.22U	0.95UJ	2.1U	0.22U	9U	9.3U
3,3'-DICHLOROBENZIDINE	mg/kg	0.39U	18U	0.89U	0.42U	2U	4.1U	0.42U	18U	19U
3-NITROANILINE	mg/kg	0.2U	9U	0.46U	0.22U	0.95U	2.1U	0.22U	9U	9.3U
4,6-DINITRO-2-METHYLPHENOL	mg/kg	0.6U	27UJ	1.4UJ	0.63UJ	2.9UJ	6.3UJ	0.64UJ	27UJ	28UJ
4-BROMOPHENYL PHENYL ETHER	mg/kg	0.2U	9U	0.46U	0.22U	0.95U	2.1U	0.22U	9U	9.3U
4-CHLORO-3-METHYLPHENOL	mg/kg	0.2U	9U	0.46U	0.22U	0.95U	2.1U	0.22U	9U	9.3U
4-CHLOROANILINE	mg/kg	0.2U	9U	0.46U	0.22U	0.95U	2.1U	0.22U	9U	9.3U
4-CHLOROPHENYL PHENYL ETHER	mg/kg	0.2U	9U	0.46U	0.22U	0.95U	2.1U	0.22U	9U	9.3U
4-METHYLPHENOL	mg/kg	0.2U	9U	2.3	0.22U	0.95U	2.1U	0.22U	9U	9.3U
4-NITROANILINE	mg/kg	0.2U	9U	0.46U	0.22U	0.95U	2.1U	0.22U	9U	9.3U
4-NITROPHENOL	mg/kg	0.6U	27U	1.4U	0.63U	2.9U	6.3U	0.64U	27U	28U
ACENAPHTHENE	mg/kg	0.076J	240	4.3	4.3	2.1	190	0.15J	63	56
ACENAPHTHYLENE	mg/kg	0.2U	30	2.3	0.67	1.4	5.8	0.22U	12	3.9J
ACETOPHENONE	mg/kg	0.2U	9U	0.46U	0.22U	0.95U	2.1U	0.22U	9U	9.3U
ANTHRACENE	mg/kg	0.12J	420	8	2.6	3.9J	89	0.21J	160	73
ATRAZINE	mg/kg	0.2U	9U	0.46U	0.22U	0.95U	2.1U	0.22U	9U	9.3U
BENZALDEHYDE	mg/kg	0.2UJ	9U	0.46U	0.22U	0.95U	2.1U	0.22U	9U	9.3U
BENZO(A)ANTHRACENE	mg/kg	0.1J	190	9.3	1.6	19J	52	0.21J	250	110
BENZO(A)PYRENE	mg/kg	0.079J	140	9.1	1.1	24	40	0.18J	230	130
BENZO(B)FLUORANTHENE	mg/kg	0.083J	200	8.8	1.2	29	50	0.22	280	150
BENZO(G,H,I)PERYLENE	mg/kg	0.048J	74	5	0.44	17J	23	0.1J	120	92
BENZO(K)FLUORANTHENE	mg/kg	0.2U	78	4	0.48	11J	19	0.082J	120	77
BIS(2-CHLOROETHOXY)METHANE	mg/kg	0.2U	9U	0.46U	0.22U	0.95U	2.1U	0.22U	9U	9.3U
BIS(2-CHLOROETHYL)ETHER	mg/kg	0.2U	9U	0.46U	0.22U	0.95U	2.1U	0.22U	9U	9.3U
BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	0.19J	25	0.36J	0.31J	0.73J	1.7J	0.85	18U	19U
BUTYLBENZYL PHTHALATE	mg/kg	0.2U	3.8J	0.46U	0.22U	0.95U	2.1U	0.22U	9U	9.3U
CAPROLACTAM	mg/kg	0.2U	9U	0.46U	0.22U	0.95U	2.1U	0.22U	9U	9.3U
CARBAZOLE	mg/kg	0.055J	140	3.7	0.72	1.5	93	0.09J	41	22
CHRYSENE	mg/kg	0.089J	200	10	1.4	18J	49	0.21J	220	100
DI-N-BUTYL PHTHALATE	mg/kg	0.2U	9U	0.46U	0.22U	0.95U	2.1U	0.22U	9U	9.3U
DI-N-OCTYL PHTHALATE	mg/kg	0.2U	9U	0.46U	0.22U	0.95U	2.1U	0.22U	9U	9.3U
DIBENZO(A,H)ANTHRACENE	mg/kg	0.2U	23	1.6	0.15J	4.9	5.8	0.22U	38	28
DIBENZOFURAN	mg/kg	0.073J	210	4.6	2.8	0.72J	170	0.15J	42	32
DIETHYL PHTHALATE	mg/kg	0.2U	9U	0.46U	0.22U	0.95U	2.1U	0.22U	9U	9.3U
DIMETHYL PHTHALATE	mg/kg	0.2U	9U	0.46U	0.22U	0.95U	2.1U	0.22U	9U	9.3U
FLUORANTHENE	mg/kg	0.29	890	22	5.6	29	180	0.66	540	200
FLUORENE	mg/kg	0.12J	380	6.1	4.2	1.5J	230	0.24	90	51
HEXACHLOROBENZENE	mg/kg	0.2U	9U	0.46U	0.22U	0.95U	2.1U	0.22U	9U	9.3U
HEXACHLOROBUTADIENE	mg/kg	0.2U	9U	0.46U	0.22U	0.95U	2.1U	0.22U	9U	9.3U
HEXACHLOROCYCLOPENTADIENE	mg/kg	0.6U	27UJ	1.4UJ	0.63UJ	2.9UJ	6.3UJ	0.64UJ	27UJ	28UJ
HEXACHLOROETHANE	mg/kg	0.2U	9U	0.46U	0.22U	0.95U	2.1U	0.22U	9U	9.3U
INDENO(1,2,3-CD)PYRENE	mg/kg	0.2U	67	4.5	0.4	15J	21	0.079J	120	88
ISOPHORONE	mg/kg	0.2U	9U	0.46U	0.22U	0.95U	2.1U	0.22U	9U	9.3U
N-NITROSO-DI-N-PROPYLAMINE	mg/kg	0.2U	9U	0.46U	0.22U	0.95U	2.1U	0.22U	9U	9.3U
N-NITROSODIPHENYLAMINE	mg/kg	0.2U	9U	0.46U	0.22U	0.95U	2.1U	0.22U	9U	9.3U
NAPHTHALENE	mg/kg	0.14J	220	38	13	1	640	0.14J	19	39
NITROBENZENE	mg/kg	0.2U	9U	0.46U	0.22U	0.95U	2.1U	0.22U	9U	9.3U
PENTACHLOROPHENOL	mg/kg	0.6U	27U	1.4U	0.63U	2.9UJ	6.3UJ	0.64UJ	27UJ	28UJ
PHENANTHRENE	mg/kg	0.5	1300	28	13	12J	480	1.1	490	200
PHENOL	mg/kg	0.2U	9U	1.4	0.22U	0.95U	2.1U	0.22U	9U	9.3U
PYRENE	mg/kg	0.25	640	19	4.6	28	150	0.53	470	180

Notes:
mg/kg - milligrams per kilogram [parts per million (PPM)]
Semi-volatile organic compounds (SVOCs) analyzed using Method SW8270.

TABLE F-1
Summary of Laboratory Analytical Data for Soil
SVOCs
Quanta Resources Site
Edgewater, New Jersey

Parameter Name	Field Sample ID Location Sample Date Sample Depth Units	SB-11K-003 SB-11K 8/23/2005 4.5-5 ft	SB-11K-004 SB-11K 8/23/2005 23.2-24 ft	SS-12L-001 SB-12L 10/25/2005 0-0.16 ft	SB-12L-003 SB-12L 10/25/2005 22.5-23 ft	SB-12L-004 SB-12L 10/25/2005 29.5-30 ft	SS-13M-001 SB-13M 8/3/2005 0-1 ft	SB-13M-002 SB-13M 8/3/2005 1-2 Ft	SB-13M-004 SB-13M 8/3/2005 11-12 Ft	SS-14N-001 SB-14N 10/24/2005 0-0.16 ft
1,1'-BIPHENYL	mg/kg	220	0.21U	0.95U	0.2U	0.05J	21U	20U	2.9J	1.8U
2,2'-OXYBIS(1-CHLOROPROPANE)	mg/kg	9.9U	0.21U	0.95U	0.2U	0.21U	21U	20U	3.1U	1.8U
2,4,5-TRICHLOROPHENOL	mg/kg	9.9U	0.21U	0.95U	0.2U	0.21U	21U	20U	3.1U	1.8U
2,4,6-TRICHLOROPHENOL	mg/kg	9.9U	0.21U	0.95U	0.2U	0.21U	21U	20U	3.1U	1.8U
2,4-DICHLOROPHENOL	mg/kg	9.9U	0.21U	0.95U	0.2U	0.21U	21U	20U	3.1U	1.8U
2,4-DIMETHYLPHENOL	mg/kg	16	0.21U	0.95U	0.2U	0.21U	21U	20U	3.1U	1.8U
2,4-DINITROPHENOL	mg/kg	120UJ	2.4UJ	11U	2.4U	2.5U	250U	230U	37U	22U
2,4-DINITROTOLUENE	mg/kg	9.9U	0.21U	0.95U	0.2U	0.21U	21U	20U	3.1U	1.8U
2,6-DINITROTOLUENE	mg/kg	9.9U	0.21U	0.95U	0.2U	0.21U	21U	20U	3.1U	1.8U
2-CHLORONAPHTHALENE	mg/kg	9.9U	0.21U	0.95U	0.2U	0.21U	21U	20U	3.1U	1.8U
2-CHLOROPHENOL	mg/kg	9.9U	0.21U	0.95U	0.2U	0.21U	21U	20U	3.1U	1.8U
2-METHYLNAPHTHALENE	mg/kg	1400J	0.21U	0.95U	0.2U	0.14J	10J	20U	10	0.69J
2-METHYLPHENOL	mg/kg	5J	0.21U	0.95U	0.2U	0.21U	21U	20U	3.1U	1.8U
2-NITROANILINE	mg/kg	9.9U	0.21U	0.95U	0.2U	0.21U	21U	20U	3.1U	1.8U
2-NITROPHENOL	mg/kg	9.9U	0.21U	0.95U	0.2U	0.21U	21U	20U	3.1U	1.8U
3,3'-DICHLOROBENZIDINE	mg/kg	20U	0.4U	2U	0.4U	0.41U	41U	38U	6.1U	3.5U
3-NITROANILINE	mg/kg	9.9U	0.21U	0.95U	0.2U	0.21U	21U	20U	3.1U	1.8U
4,6-DINITRO-2-METHYLPHENOL	mg/kg	30UJ	0.61UJ	2.9U	0.6U	0.63U	63U	57U	9.3U	5.4U
4-BROMOPHENYL PHENYL ETHER	mg/kg	9.9U	0.21U	0.95U	0.2U	0.21U	21U	20U	3.1U	1.8U
4-CHLORO-3-METHYLPHENOL	mg/kg	9.9U	0.21U	0.95U	0.2U	0.21U	21U	20U	3.1U	1.8U
4-CHLOROANILINE	mg/kg	9.9U	0.21U	0.95U	0.2U	0.21U	21U	20U	3.1U	1.8U
4-CHLOROPHENYL PHENYL ETHER	mg/kg	9.9U	0.21U	0.95U	0.2U	0.21U	21U	20U	3.1U	1.8U
4-METHYLPHENOL	mg/kg	9.9U	0.21U	0.95U	0.2U	0.21U	21U	20U	3.1U	1.8U
4-NITROANILINE	mg/kg	9.9U	0.21U	0.95U	0.2U	0.21U	21U	20U	3.1U	1.8U
4-NITROPHENOL	mg/kg	30U	0.61U	2.9U	0.6U	0.63U	63U	57U	9.3U	5.4U
ACENAPHTHENE	mg/kg	990J	0.042J	0.28J	0.083J	0.1J	44	11J	30	1.8U
ACENAPHTHYLENE	mg/kg	210	0.065J	0.95U	0.2U	0.21U	12J	6.5J	0.88J	0.88J
ACETOPHENONE	mg/kg	9.9U	0.21U	0.95U	0.2U	0.21U	21U	20U	3.1U	1.8U
ANTHRACENE	mg/kg	1100J	0.21U	0.61J	0.055J	0.054J	73	30	39	0.71J
ATRAZINE	mg/kg	9.9U	0.21U	0.95U	0.2U	0.21U	21U	20U	3.1U	1.8U
BENZALDEHYDE	mg/kg	9.9U	0.21U	0.95U	0.2U	0.21U	21U	20U	3.1U	1.8U
BENZO(A)ANTHRACENE	mg/kg	1400J	0.047J	1.9	0.2U	0.21U	150	86	39	2.4
BENZO(A)PYRENE	mg/kg	1200J	0.21U	1.7	0.2U	0.21U	180	98	37	2
BENZO(B)FLUORANTHENE	mg/kg	1400J	0.045J	2	0.2U	0.21U	210	110	40	2.7
BENZO(G,H,I)PERYLENE	mg/kg	590J	0.21U	1.1	0.2U	0.21U	140	67	22	1.9
BENZO(K)FLUORANTHENE	mg/kg	660J	0.21U	0.83J	0.2U	0.21U	88	46	19	1J
BIS(2-CHLOROETHOXY)METHANE	mg/kg	9.9U	0.21U	0.95U	0.2U	0.21U	21U	20U	3.1U	1.8U
BIS(2-CHLOROETHYL)ETHER	mg/kg	9.9U	0.21U	0.95U	0.2U	0.21U	21U	20U	3.1U	1.8U
BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	20U	0.4U	0.39J	0.4U	0.41U	41U	38U	6.1U	3.5U
BUTYLBENZYL PHTHALATE	mg/kg	9.9U	0.21U	0.95U	0.2U	0.21U	21U	20U	3.1U	1.8U
CAPROLACTAM	mg/kg	9.9U	0.21U	0.95U	0.2U	0.21U	21U	20U	3.1U	1.8U
CARBAZOLE	mg/kg	390J	0.21U	0.23J	0.047J	0.21U	22	6.6J	18	1.8U
CHRYSENE	mg/kg	1300J	0.044J	2.1	0.2U	0.21U	160	85	33	2.6
DI-N-BUTYL PHTHALATE	mg/kg	9.9U	0.21U	0.95U	0.2U	0.21U	21U	20U	3.1U	1.8U
DI-N-OCTYL PHTHALATE	mg/kg	9.9U	0.21U	0.95U	0.2U	0.21U	21U	20U	3.1U	1.8U
DIBENZO(A,H)ANTHRACENE	mg/kg	120	0.21U	0.32J	0.2U	0.21U	36	17J	5.8	1.8U
DIBENZOFURAN	mg/kg	870J	0.21U	0.95U	0.087J	0.069J	19J	4.5J	20	1.8U
DIETHYL PHTHALATE	mg/kg	9.9U	0.21U	0.95U	0.2U	0.21U	21U	20U	3.1U	1.8U
DIMETHYL PHTHALATE	mg/kg	9.9U	0.21U	0.95U	0.2U	0.21U	21U	20U	3.1U	1.8U
FLUORANTHENE	mg/kg	3500J	0.1J	3.2	0.13J	0.1J	340	180	86	3.2
FLUORENE	mg/kg	1200J	0.21U	0.27J	0.081J	0.081J	33	10J	26	1.8U
HEXACHLOROBENZENE	mg/kg	9.9U	0.21U	0.95U	0.2U	0.21U	21U	20U	3.1U	1.8U
HEXACHLOROBUTADIENE	mg/kg	9.9U	0.21U	0.95U	0.2U	0.21U	21U	20U	3.1U	1.8U
HEXACHLOROCYCLOPENTADIENE	mg/kg	30UJ	0.61UJ	2.9UJ	0.6UJ	0.63UJ	63UJ	57UJ	9.3UJ	5.4UJ
HEXACHLOROETHANE	mg/kg	9.9U	0.21U	0.95U	0.2U	0.21U	21U	20U	3.1U	1.8U
INDENO(1,2,3-CD)PYRENE	mg/kg	540J	0.21U	0.85J	0.2U	0.21U	130	56	19	1.2J
ISOPHORONE	mg/kg	9.9U	0.21U	0.95U	0.2U	0.21U	21U	20U	3.1U	1.8U
N-NITROSO-DI-N-PROPYLAMINE	mg/kg	9.9U	0.21U	0.95U	0.2U	0.21U	21U	20U	3.1U	1.8U
N-NITROSODIPHENYLAMINE	mg/kg	9.9U	0.21U	0.95U	0.2U	0.21U	21U	20U	3.1U	1.8U
NAPHTHALENE	mg/kg	4400J	0.064J	0.95U	0.066J	0.32	20J	20U	32	0.55J
NITROBENZENE	mg/kg	9.9U	0.21U	0.95U	0.2U	0.21U	21U	20U	3.1U	1.8U
PENTACHLOROPHENOL	mg/kg	30UJ	0.61UJ	2.9U	0.6U	0.63U	63U	57U	9.3U	5.4U
PHENANTHRENE	mg/kg	4900J	0.13J	3.1	0.35	0.27	260	92	120	2.7
PHENOL	mg/kg	3.1J	0.21U	0.95U	0.2U	0.21U	21U	20U	3.1U	1.8U
PYRENE	mg/kg	3200J	0.088J	4.2	0.12J	0.11J	280	160	68	6.7

Notes:
mg/kg - milligrams per kilogram [parts per million (PPM)]
Semi-volatile organic compounds (SVOCs) analyzed using Method SW8270.

TABLE F-1
Summary of Laboratory Analytical Data for Soil
SVOCs
Quanta Resources Site
Edgewater, New Jersey

Parameter Name	Field Sample ID Location Sample Date Sample Depth Units	SB-14N-002 SB-14N 10/24/2005 0.16-0.5 ft	SB-14N-004 SB-14N 10/24/2005 22.5-23 ft	SS-15D-001 SB-15D 10/25/2005 0-0.16 Ft	SB-15D-003 SB-15D 10/25/2005 7-7.5 ft	SB-15D-004 SB-15D 10/25/2005 28.5-29 ft	SS-16P-001 SB-16P 11/9/2005 0-0.16 Ft	SB-16P-003 SB-16P 11/15/2005 16.5-17 ft	SB-16P-004 SB-16P 11/15/2005 26-27 ft	SS-17Q-001 SB-17Q 12/10/2005 0.3-0.5 ft
1,1'-BIPHENYL	mg/kg	1.8U	0.2U	0.99U	0.26	0.21U	0.19U	0.55	0.86	0.53U
2,2'-OXYBIS(1-CHLOROPROPANE)	mg/kg	1.8U	0.2U	0.99U	0.19U	0.21U	0.19U	0.21U	0.2U	0.53U
2,4,5-TRICHLOROPHENOL	mg/kg	1.8U	0.2U	0.99U	0.19U	0.21U	0.19U	0.21U	0.2U	0.53U
2,4,6-TRICHLOROPHENOL	mg/kg	1.8U	0.2U	0.99U	0.19U	0.21U	0.19U	0.21U	0.2U	0.53U
2,4-DICHLOROPHENOL	mg/kg	1.8U	0.2U	0.99U	0.19U	0.21U	0.19U	0.21U	0.2U	0.53U
2,4-DIMETHYLPHENOL	mg/kg	1.8U	0.2U	0.99U	0.19U	0.21U	0.19U	2.1	1.6	0.53U
2,4-DINITROPHENOL	mg/kg	22U	2.4U	12UJ	2.3U	2.5U	2.2U	2.5U	2.4U	6.4U
2,4-DINITROTOLUENE	mg/kg	1.8U	0.2U	0.99U	0.19U	0.21U	0.19U	0.21U	0.2U	0.53U
2,6-DINITROTOLUENE	mg/kg	1.8U	0.2U	0.99U	0.19U	0.21U	0.19U	0.21U	0.2U	0.53U
2-CHLORONAPHTHALENE	mg/kg	1.8U	0.2U	0.99U	0.19U	0.21U	0.19U	0.21U	0.2U	0.53U
2-CHLOROPHENOL	mg/kg	1.8U	0.2U	0.99U	0.19U	0.21U	0.19U	0.21U	0.2U	0.53U
2-METHYLNAPHTHALENE	mg/kg	1.8U	0.2U	0.99U	0.63	0.21U	0.19U	3.3	4.3	0.25J
2-METHYLPHENOL	mg/kg	1.8U	0.2U	0.99U	0.19U	0.21U	0.19U	0.93	0.12J	0.53U
2-NITROANILINE	mg/kg	1.8U	0.2U	0.99U	0.19U	0.21U	0.19U	0.21U	0.16J	0.53U
2-NITROPHENOL	mg/kg	1.8U	0.2U	0.99U	0.19U	0.21U	0.19U	0.21U	0.2U	0.53U
3,3'-DICHLOROBENZIDINE	mg/kg	3.6U	0.4U	2U	0.38U	0.41U	0.37U	0.41U	0.4U	1.1U
3-NITROANILINE	mg/kg	1.8U	0.2U	0.99U	0.19U	0.21U	0.19U	0.21U	0.2U	0.53U
4,6-DINITRO-2-METHYLPHENOL	mg/kg	5.4U	0.6U	3U	0.57U	0.62U	0.56U	0.63U	0.6U	1.6U
4-BROMOPHENYL PHENYL ETHER	mg/kg	1.8U	0.2U	0.99U	0.19U	0.21U	0.19U	0.21U	0.2U	0.53U
4-CHLORO-3-METHYLPHENOL	mg/kg	1.8U	0.2U	0.99U	0.19U	0.21U	0.19U	0.21U	0.2U	0.53U
4-CHLOROANILINE	mg/kg	1.8U	0.2U	0.99U	0.19U	0.21U	0.19U	0.21U	0.2U	0.53U
4-CHLOROPHENYL PHENYL ETHER	mg/kg	1.8U	0.2U	0.99U	0.19U	0.21U	0.19U	0.21U	0.2U	0.53U
4-METHYLPHENOL	mg/kg	1.8U	0.2U	0.99U	0.19U	0.21U	0.19U	1.2	0.18J	0.53U
4-NITROANILINE	mg/kg	1.8U	0.2U	0.99U	0.19U	0.21U	0.19U	0.21U	0.2U	0.53U
4-NITROPHENOL	mg/kg	5.4U	0.6U	3U	0.57U	0.62U	0.56U	0.63U	0.6U	1.6U
ACENAPHTHENE	mg/kg	1.8U	0.2U	0.99U	0.2	0.21U	0.13J	1.4	2.4	1.1
ACENAPHTHYLENE	mg/kg	1.8U	0.2U	0.99U	0.67	0.21U	0.22	0.15J	0.29	0.61
ACETOPHENONE	mg/kg	1.8U	0.2U	0.99U	0.19U	0.21U	0.19U	0.21U	0.2U	0.53U
ANTHRACENE	mg/kg	0.55J	0.2U	0.99U	1.3	0.21U	0.34	0.68	1.4	2.4
ATRAZINE	mg/kg	1.8U	0.2U	0.99U	0.19U	0.21U	0.19U	0.21U	0.2U	0.53U
BENZALDEHYDE	mg/kg	1.8U	0.2U	0.99U	0.19U	0.21U	0.19U	0.21U	0.2U	0.53U
BENZO(A)ANTHRACENE	mg/kg	0.96J	0.2U	0.61J	3.7	0.21U	1.1	0.12J	0.36	7.8
BENZO(A)PYRENE	mg/kg	1.1J	0.2U	0.55J	3.6	0.21U	1.3	0.075J	0.16J	7.1
BENZO(B)FLUORANTHENE	mg/kg	1.2J	0.2U	0.79J	7	0.21U	1.7	0.083J	0.18J	9.6
BENZO(G,H,I)PERYLENE	mg/kg	0.64J	0.2U	0.41J	3.8	0.21U	0.89	0.21U	0.067J	4.9
BENZO(K)FLUORANTHENE	mg/kg	0.44J	0.2U	0.31J	4.4	0.21U	0.7	0.047J	0.098J	3.7
BIS(2-CHLOROETHOXY)METHANE	mg/kg	1.8U	0.2U	0.99U	0.19U	0.21U	0.19U	0.21U	0.2U	0.53U
BIS(2-CHLOROETHYL)ETHER	mg/kg	1.8U	0.2U	0.99U	0.19U	0.21U	0.19U	0.21U	0.2U	0.53U
BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	3.6U	0.4U	2U	0.14J	0.41U	0.37U	1.1	1.5	0.26J
BUTYLBENZYL PHTHALATE	mg/kg	1.8U	0.2U	0.99U	0.19U	0.21U	0.19U	0.21U	0.2U	0.53U
CAPROLACTAM	mg/kg	1.8U	0.2U	0.99U	0.19U	0.21U	0.19U	0.21U	0.2U	0.53U
CARBAZOLE	mg/kg	1.8U	0.2U	0.99U	0.25	0.21U	0.13J	0.75	0.36	0.76
CHRYSENE	mg/kg	1.2J	0.2U	0.72J	4.3	0.21U	1.3	0.12J	0.32	7.3
DI-N-BUTYL PHTHALATE	mg/kg	1.8U	0.2U	0.99U	0.19U	0.21U	0.19U	0.21U	0.2U	0.53U
DI-N-OCTYL PHTHALATE	mg/kg	1.8U	0.2U	0.99U	0.19U	0.21U	0.19U	0.21U	0.2U	0.53U
DIBENZO(A,H)ANTHRACENE	mg/kg	1.8U	0.2U	0.99U	1.7	0.21U	0.22	0.21U	0.2U	1.4
DIBENZOFURAN	mg/kg	1.8U	0.2U	0.99U	0.43	0.21U	0.042J	0.76	1.8	0.46J
DIETHYL PHTHALATE	mg/kg	1.8U	0.2U	0.99U	0.19U	0.21U	0.19U	0.21U	0.2U	0.53U
DIMETHYL PHTHALATE	mg/kg	1.8U	0.2U	0.99U	0.19U	0.21U	0.19U	0.21U	0.2U	0.53U
FLUORANTHENE	mg/kg	1.6J	0.2U	1.3	4.4	0.21U	2.2	0.63	1.9	13
FLUORENE	mg/kg	1.8U	0.2U	0.99U	0.15J	0.21U	0.1J	1.3	2.3	1
HEXACHLOROBENZENE	mg/kg	1.8U	0.2U	0.99U	0.19U	0.21U	0.19U	0.21U	0.2U	0.53U
HEXACHLOROBUTADIENE	mg/kg	1.8U	0.2U	0.99U	0.19U	0.21U	0.19U	0.21U	0.2U	0.53U
HEXACHLOROCYCLOPENTADIENE	mg/kg	5.4UJ	0.6UJ	3UJ	0.57UJ	0.62UJ	0.56U	0.63U	0.6U	1.6U
HEXACHLOROETHANE	mg/kg	1.8U	0.2U	0.99U	0.19U	0.21U	0.19U	0.21U	0.2U	0.53U
INDENO(1,2,3-CD)PYRENE	mg/kg	0.57J	0.2U	0.34J	3.6	0.21U	0.78	0.21U	0.059J	4.3
ISOPHORONE	mg/kg	1.8U	0.2U	0.99U	0.19U	0.21U	0.19U	0.21U	0.2U	0.53U
N-NITROSO-DI-N-PROPYLAMINE	mg/kg	1.8U	0.2U	0.99U	0.19U	0.21U	0.19U	0.21U	0.2U	0.53U
N-NITROSODIPHENYLAMINE	mg/kg	1.8U	0.2U	0.99U	0.19U	0.21U	0.19U	0.21U	0.2U	0.53U
NAPHTHALENE	mg/kg	1.8U	0.2U	0.99U	1.5	0.21U	0.19U	9.6J	8.8	0.35J
NITROBENZENE	mg/kg	1.8U	0.2U	0.99U	0.19U	0.21U	0.19U	0.21U	0.2U	0.53U
PENTACHLOROPHENOL	mg/kg	5.4U	0.6U	3U	0.57U	0.62U	0.56U	0.63U	0.6U	1.6U
PHENANTHRENE	mg/kg	1.6J	0.2U	0.7J	2.2	0.21U	1.2	3	6.3	7.9
PHENOL	mg/kg	1.8U	0.2U	0.99U	0.19U	0.21U	0.19U	0.32	0.2U	0.53U
PYRENE	mg/kg	2	0.2U	1.6	4.6	0.21U	2.1	0.58	1.5	12

Notes:
mg/kg - milligrams per kilogram [parts per million (PPM)]
Semi-volatile organic compounds (SVOCs) analyzed using Method SW8270.

TABLE F-1
Summary of Laboratory Analytical Data for Soil
SVOCs
Quanta Resources Site
Edgewater, New Jersey

Parameter Name	Field Sample ID Location Sample Date Sample Depth Units	SB-17Q-002 SB-17Q 12/10/2005 4-5 Ft	SB-17Q-003* SB-17Q 12/10/2005 9-10 ft	SB-17Q-004 SB-17Q 12/10/2005 27-28 ft	SS-18R-001 SB-18R 11/10/2005 0-0.16 Ft	SB-18R-004 SB-18R 11/18/2005 26-26.5 ft	SS-101DS-001 SB-101DS 8/30/2005 0-0.16 ft	SB-101DS-002 SB-101DS 8/30/2005 3.5-4 ft	SB-101DS-003 SB-101DS 8/30/2005 16.2-16.7 ft
1,1'-BIPHENYL	mg/kg	0.74	110	0.21U	2U	0.22U	0.91J	0.35J	0.77J
2,2'-OXYBIS(1-CHLOROPROPANE)	mg/kg	0.64U	9.1U	0.21U	2U	0.22U	0.91U	0.39U	2.2U
2,4,5-TRICHLOROPHENOL	mg/kg	0.64U	9.1U	0.21U	2U	0.22U	0.91U	0.39U	2.2U
2,4,6-TRICHLOROPHENOL	mg/kg	0.64U	9.1U	0.21U	2U	0.22U	0.91U	0.39U	2.2U
2,4-DICHLOROPHENOL	mg/kg	0.64U	9.1U	0.21U	2U	0.22U	0.91U	0.39U	2.2U
2,4-DIMETHYLPHENOL	mg/kg	0.64U	9.1U	0.21U	2U	0.22U	0.91U	0.39U	2.2U
2,4-DINITROPHENOL	mg/kg	7.7U	110U	2.5U	24U	2.6U	11UJ	4.7U	25U
2,4-DINITROTOLUENE	mg/kg	0.64U	9.1U	0.21U	2U	0.22U	0.91U	0.39U	2.2U
2,6-DINITROTOLUENE	mg/kg	0.64U	9.1U	0.21U	2U	0.22U	0.91U	0.39U	2.2U
2-CHLORONAPHTHALENE	mg/kg	0.64U	9.1U	0.21U	2U	0.22U	0.91U	0.39U	2.2U
2-CHLOROPHENOL	mg/kg	0.64U	9.1U	0.21U	2U	0.22U	0.91U	0.39U	2.2U
2-METHYLNAPHTHALENE	mg/kg	2.2	430	0.049J	0.47J	0.22U	4.9J	0.39J	4.9
2-METHYLPHENOL	mg/kg	0.64U	9.1U	0.21U	2U	0.22U	0.91U	0.39U	2.2U
2-NITROANILINE	mg/kg	0.64U	9.1U	0.21U	2U	0.22U	0.91U	0.39U	2.2U
2-NITROPHENOL	mg/kg	0.64U	9.1U	0.21U	2U	0.22U	0.91U	0.39U	2.2U
3,3'-DICHLOROBENZIDINE	mg/kg	1.3U	18U	0.41U	3.9U	0.42U	1.9U	0.79U	4.2U
3-NITROANILINE	mg/kg	0.64U	9.1U	0.21U	2U	0.22U	0.91U	0.39U	2.2U
4,6-DINITRO-2-METHYLPHENOL	mg/kg	1.9U	27U	0.63U	6U	0.64U	2.7UJ	1.2U	6.3U
4-BROMOPHENYL PHENYL ETHER	mg/kg	0.64U	9.1U	0.21U	2U	0.22U	0.91U	0.39U	2.2U
4-CHLORO-3-METHYLPHENOL	mg/kg	0.64U	9.1U	0.21U	2U	0.22U	0.91U	0.39U	2.2U
4-CHLOROANILINE	mg/kg	0.64U	9.1U	0.21U	2U	0.22U	0.91U	0.39U	2.2U
4-CHLOROPHENYL PHENYL ETHER	mg/kg	0.64U	9.1U	0.21U	2U	0.22U	0.91U	0.39U	2.2U
4-METHYLPHENOL	mg/kg	0.64U	9.1U	0.21U	2U	0.22U	0.91U	0.21J	2.2U
4-NITROANILINE	mg/kg	0.64U	9.1U	0.21U	2U	0.22U	0.91U	0.39U	2.2U
4-NITROPHENOL	mg/kg	1.9U	27U	0.63U	6U	0.64U	2.7U	1.2U	6.3U
ACENAPHTHENE	mg/kg	9	280	0.094J	3.1	0.22U	13J	19	9.1
ACENAPHTHYLENE	mg/kg	5.7	26	0.15J	0.72J	0.08J	3.3	3.1	1.3J
ACETOPHENONE	mg/kg	0.64U	9.1U	0.21U	2U	0.22U	0.91U	0.39U	2.2U
ANTHRACENE	mg/kg	22	170	0.074J	3.9	0.22U	22	18	15
ATRAZINE	mg/kg	0.64U	9.1U	0.21U	2U	0.22U	0.91U	0.39U	2.2U
BENZALDEHYDE	mg/kg	0.64U	9.1U	0.21U	2U	0.22U	0.91U	0.39U	2.2U
BENZO(A)ANTHRACENE	mg/kg	30	110	0.045J	13	0.22U	72	25	19
BENZO(A)PYRENE	mg/kg	22	93	0.045J	15	0.22U	71	25	19
BENZO(B)FLUORANTHENE	mg/kg	25	99	0.21U	16	0.22U	88	26	24
BENZO(G,H,I)PERYLENE	mg/kg	12	58	0.21U	8.7	0.22U	46	17	10
BENZO(K)FLUORANTHENE	mg/kg	11	31	0.21U	7.4	0.22U	41	11	8.3
BIS(2-CHLOROETHOXY)METHANE	mg/kg	0.64U	9.1U	0.21U	2U	0.22U	0.91U	0.39U	2.2U
BIS(2-CHLOROETHYL)ETHER	mg/kg	0.64U	9.1U	0.21U	2U	0.22U	0.91U	0.39U	2.2U
BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	0.95J	18U	0.41U	3.9U	0.42U	1.7J	0.79U	4.2U
BUTYLBENZYL PHTHALATE	mg/kg	0.64U	9.1U	0.21U	2U	0.22U	0.91U	0.39U	2.2U
CAPROLACTAM	mg/kg	0.64U	9.1U	0.21U	2U	0.22U	0.91U	0.39U	2.2U
CARBAZOLE	mg/kg	2.4	37	0.21U	1.8J	0.22U	12J	1.3	4.5
CHRYSENE	mg/kg	28	110	0.21U	12	0.043J	71	24	19
DI-N-BUTYL PHTHALATE	mg/kg	0.64U	9.1U	0.21U	2U	0.22U	0.91U	0.39U	2.2U
DI-N-OCTYL PHTHALATE	mg/kg	0.64U	9.1U	0.21U	2U	0.22U	0.91U	0.39U	2.2U
DIBENZO(A,H)ANTHRACENE	mg/kg	3.6	16	0.21U	2.6	0.22U	14J	4.9	3
DIBENZOFURAN	mg/kg	5.5	160	0.21U	0.92J	0.22U	7.1J	18	6.6
DIETHYL PHTHALATE	mg/kg	0.64U	9.1U	0.21U	2U	0.22U	0.91U	0.39U	2.2U
DIMETHYL PHTHALATE	mg/kg	0.64U	9.1U	0.21U	2U	0.22U	0.91U	0.39U	2.2U
FLUORANTHENE	mg/kg	73	330	0.11J	22	0.096J	140	69	50
FLUORENE	mg/kg	15	290	0.1J	1.7J	0.044J	12J	26	12
HEXACHLOROBENZENE	mg/kg	0.64U	9.1U	0.21U	2U	0.22U	0.91U	0.39U	2.2U
HEXACHLOROBUTADIENE	mg/kg	0.64U	9.1U	0.21U	2U	0.22U	0.91U	0.39U	2.2U
HEXACHLOROCYCLOPENTADIENE	mg/kg	1.9U	27U	0.63U	6U	0.64UJ	2.7UJ	1.2UJ	6.3UJ
HEXACHLOROETHANE	mg/kg	0.64U	9.1U	0.21U	2U	0.22U	0.91U	0.39U	2.2U
INDENO(1,2,3-CD)PYRENE	mg/kg	10	45	0.21U	8.3	0.22U	43	14	9.6
ISOPHORONE	mg/kg	0.64U	9.1U	0.21U	2U	0.22U	0.91U	0.39U	2.2U
N-NITROSO-DI-N-PROPYLAMINE	mg/kg	0.64U	9.1U	0.21U	2U	0.22U	0.91U	0.39U	2.2U
N-NITROSODIPHENYLAMINE	mg/kg	1.1	9.1U	0.21U	2U	0.22U	0.91U	0.39U	2.2U
NAPHTHALENE	mg/kg	1	1700	0.12J	1.1J	0.063J	11J	2.3	8.8
NITROBENZENE	mg/kg	0.64U	9.1U	0.21U	2U	0.22U	0.91U	0.39U	2.2U
PENTACHLOROPHENOL	mg/kg	1.9U	27U	0.63U	6U	0.64U	2.7U	1.2U	6.3U
PHENANTHRENE	mg/kg	91	750	0.22	15	0.15J	85	36	48
PHENOL	mg/kg	0.64U	9.1U	0.21U	2U	0.22U	0.91U	0.36J	2.2U
PYRENE	mg/kg	72	300	0.11J	21	0.089J	120	59	44

Notes:
mg/kg - milligrams per kilogram [parts per million (PPM)]
Semi-volatile organic compounds (SVOCs) analyzed using Method SW8270.

TABLE F-1
Summary of Laboratory Analytical Data for Soil
SVOCs
Quanta Resources Site
Edgewater, New Jersey

Parameter Name	Field Sample ID Location Sample Date Sample Depth Units	SB-101DS-004 SB-101DS 8/31/2005 25-25.5 ft	SB-101DS-005 SB-101DS 9/1/2005 47-47.5 ft	SB-102B-002 SB-102B 7/25/2005 2.67-3.67 ft	SB-102B-004 SB-102B 7/26/2005 24-26 Ft	SB-103DS-002 SB-103DS 8/26/2005 1.4-1.9 Ft	SB-103DS-003 SB-103DS 8/26/2005 5-6 ft	SB-103DS-004 SB-103DS 8/26/2005 21.5-22 ft	SB-103DS-005 SB-103DS 8/29/2005 51-52 ft
1,1'-BIPHENYL	mg/kg	0.2U	0.19U	18U	0.4	0.042J	2.2	7.4	0.2U
2,2'-OXYBIS(1-CHLOROPROPANE)	mg/kg	0.2U	0.19U	18U	0.21U	0.21U	2.2U	0.2U	0.2U
2,4,5-TRICHLOROPHENOL	mg/kg	0.2U	0.19U	18U	0.21U	0.21U	2.2U	0.2U	0.2U
2,4,6-TRICHLOROPHENOL	mg/kg	0.2U	0.19U	18U	0.21U	0.21U	2.2U	0.2U	0.2U
2,4-DICHLOROPHENOL	mg/kg	0.2U	0.19U	18U	0.21U	0.21U	2.2U	0.2U	0.2U
2,4-DIMETHYLPHENOL	mg/kg	0.2U	0.19U	18U	0.21U	0.21U	2.8	0.32	0.2U
2,4-DINITROPHENOL	mg/kg	2.4U	2.3U	210UJ	2.4UJ	2.5U	25U	2.4U	2.4U
2,4-DINITROTOLUENE	mg/kg	0.2U	0.19U	18U	0.21U	0.21U	2.2U	0.2U	0.2U
2,6-DINITROTOLUENE	mg/kg	0.2U	0.19U	18U	0.21U	0.21U	2.2U	0.2U	0.2U
2-CHLORONAPHTHALENE	mg/kg	0.2U	0.19U	18U	0.21U	0.21U	2.2U	0.2U	0.2U
2-CHLOROPHENOL	mg/kg	0.2U	0.19U	18U	0.21U	0.21U	2.2U	0.2U	0.2U
2-METHYLNAPHTHALENE	mg/kg	0.2U	0.19U	13J	1.8	0.1J	16	54	0.051J
2-METHYLPHENOL	mg/kg	0.2U	0.19U	18U	0.21U	0.21U	2.8	0.2U	0.2U
2-NITROANILINE	mg/kg	0.2U	0.19U	18U	0.21U	0.21U	2.2U	0.2U	0.2U
2-NITROPHENOL	mg/kg	0.2U	0.19U	18U	0.21U	0.21U	2.2U	0.2U	0.2U
3,3'-DICHLOROBENZIDINE	mg/kg	0.39U	0.38U	35U	0.4U	0.41U	4.2U	0.4U	0.39U
3-NITROANILINE	mg/kg	0.2U	0.19U	18U	0.21U	0.21U	2.2U	0.2U	0.2U
4,6-DINITRO-2-METHYLPHENOL	mg/kg	0.6U	0.57U	53UJ	0.61UJ	0.62U	6.3U	0.6U	0.59U
4-BROMOPHENYL PHENYL ETHER	mg/kg	0.2U	0.19U	18U	0.21U	0.21U	2.2U	0.2U	0.2U
4-CHLORO-3-METHYLPHENOL	mg/kg	0.2U	0.19U	18U	0.21U	0.21U	2.2U	0.2U	0.2U
4-CHLOROANILINE	mg/kg	0.2U	0.19U	18U	0.21U	0.21U	2.2U	0.2U	0.2U
4-CHLOROPHENYL PHENYL ETHER	mg/kg	0.2U	0.19U	18U	0.21U	0.21U	2.2U	0.2U	0.2U
4-METHYLPHENOL	mg/kg	0.2U	0.19U	18U	0.11J	0.21U	8.1	0.19J	0.2U
4-NITROANILINE	mg/kg	0.2U	0.19U	18U	0.21U	0.21U	2.2U	0.2U	0.2U
4-NITROPHENOL	mg/kg	0.6U	0.57U	53U	0.61U	0.62U	6.3U	0.6U	0.59U
ACENAPHTHENE	mg/kg	0.14J	0.19U	38	1	0.065J	8.5	19	0.2U
ACENAPHTHYLENE	mg/kg	0.2U	0.19U	14J	0.26	0.19J	2.2U	3.5	0.2U
ACETOPHENONE	mg/kg	0.2U	0.19U	18U	0.21U	0.21U	2.2U	0.2U	0.2U
ANTHRACENE	mg/kg	0.19J	0.19U	71	1.4	0.29	7.4	11	0.062J
ATRAZINE	mg/kg	0.2U	0.19U	18U	0.21U	0.21U	2.2U	0.2U	0.2U
BENZALDEHYDE	mg/kg	0.2U	0.19U	18U	0.21UJ	0.21U	2.2U	0.2U	0.2U
BENZO(A)ANTHRACENE	mg/kg	0.34	0.19U	190	3	1.2	37	3.7	0.042J
BENZO(A)PYRENE	mg/kg	0.28	0.19U	250	3.5J	1.2	81	2.2	0.2U
BENZO(B)FLUORANTHENE	mg/kg	0.36	0.19U	330	4.5	1.7	78	2.4	0.2U
BENZO(G,H,I)PERYLENE	mg/kg	0.15J	0.19U	140	2	0.87	61	1.4	0.2U
BENZO(K)FLUORANTHENE	mg/kg	0.18J	0.19U	130	1.4	0.57	33	1.3	0.2U
BIS(2-CHLOROETHOXY)METHANE	mg/kg	0.2U	0.19U	18U	0.21U	0.21U	2.2U	0.2U	0.2U
BIS(2-CHLOROETHYL)ETHER	mg/kg	0.2U	0.19U	18U	0.21U	0.21U	2.2U	0.2U	0.2U
BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	0.12J	0.38U	8.5J	0.2J	0.53	4.2U	0.4U	0.35J
BUTYLBENZYL PHTHALATE	mg/kg	0.2U	0.19U	18U	0.21U	0.21U	2.2U	0.2U	0.2U
CAPROLACTAM	mg/kg	0.2U	0.19U	18U	0.21U	0.21U	2.2U	0.2U	0.2U
CARBAZOLE	mg/kg	0.097J	0.19U	28	0.72	0.089J	4.2	3.1	0.2U
CHRYSENE	mg/kg	0.33	0.19U	220	3.1	1.2	36	3.5	0.2U
DI-N-BUTYL PHTHALATE	mg/kg	0.2U	0.19U	18U	0.21U	0.21U	2.2U	0.2U	0.2U
DI-N-OCTYL PHTHALATE	mg/kg	0.2U	0.19U	18U	0.21U	0.21U	2.2U	0.2U	0.2U
DIBENZO(A,H)ANTHRACENE	mg/kg	0.046J	0.19U	43	0.62	0.24	17	0.3	0.2U
DIBENZOFURAN	mg/kg	0.078J	0.19U	24	0.97	0.052J	3.9	14	0.2U
DIETHYL PHTHALATE	mg/kg	0.2U	0.19U	18U	0.21U	0.21U	2.2U	0.2U	0.2U
DIMETHYL PHTHALATE	mg/kg	0.2U	0.19U	18U	0.21U	0.21U	2.2U	0.2U	0.2U
FLUORANTHENE	mg/kg	0.83	0.19U	400	6.7	2.1	34	16	0.13J
FLUORENE	mg/kg	0.14J	0.19U	43	1.3	0.066J	4.8	19	0.054J
HEXACHLOROBENZENE	mg/kg	0.2U	0.19U	18U	0.21U	0.21U	2.2U	0.2U	0.2U
HEXACHLOROBUTADIENE	mg/kg	0.2U	0.19U	18U	0.21U	0.21U	2.2U	0.2U	0.2U
HEXACHLOROCYCLOPENTADIENE	mg/kg	0.6UJ	0.57U	53U	0.61U	0.62UJ	6.3UJ	0.6UJ	0.59UJ
HEXACHLOROETHANE	mg/kg	0.2U	0.19U	18U	0.21U	0.21U	2.2U	0.2U	0.2U
INDENO(1,2,3-CD)PYRENE	mg/kg	0.15J	0.19U	130	1.7	0.74	47	1	0.2U
ISOPHORONE	mg/kg	0.2U	0.19U	18U	0.21U	0.21U	2.2U	0.2U	0.2U
N-NITROSO-DI-N-PROPYLAMINE	mg/kg	0.2U	0.19U	18U	0.21U	0.21U	2.2U	0.2U	0.2U
N-NITROSODIPHENYLAMINE	mg/kg	0.2U	0.19U	18U	0.21U	0.21U	2.2U	0.2U	0.2U
NAPHTHALENE	mg/kg	0.047J	0.19U	31	8.3	0.71	190	150	0.11J
NITROBENZENE	mg/kg	0.2U	0.19U	18U	0.21U	0.21U	2.2U	0.2U	0.2U
PENTACHLOROPHENOL	mg/kg	0.6U	0.57U	53U	0.61U	0.62U	6.3U	0.6U	0.59U
PHENANTHRENE	mg/kg	0.72	0.19U	200	7.1	0.91	24	48	0.24
PHENOL	mg/kg	0.2U	0.19U	18U	0.21U	0.085J	3	0.2U	0.2U
PYRENE	mg/kg	0.61	0.19U	390	5.8	2.1	37	13	0.1J

Notes:
mg/kg - milligrams per kilogram [parts per million (PPM)]
Semi-volatile organic compounds (SVOCs) analyzed using Method SW8270.

TABLE F-1
Summary of Laboratory Analytical Data for Soil
SVOCs
Quanta Resources Site
Edgewater, New Jersey

Parameter Name	Field Sample ID Location Sample Date Sample Depth Units	SS-105A-001 SB-105A 8/22/2005 3.4-3.6 ft	SB-082205-DUP1 SB-105A 8/22/2005 3.4-3.6 ft	SB-105A-002 SB-105A 8/22/2005 3.6-3.9 ft	SB-105A-003 SB-105A 8/22/2005 9-10 ft	SB-105A-004 SB-105A 8/22/2005 17-18 ft	SS-106A-001 SB-106A 11/9/2005 0-0.16 Ft	SB-106A-003 SB-106A 11/9/2005 11.5-12 Ft	SS-107DS-001 SB-107DS 11/16/2005 0-0.16 ft
1,1'-BIPHENYL	mg/kg	2.1J	2U	1.5J	61	1.3U	0.084J	14U	0.19U
2,2'-OXYBIS(1-CHLOROPROPANE)	mg/kg	5U	2U	2U	4.2U	1.3U	0.2U	14U	0.19U
2,4,5-TRICHLOROPHENOL	mg/kg	5U	2U	2U	4.2U	1.3U	0.2U	14U	0.19U
2,4,6-TRICHLOROPHENOL	mg/kg	5U	2U	2U	4.2U	1.3U	0.2U	14U	0.19U
2,4-DICHLOROPHENOL	mg/kg	5U	2U	2U	4.2U	1.3U	0.2U	14U	0.19U
2,4-DIMETHYLPHENOL	mg/kg	5U	2U	2U	4.2U	1.3U	0.2U	14U	0.19U
2,4-DINITROPHENOL	mg/kg	60UJ	24UJ	23UJ	51UJ	16UJ	2.4U	170U	2.2U
2,4-DINITROTOLUENE	mg/kg	5U	2U	2U	4.2U	1.3U	0.2U	14U	0.19U
2,6-DINITROTOLUENE	mg/kg	5U	2U	2U	4.2U	1.3U	0.2U	14U	0.19U
2-CHLORONAPHTHALENE	mg/kg	5U	2U	2U	4.2U	1.3U	0.2U	14U	0.19U
2-CHLOROPHENOL	mg/kg	5U	2U	2U	4.2U	1.3U	0.2U	14U	0.19U
2-METHYLNAPHTHALENE	mg/kg	14	1.1J	6.4	230	0.58J	0.25	14U	0.19U
2-METHYLPHENOL	mg/kg	5U	2U	2U	4.2U	1.3U	0.2U	14U	0.19U
2-NITROANILINE	mg/kg	5U	2U	2U	4.2U	1.3U	0.2U	14U	0.19U
2-NITROPHENOL	mg/kg	5U	2U	2U	4.2U	1.3U	0.2U	14U	0.19U
3,3'-DICHLOROBENZIDINE	mg/kg	9.9U	3.9U	3.8U	8.6U	2.7U	0.39U	29U	0.37U
3-NITROANILINE	mg/kg	5U	2U	2U	4.2U	1.3U	0.2U	14U	0.19U
4,6-DINITRO-2-METHYLPHENOL	mg/kg	15UJ	6UJ	5.8UJ	13UJ	4UJ	0.59U	42U	0.56U
4-BROMOPHENYL PHENYL ETHER	mg/kg	5U	2U	2U	4.2U	1.3U	0.2U	14U	0.19U
4-CHLORO-3-METHYLPHENOL	mg/kg	5U	2U	2U	4.2U	1.3U	0.2U	14U	0.19U
4-CHLOROANILINE	mg/kg	5U	2U	2U	4.2U	1.3U	0.2U	14U	0.19U
4-CHLOROPHENYL PHENYL ETHER	mg/kg	5U	2U	2U	4.2U	1.3U	0.2U	14U	0.19U
4-METHYLPHENOL	mg/kg	5U	2U	2U	2J	1.3U	0.2U	14U	0.19U
4-NITROANILINE	mg/kg	5U	2U	2U	9.5	1.3U	0.2U	14U	0.19U
4-NITROPHENOL	mg/kg	15U	6U	5.8U	13U	4U	0.59U	42U	0.56U
ACENAPHTHENE	mg/kg	20	1.3J	8.1	280	0.63J	1.5	14U	0.043J
ACENAPHTHYLENE	mg/kg	20	1J	6.9	40	0.57J	0.71	14U	0.14J
ACETOPHENONE	mg/kg	5U	2U	2U	4.2U	1.3U	0.2U	14U	0.19U
ANTHRACENE	mg/kg	46	3.2	18	250	0.8J	2.4	14U	0.17J
ATRAZINE	mg/kg	5U	2U	2U	4.2U	1.3U	0.2U	14U	0.19U
BENZALDEHYDE	mg/kg	5U	2U	2U	4.2U	1.3U	0.2U	14U	0.19U
BENZO(A)ANTHRACENE	mg/kg	120	8.5	29	260	1.2J	6.7	14U	0.59
BENZO(A)PYRENE	mg/kg	130	9.5	30	260	1.1J	7.3	14U	0.6
BENZO(B)FLUORANTHENE	mg/kg	170	12	32	320	1.3	9.8	14U	0.78
BENZO(G,H,I)PERYLENE	mg/kg	71	7.8	18	130	0.6J	4.5	14U	0.34
BENZO(K)FLUORANTHENE	mg/kg	57	5.7	17	110	0.51J	3.6	14U	0.34
BIS(2-CHLOROETHOXY)METHANE	mg/kg	5U	2U	2U	4.2U	1.3U	0.2U	14U	0.19U
BIS(2-CHLOROETHYL)ETHER	mg/kg	5U	2U	2U	4.2U	1.3U	0.2U	14U	0.19U
BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	9.9U	3.9U	1.3J	2.6J	2.7U	0.39U	29U	0.37U
BUTYLBENZYL PHTHALATE	mg/kg	5U	2U	2U	4.2U	1.3U	0.2U	14U	0.19U
CAPROLACTAM	mg/kg	5U	2U	2U	4.2U	1.3U	0.2U	14U	0.19U
CARBAZOLE	mg/kg	16	1.6J	4.3	93	1.3U	0.97	14U	0.051J
CHRYSENE	mg/kg	120	9.7	31	270	1.1J	6.5	14U	0.67
DI-N-BUTYL PHTHALATE	mg/kg	5U	2U	2U	4.2U	1.3U	0.2U	14U	0.19U
DI-N-OCTYL PHTHALATE	mg/kg	5U	2U	2U	4.2U	1.3U	0.2U	14U	0.19U
DIBENZO(A,H)ANTHRACENE	mg/kg	23	2J	5.2	33	1.3U	1.6	14U	0.065J
DIBENZOFURAN	mg/kg	19	1.1J	8.6	240	0.5J	0.51	14U	0.19U
DIETHYL PHTHALATE	mg/kg	5U	2U	2U	4.2U	1.3U	0.2U	14U	0.19U
DIMETHYL PHTHALATE	mg/kg	5U	2U	2U	4.2U	1.3U	0.2U	14U	0.19U
FLUORANTHENE	mg/kg	250	17	62	750	2.4	12	14U	1.4J
FLUORENE	mg/kg	33	1.4J	16	300	0.8J	0.99	14U	0.051J
HEXACHLOROBENZENE	mg/kg	5U	2U	2U	4.2U	1.3U	0.2U	14U	0.19U
HEXACHLOROBUTADIENE	mg/kg	5U	2U	2U	4.2U	1.3U	0.2U	14U	0.19U
HEXACHLOROCYCLOPENTADIENE	mg/kg	15UJ	6UJ	5.8UJ	13UJ	4UJ	0.59U	42U	0.56U
HEXACHLOROETHANE	mg/kg	5U	2U	2U	4.2U	1.3U	0.2U	14U	0.19U
INDENO(1,2,3-CD)PYRENE	mg/kg	64	5.9	15	120	0.53J	4.6	14U	0.31
ISOPHORONE	mg/kg	5U	2U	2U	4.2U	1.3U	0.2U	14U	0.19U
N-NITROSO-DI-N-PROPYLAMINE	mg/kg	5U	2U	2U	4.2U	1.3U	0.2U	14U	0.19U
N-NITROSODIPHENYLAMINE	mg/kg	5U	2U	2U	4.2U	1.3U	0.2U	14U	0.19U
NAPHTHALENE	mg/kg	24	2.2	11	1200	2	0.6	14U	0.19U
NITROBENZENE	mg/kg	5U	2U	2U	4.2U	1.3U	0.2U	14U	0.19U
PENTACHLOROPHENOL	mg/kg	15UJ	6UJ	5.8UJ	13UJ	4UJ	0.59U	42U	0.56U
PHENANTHRENE	mg/kg	190	13	64	1000	2.6	7.2	14U	0.52
PHENOL	mg/kg	5U	2U	2U	1.4J	1.3U	0.2U	14U	0.19U
PYRENE	mg/kg	210	17	57	610	2.1	11	14U	1.2

Notes:
mg/kg - milligrams per kilogram [parts per million (PPM)]
Semi-volatile organic compounds (SVOCs) analyzed using Method SW8270.

TABLE F-1
Summary of Laboratory Analytical Data for Soil
SVOCs
Quanta Resources Site
Edgewater, New Jersey

Parameter Name	Field Sample ID Location Sample Date Sample Depth Units	SB-107DS-002 SB-107DS 11/16/2005 3.5-4 ft	SB-107DS-003 SB-107DS 11/16/2005 19.5-20 ft	SB-107DS-004 SB-107DS 11/16/2005 24-25 ft	SB-107DS-005 SB-107DS 11/17/2005 61-61.5 ft	SS-109A-001 SB-109A 11/8/2005 0-0.16	SB-109A-002 SB-109A 11/8/2005 4.5-5 Ft	SS-111A-001 SB-111A 8/4/2005 1.7-2 ft	SB-111A-002 SB-111A 8/4/2005 3.8-4 ft
1,1'-BIPHENYL	mg/kg	0.22J	0.2U	0.22U	0.22U	0.19U	5.4	0.21J	0.94U
2,2'-OXYBIS(1-CHLOROPROPANE)	mg/kg	1.1U	0.2U	0.22U	0.22U	0.19U	0.95U	0.92U	0.94U
2,4,5-TRICHLOROPHENOL	mg/kg	1.1U	0.2U	0.22U	0.22U	0.19U	0.95U	0.92U	0.94U
2,4,6-TRICHLOROPHENOL	mg/kg	1.1U	0.2U	0.22U	0.22U	0.19U	0.95U	0.92U	0.94U
2,4-DICHLOROPHENOL	mg/kg	1.1U	0.2U	0.22U	0.22U	0.19U	0.95U	0.92U	0.94U
2,4-DIMETHYLPHENOL	mg/kg	1.1U	0.14J	0.22U	0.22U	0.19U	0.95U	0.92U	0.94U
2,4-DINITROPHENOL	mg/kg	13U	2.4U	2.5U	2.6U	2.2U	11U	11UJ	11UJ
2,4-DINITROTOLUENE	mg/kg	1.1U	0.2U	0.22U	0.22U	0.19U	0.95U	0.92U	0.94UJ
2,6-DINITROTOLUENE	mg/kg	1.1U	0.2U	0.22U	0.22U	0.19U	0.95U	0.92U	0.94U
2-CHLORONAPHTHALENE	mg/kg	1.1U	0.2U	0.22U	0.22U	0.19U	0.95U	0.92U	0.94U
2-CHLOROPHENOL	mg/kg	1.1U	0.2U	0.22U	0.22U	0.19U	0.95U	0.92U	0.94U
2-METHYLNAPHTHALENE	mg/kg	0.54J	0.13J	0.22U	0.22U	0.19U	22	0.73J	0.27J
2-METHYLPHENOL	mg/kg	1.1U	0.2U	0.22U	0.22U	0.19U	0.95U	0.92U	0.94U
2-NITROANILINE	mg/kg	1.1U	0.2U	0.22U	0.22U	0.19U	0.95U	0.92U	0.94U
2-NITROPHENOL	mg/kg	1.1U	0.2U	0.22U	0.22U	0.19U	0.95U	0.92U	0.94U
3,3'-DICHLOROBENZIDINE	mg/kg	2.2U	0.4U	0.42U	0.43U	0.37U	2U	1.9U	1.9U
3-NITROANILINE	mg/kg	1.1U	0.2U	0.22U	0.22U	0.19U	0.95U	0.92U	0.94U
4,6-DINITRO-2-METHYLPHENOL	mg/kg	3.2U	0.6U	0.63U	0.65U	0.56U	2.9U	2.8UJ	2.8UJ
4-BROMOPHENYL PHENYL ETHER	mg/kg	1.1U	0.2U	0.22U	0.22U	0.19U	0.95U	0.92U	0.94U
4-CHLORO-3-METHYLPHENOL	mg/kg	1.1U	0.2U	0.22U	0.22U	0.19U	0.95U	0.92U	0.94U
4-CHLOROANILINE	mg/kg	1.1U	0.2U	0.22U	0.22U	0.19U	0.95U	0.92U	0.94U
4-CHLOROPHENYL PHENYL ETHER	mg/kg	1.1U	0.2U	0.22U	0.22U	0.19U	0.95U	0.92U	0.94U
4-METHYLPHENOL	mg/kg	1.1U	0.2U	0.22U	0.22U	0.19U	0.95U	0.92U	0.94U
4-NITROANILINE	mg/kg	1.1U	0.2U	0.22U	0.22U	0.19U	0.95U	0.92U	0.94U
4-NITROPHENOL	mg/kg	3.2U	0.6U	0.63U	0.65U	0.56U	2.9U	2.8U	2.8UJ
ACENAPHTHENE	mg/kg	3.2	0.1J	0.22U	0.22U	0.35	30	0.93J	0.59J
ACENAPHTHYLENE	mg/kg	0.63J	0.2U	0.22U	0.22U	0.4	6	0.9J	1.2
ACETOPHENONE	mg/kg	1.1U	0.2U	0.22U	0.22U	0.19U	0.95U	0.92U	0.94U
ANTHRACENE	mg/kg	6	0.052J	0.11J	0.22U	0.98	180	2.6J	2.7
ATRAZINE	mg/kg	1.1U	0.2U	0.22U	0.22U	0.19U	0.95U	0.92U	0.94U
BENZALDEHYDE	mg/kg	1.1U	0.2U	0.22U	0.22U	0.19U	0.95U		0.94U
BENZO(A)ANTHRACENE	mg/kg	19	0.054J	0.22U	0.22U	3	70	8.5J	9.3
BENZO(A)PYRENE	mg/kg	17	0.045J	0.22U	0.22U	2.9	57	7.8J	9.8
BENZO(B)FLUORANTHENE	mg/kg	21	0.056J	0.22U	0.22U	3.7	70	10J	13
BENZO(G,H,I)PERYLENE	mg/kg	10	0.2U	0.22U	0.22U	1.7	29	4.3J	6.7
BENZO(K)FLUORANTHENE	mg/kg	11	0.2U	0.22U	0.22U	1.6	30	3.7J	4.5
BIS(2-CHLOROETHOXY)METHANE	mg/kg	1.1U	0.2U	0.22U	0.22U	0.19U	0.95U	0.92U	0.94U
BIS(2-CHLOROETHYL)ETHER	mg/kg	1.1U	0.2U	0.22U	0.22U	0.19U	0.95U	0.92U	0.94U
BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	3.5	0.55	0.18J	0.43U	0.37U	2U	1.9U	1.4J
BUTYLBENZYL PHTHALATE	mg/kg	1.1U	0.2U	0.22U	0.22U	0.19U	0.95U	0.92U	0.94U
CAPROLACTAM	mg/kg	1.1U	0.2U	0.22U	0.22U	0.19U	0.95U	0.92U	0.94U
CARBAZOLE	mg/kg	2.1	0.082J	0.22U	0.22U	0.21	58	0.35J	0.53J
CHRYSENE	mg/kg	20	0.054J	0.22U	0.22U	2.7	66	8.1J	8.5
DI-N-BUTYL PHTHALATE	mg/kg	1.1U	0.2U	0.22U	0.22U	0.19U	0.95U	0.92U	0.94U
DI-N-OCTYL PHTHALATE	mg/kg	1.1U	0.2U	0.22U	0.22U	0.19U	0.95U	0.92U	0.94UJ
DIBENZO(A,H)ANTHRACENE	mg/kg	2.4	0.2U	0.22U	0.22U	0.44	10	1.5	2.1
DIBENZOFURAN	mg/kg	1.2	0.074J	0.045J	0.22U	0.17J	21	0.36J	0.41J
DIETHYL PHTHALATE	mg/kg	1.1U	0.2U	0.22U	0.22U	0.19U	0.95U	0.92U	0.94U
DIMETHYL PHTHALATE	mg/kg	1.1U	0.2U	0.22U	0.22U	0.19U	0.95U	0.92U	0.94U
FLUORANTHENE	mg/kg	33	0.16J	0.15J	0.22U	4.6	150	13J	15
FLUORENE	mg/kg	2.6	0.087J	0.081J	0.22U	0.38	39	0.99	0.73J
HEXACHLOROBENZENE	mg/kg	1.1U	0.2U	0.22U	0.22U	0.19U	0.95U	0.92U	0.94U
HEXACHLOROBUTADIENE	mg/kg	1.1U	0.2U	0.22U	0.22U	0.19U	0.95U	0.92U	0.94U
HEXACHLOROCYCLOPENTADIENE	mg/kg	3.2U	0.6U	0.63U	0.65U	0.56U	2.9U	2.8UJ	2.8UJ
HEXACHLOROETHANE	mg/kg	1.1U	0.2U	0.22U	0.22U	0.19U	0.95U	0.92U	0.94U
INDENO(1,2,3-CD)PYRENE	mg/kg	9.8	0.2U	0.22U	0.22U	1.6	26	3.9	6.2
ISOPHORONE	mg/kg	1.1U	0.2U	0.22U	0.22U	0.19U	0.95U	0.92U	0.94U
N-NITROSO-DI-N-PROPYLAMINE	mg/kg	1.1U	0.2U	0.22U	0.22U	0.19U	0.95U	0.92U	0.94U
N-NITROSODIPHENYLAMINE	mg/kg	1.1U	0.2U	0.22U	0.22U	0.19U	0.95U	0.92U	0.94U
NAPHTHALENE	mg/kg	0.75J	1	0.1J	0.22U	0.059J	59	1.9	0.46J
NITROBENZENE	mg/kg	1.1U	0.2U	0.22U	0.22U	0.19U	0.95U	0.92U	0.94U
PENTACHLOROPHENOL	mg/kg	3.2U	0.6U	0.63U	0.65U	0.56U	2.9U	2.8U	2.8U
PHENANTHRENE	mg/kg	21	0.23	0.42	0.22U	3.2	160	8.8J	8.8
PHENOL	mg/kg	1.1U	0.2U	0.22U	0.22U	0.19U	0.95U	0.92U	0.94U
PYRENE	mg/kg	30	0.11J	0.13J	0.22U	4.1	130	13J	15J

Notes:
mg/kg - milligrams per kilogram [parts per million (PPM)]
Semi-volatile organic compounds (SVOCs) analyzed using Method SW8270.

TAB[illegible]-2
Summary of Laboratory Analytical Data for Soil
VOCs
Quanta Resources Site
Edgewater, New Jersey

Parameter Name	Field Sample ID Location Sample Date Sample Depth Units	SS-01A-001 SB-01A 12/11/2005 1-1.5 ft	SB-01A-003* SB-01A 12/11/2005 9-10 Ft	SB-01A-004 SB-01A 12/11/2005 14-15 ft	SS-02B-001 SB-02B 8/18/2005 0-0.16 Ft	SB-02B-003 SB-02B 8/18/2005 9.5-10 Ft	SB-02B-004 SB-02B 8/18/2005 29-30 Ft	SS-03C-001 SB-03C 8/22/2005 0-0.16 Ft	SB-03C-002 SB-03C 8/22/2005 3.5-4 ft	SB-03C-003 SB-03C 8/22/2005 11-12 ft	SB-03C-004 SB-03C 8/22/2005 21-22 ft	SS-04D-001 SB-04D 12/10/2005 1.0-1.5 ft	SB-04D-002 SB-04D 12/10/2005 3-3.5 ft	SB-04D-003* SB-04D 12/10/2005 14-15 ft	SB-04D-004 SB-04D 12/10/2005 29.5-30 ft
1,1,1-TRICHLOROETHANE	mg/kg	0.009U	0.006U	0.69U	0.33U	4.2U	0.28U	4.4U	2.8U	0.27U	0.006U	0.009U	0.009U	0.28U	0.005U
1,1,2,2-TETRACHLOROETHANE	mg/kg	0.009U	0.006U	0.69U	0.33U	4.2U	0.28U	4.4U	2.8U	0.27U	0.006U	0.009UJ	0.009U	0.28U	0.005U
1,1,2-TRICHLOROETHANE	mg/kg	0.009U	0.006U	0.69U	0.33U	4.2U	0.28U	4.4U	2.8U	0.27U	0.006U	0.009U	0.009U	0.28U	0.005U
1,1,2-TRICHLOROTRIFLUOROETHANE	mg/kg	0.019U	0.012U	1.4U	0.65U	8.4U	0.55U	8.8U	5.6U	0.54U	0.012U	0.019U	0.018U	0.55U	0.009U
1,1-DICHLOROETHANE	mg/kg	0.009U	0.006U	0.69U	0.33U	4.2U	0.28U	4.4U	2.8U	0.27U	0.006U	0.009U	0.009U	0.28U	0.005U
1,1-DICHLOROETHENE	mg/kg	0.009U	0.006U	0.69U	0.33U	4.2U	0.28U	4.4U	2.8U	0.27U	0.006U	0.009U	0.009U	0.28U	0.005U
1,2,4-TRICHLOROBENZENE	mg/kg	0.009U	0.006U	0.69UJ	0.33U	4.2U	0.28U	4.4UJ	2.8UJ	0.27UJ	0.006U	0.009UJ	0.009U	0.28UJ	0.005U
1,2-DIBROMO-3-CHLOROPROPANE	mg/kg	0.009U	0.006U	0.69U	0.33U	4.2U	0.28U	4.4U	2.8U	0.27U	0.006U	0.009UJ	0.009U	0.28U	0.005U
1,2-DIBROMOETHANE	mg/kg	0.009U	0.006U	0.69U	0.33U	4.2U	0.28U	4.4U	2.8U	0.27U	0.006U	0.009U	0.009U	0.28U	0.005U
1,2-DICHLOROBENZENE	mg/kg	0.009U	0.006U	0.69U	0.33U	4.2U	0.28U	4.4U	2.8U	0.27U	0.006U	0.009UJ	0.009U	0.28U	0.005U
1,2-DICHLOROETHANE	mg/kg	0.009U	0.006U	0.69U	0.33U	4.2U	0.28U	4.4U	2.8U	0.27U	0.006U	0.009U	0.009U	0.28U	0.005U
1,2-DICHLOROPROPANE	mg/kg	0.009U	0.006U	0.69U	0.33U	4.2U	0.28U	4.4U	2.8U	0.27U	0.006U	0.009U	0.009U	0.28U	0.005U
1,3-DICHLOROBENZENE	mg/kg	0.009U	0.006U	0.69U	0.33U	4.2U	0.28U	4.4U	2.8U	0.27U	0.006U	0.009UJ	0.009U	0.28U	0.005U
1,4-DICHLOROBENZENE	mg/kg	0.009U	0.006U	0.69U	0.33U	4.2U	0.28U	4.4U	2.8U	0.27U	0.006U	0.009UJ	0.009U	0.28U	0.005U
2-BUTANONE	mg/kg	0.019UJ	0.012UJ	1.4U	0.65U	8.4U	0.55U	8.8U	5.6U	0.54U	0.012UJ	0.019UJ	0.018UJ	0.55U	0.009UJ
2-HEXANONE	mg/kg	0.019U	0.012U	1.4U	0.65U	8.4U	0.55U	8.8U	5.6U	0.54U	0.012U	0.019UJ	0.018UJ	0.55U	0.009U
4-METHYL-2-PENTANONE	mg/kg	0.019U	0.012U	1.4U	0.65U	8.4U	0.55U	8.8U	5.6U	0.54U	0.012U	0.019U	0.018U	0.55U	0.009U
ACETONE	mg/kg	0.035J	0.022J	2.8UJ	1.3UJ	17UJ	1.1UJ	18UJ	11UJ	1.1UJ	0.024UJ	0.038UJ	0.032J	1.1UJ	0.019UJ
BENZENE	mg/kg	0.004J	0.002J	4.5	0.069J	32	0.28U	2.1J	2.2J	0.17J	0.006U	0.009U	0.009U	0.68	0.46
BROMODICHLOROMETHANE	mg/kg	0.009U	0.006U	0.69U	0.33U	4.2U	0.28U	4.4U	2.8U	0.27U	0.006U	0.009U	0.009U	0.28U	0.005U
BROMOFORM	mg/kg	0.009U	0.006U	0.69U	0.33U	4.2U	0.28U	4.4U	2.8U	0.27U	0.006U	0.009U	0.009U	0.28U	0.005U
BROMOMETHANE	mg/kg	0.009U	0.006U	0.69U	0.33U	4.2U	0.28U	4.4U	2.8U	0.27U	0.006U	0.009U	0.009U	0.28U	0.005U
CARBON DISULFIDE	mg/kg	0.003J	0.006U	0.69U	0.33U	4.2U	0.28U	4.4U	2.8U	0.27U	0.006U	0.002J	0.009U	0.28U	0.001J
CARBON TETRACHLORIDE	mg/kg	0.009U	0.006U	0.69U	0.33U	4.2U	0.28U	4.4U	2.8U	0.27U	0.006U	0.009U	0.009U	0.28U	0.005U
CHLOROBENZENE	mg/kg	0.009U	0.006U	0.69U	0.33U	4.2U	0.28U	4.4U	2.8U	0.27U	0.006U	0.009U	0.009U	0.28U	0.005U
CHLORODIBROMOMETHANE	mg/kg	0.009U	0.006U	0.69U	0.33U	4.2U	0.28U	4.4U	2.8U	0.27U	0.006U	0.009U	0.009U	0.28U	0.005U
CHLOROETHANE	mg/kg	0.009U	0.006U	0.69U	0.26U	3.4U	0.22U	3.5U	2.3U	0.27U	0.006U	0.009U	0.009U	0.28U	0.005U
CHLOROFORM	mg/kg	0.009U	0.006U	0.69U	0.33U	4.2U	0.28U	4.4U	2.8U	0.27U	0.006U	0.009U	0.009U	0.28U	0.005U
CHLOROMETHANE	mg/kg	0.009U	0.006U	0.69U	0.33U	4.2U	0.28U	4.4U	2.8U	0.27U	0.006U	0.009U	0.009U	0.28U	0.005U
CIS-1,2-DICHLOROETHENE	mg/kg	0.009U	0.006U	0.69U	0.33U	4.2U	0.28U	4.4U	2.8U	0.27U	0.006U	0.009U	0.009U	0.28U	0.005U
CIS-1,3-DICHLOROPROPENE	mg/kg	0.009U	0.006U	0.69U	0.33U	4.2U	0.28U	4.4U	2.8U	0.27U	0.006U	0.009U	0.009U	0.28U	0.005U
CYCLOHEXANE	mg/kg	0.002J	0.002J	0.35J	0.33U	4.2U	0.28U	4.4U	2.8U	0.27U	0.006UJ	0.009U	0.019	0.39	0.002J
DICHLORODIFLUOROMETHANE	mg/kg	0.009U	0.006U	0.69UJ	0.33U	4.2U	0.28U	4.4U	2.8U	0.27U	0.006U	0.009U	0.009U	0.28UJ	0.005U
ETHYLBENZENE	mg/kg	0.097	0.006U	45	0.084J	100	0.062J	5.9	26	0.27U	0.006U	0.009U	0.009U	20	0.12
ISOPROPYLBENZENE	mg/kg	0.035	0.006U	12	0.23J	14	0.28U	1.3J	11	0.27U	0.006U	0.009U	0.003J	3.4	0.01
METHYL ACETATE	mg/kg	0.009U	0.006U	0.69U	0.35	4.2U	0.28U	4.4U	2.8U	0.27U	0.006U	0.009U	0.009U	0.28U	0.005U
METHYL TERT-BUTYL ETHER	mg/kg	0.009U	0.006U	0.69U	0.33U	4.2U	0.28U	4.4U	2.8U	0.27U	0.006U	0.009U	0.009U	0.28U	0.005U
METHYLCYCLOHEXANE	mg/kg	0.014	0.004J	1.4J	0.33U	4.2U	0.28U	4.4U	2.8U	0.27U	0.006UJ	0.009U	0.018	1J	0.004J
METHYLENE CHLORIDE	mg/kg	0.009U	0.006U	0.69U	0.33U	4.2U	0.28U	4.4U	2.8U	0.27U	0.006U	0.009U	0.009U	0.28U	0.005U
STYRENE	mg/kg	0.009U	0.006U	0.69U	0.33U	4.2U	0.28U	4.4U	2.8U	0.27U	0.006U	0.009U	0.009U	0.28U	0.007
TETRACHLOROETHENE	mg/kg	0.009U	0.006U	0.69U	0.33U	4.2U	0.28U	4.4U	2.8U	0.27U	0.006U	0.009U	0.009U	0.28U	0.005U
TOLUENE	mg/kg	0.002J	0.002J	0.18J	0.084J	95	0.28U	4.3J	6.4	0.27U	0.006U	0.009U	0.009U	8.2	0.057
TRANS-1,2-DICHLOROETHENE	mg/kg	0.009U	0.006U	0.69U	0.33U	4.2U	0.28U	4.4U	2.8U	0.27U	0.006U	0.009U	0.009U	0.28U	0.005U
TRANS-1,3-DICHLOROPROPENE	mg/kg	0.009U	0.006U	0.69U	0.33U	4.2U	0.28U	4.4U	2.8U	0.27U	0.006U	0.009U	0.009U	0.28U	0.005U
TRICHLOROETHENE	mg/kg	0.009U	0.006U	0.69U	0.33U	4.2U	0.28U	4.4U	2.8U	0.27U	0.006U	0.009U	0.009U	0.28U	0.005U
TRICHLOROFLUOROMETHANE	mg/kg	0.009U	0.006U	0.69U	0.33U	4.2U	0.28U	4.4U	2.8U	0.27U	0.006U	0.009U	0.009U	0.28U	0.005U
VINYL CHLORIDE	mg/kg	0.009U	0.006U	0.69U	0.33U	4.2U	0.28U	4.4U	2.8U	0.27U	0.006U	0.009U	0.009U	0.28U	0.005U
XYLENES, TOTAL	mg/kg	0.22	0.002J	87	0.13J	230	0.096J	21	76	0.096J	0.006U	0.009U	0.007J	48	0.1

Notes:
mg/kg - milligrams per kilogram [parts per million (PPM)]
Volatile organic compounds (VOCs) analyzed using Method SW8260

TABLE F-2
Summary of Laboratory Analytical Data for Soil
VOCs
Quanta Resources Site
Edgewater, New Jersey

Parameter Name	Field Sample ID Location Sample Date Sample Depth Units	SS-06F-001 SB-06F 8/2/2005 0-1 Ft mg/kg	SB-06F-002 SB-06F 8/2/2005 1.5-2 ft mg/kg	SB-06F-004 SB-06F 8/2/2005 23-24 ft mg/kg	SS-07G-001 SB-07G 8/17/2005 0-0.16 Ft mg/kg	SB-07G-003 SB-07G 8/17/2005 16.5-17 ft mg/kg	SB-07G-004 SB-07G 8/17/2005 23-24 ft mg/kg	SB-08H-002 SB-08H 10/9/2005 1-1.5 ft mg/kg	SB-08H-003 SB-08H 10/9/2005 8.5-9 ft mg/kg	SB-08H-004 SB-08H 10/9/2005 24-25 ft mg/kg	SS-09I-001 SB-09I 8/18/2005 0-0.16 Ft mg/kg	SB-09I-002 SB-09I 8/18/2005 0.8-1.3 ft mg/kg	SB-09I-003 SB-09I 8/18/2005 9.5-10 ft mg/kg	SB-09I-004 SB-09I 8/18/2005 27.5-28 ft mg/kg	SS-10J-001 SB-10J 8/23/2005 0-0.16 ft mg/kg
1,1,1-TRICHLOROETHANE		0.006U	0.64U	0.22U	0.006U	0.005U	0.26U	0.008UJ	6.9U	0.24U	0.005U	8.4U	1UJ	0.27U	0.006U
1,1,2,2-TETRACHLOROETHANE		0.006U	0.64U	0.22U	0.006U	0.005U	0.26U	0.008UJ	6.9U	0.24U	0.005U	8.4U	1UJ	0.27U	0.006U
1,1,2-TRICHLOROETHANE		0.006U	0.64U	0.22U	0.006U	0.005U	0.26U	0.008UJ	6.9U	0.24U	0.005U	8.4U	1UJ	0.27U	0.006U
1,1,2-TRICHLOROTRIFLUOROETHANE		0.012U	1.3U	0.45U	0.012U	0.011U	0.52U	0.015UJ	14U	0.48U	0.011U	17U	2.1UJ	0.53U	0.011U
1,1-DICHLOROETHANE		0.006U	0.64U	0.22U	0.006U	0.005U	0.26U	0.008UJ	6.9U	0.24U	0.005U	8.4U	1UJ	0.27U	0.006U
1,1-DICHLOROETHENE		0.006U	0.64U	0.22U	0.006U	0.005U	0.26U	0.008UJ	6.9U	0.24U	0.005U	8.4U	1UJ	0.27U	0.006U
1,2,4-TRICHLOROBENZENE		0.006U	0.64U	0.22U	0.006U	0.005U	0.26U	0.008UJ	6.9U	0.24U	0.005U	8.4U	1UJ	0.27U	0.006U
1,2-DIBROMO-3-CHLOROPROPANE		0.006U	0.64U	0.22U	0.006U	0.005U	0.26U	0.008UJ	6.9U	0.24U	0.005U	8.4U	1UJ	0.27U	0.006U
1,2-DIBROMOETHANE		0.006UJ	0.64U	0.22U	0.006U	0.005U	0.26U	0.008UJ	6.9U	0.24U	0.005U	8.4U	1UJ	0.27U	0.006U
1,2-DICHLOROBENZENE		0.006UJ	0.64U	0.22U	0.006U	0.005U	0.26U	0.008UJ	6.9U	0.24U	0.005U	8.4U	1UJ	0.27U	0.006U
1,2-DICHLOROETHANE		0.006U	0.64U	0.22U	0.006U	0.005U	0.26U	0.008UJ	6.9U	0.24U	0.005U	8.4U	1UJ	0.27U	0.006U
1,2-DICHLOROPROPANE		0.006U	0.64U	0.22U	0.006U	0.005U	0.26U	0.008UJ	6.9U	0.24U	0.005U	8.4U	1UJ	0.27U	0.006U
1,3-DICHLOROBENZENE		0.006UJ	0.64U	0.22U	0.006U	0.005U	0.26U	0.008UJ	6.9U	0.24U	0.005U	8.4U	1UJ	0.27U	0.006U
1,4-DICHLOROBENZENE		0.006UJ	0.64U	0.22U	0.006U	0.005U	0.26U	0.008UJ	6.9U	0.24U	0.005U	8.4U	1UJ	0.27U	0.006U
2-BUTANONE		0.012UJ	1.3U	0.45U	0.012U	0.011U	0.52U	0.015UJ	14UJ	0.48UJ	0.011U	17U	2.1UJ	0.53U	0.011UJ
2-HEXANONE		0.012U	1.3U	0.45U	0.012U	0.011U	0.52U	0.015UJ	14U	0.48U	0.011U	17U	2.1UJ	0.53U	0.011U
4-METHYL-2-PENTANONE		0.012U	1.3U	0.45U	0.012U	0.011U	0.52U	0.015UJ	14U	0.48U	0.011U	17U	2.1UJ	0.53U	0.011U
ACETONE		0.025J	2.6UJ	0.9UJ	0.019J	0.012J	1UJ	0.058J	28UJ	0.97UJ	0.015J	34UJ	4.2UJ	1.1UJ	0.051J
BENZENE		0.006U	1	0.35	0.0007J	0.0006J	0.26U	0.008UJ	29	0.24U	0.002J	8.4U	33J	0.12J	0.001J
BROMODICHLOROMETHANE		0.006U	0.64U	0.22U	0.006U	0.005U	0.26U	0.008UJ	6.9U	0.24U	0.005U	8.4U	1UJ	0.27U	0.006U
BROMOFORM		0.006UJ	0.64U	0.22U	0.006U	0.005U	0.26U	0.008UJ	6.9U	0.24U	0.005U	8.4U	1UJ	0.27U	0.006U
BROMOMETHANE		0.006U	0.64U	0.22U	0.006U	0.005U	0.26U	0.008UJ	6.9U	0.24U	0.005U	8.4U	1UJ	0.27U	0.006U
CARBON DISULFIDE		0.003J	0.64U	0.22U	0.004J	0.002J	0.26U	0.003J	6.9U	0.24U	0.001J	8.4U	1UJ	0.27U	0.002J
CARBON TETRACHLORIDE		0.006U	0.64U	0.22U	0.006U	0.005U	0.26U	0.008UJ	6.9U	0.24U	0.005U	8.4U	1UJ	0.27U	0.006U
CHLOROBENZENE		0.006UJ	0.64U	0.22U	0.006U	0.005U	0.26U	0.008UJ	6.9U	0.24U	0.005U	8.4U	1UJ	0.27U	0.006U
CHLORODIBROMOMETHANE		0.006UJ	0.64U	0.22U	0.006U	0.005U	0.26U	0.008UJ	6.9U	0.24U	0.005U	8.4U	1UJ	0.27U	0.006U
CHLOROETHANE		0.005U	0.64UJ	0.22UJ	0.005U	0.004U	0.21U	0.008UJ	6.9U	0.24U	0.004U	6.8U	0.83UJ	0.21U	0.006U
CHLOROFORM		0.006U	0.64U	0.22U	0.006U	0.005U	0.26U	0.008UJ	6.9U	0.24U	0.005U	8.4U	1UJ	0.27U	0.006U
CHLOROMETHANE		0.006U	0.64U	0.22U	0.006U	0.005U	0.26U	0.008UJ	6.9U	0.24U	0.005U	8.4U	1UJ	0.27U	0.006U
CIS-1,2-DICHLOROETHENE		0.006U	0.64U	0.22U	0.006U	0.005U	0.26U	0.008UJ	6.9U	0.24U	0.005U	8.4U	1UJ	0.27U	0.006U
CIS-1,3-DICHLOROPROPENE		0.006U	0.64U	0.22U	0.006U	0.005U	0.26U	0.008UJ	6.9U	0.24U	0.005U	8.4U	1UJ	0.27U	0.006U
CYCLOHEXANE		0.006U	0.64U	0.22U	0.006U	0.005U	0.26U	0.008UJ	6.9U	0.24U	0.005U	8.4U	1UJ	0.27U	0.006UJ
DICHLORODIFLUOROMETHANE		0.006U	0.64U	0.22U	0.006U	0.005U	0.26U	0.008UJ	6.9U	0.24U	0.005U	8.4U	1UJ	0.27U	0.006U
ETHYLBENZENE		0.006U	5	0.12J	0.006U	0.003J	0.26U	0.008UJ	120	0.24U	0.005U	8.4U	1.9J	0.99	0.006U
ISOPROPYLBENZENE		0.006U	3.1	0.22U	0.006U	0.005U	0.26U	0.008UJ	16	0.24U	0.005U	2J	1UJ	0.13J	0.006U
METHYL ACETATE		0.006U	0.64U	0.22U	0.006U	0.005U	0.26U	0.008UJ	6.9U	0.24U	0.005U	8.4U	1UJ	0.27U	0.006U
METHYL TERT-BUTYL ETHER		0.006U	0.64U	0.22U	0.006U	0.005U	0.26U	0.008UJ	6.9U	0.24U	0.005U	8.4U	1UJ	0.27U	0.006U
METHYLCYCLOHEXANE		0.006U	0.64U	0.22U	0.006U	0.005U	0.26U	0.008UJ	6.9U	0.24U	0.005U	8.4U	1UJ	0.27U	0.006UJ
METHYLENE CHLORIDE		0.006UJ	0.64U	0.22U	0.006U	0.005U	0.26U	0.008UJ	6.9U	0.24U	0.005U	8.4U	1UJ	0.27U	0.006U
STYRENE		0.006U	0.64U	0.22U	0.006U	0.005U	0.26U	0.008UJ	6.9U	0.24U	0.005U	8.4U	1UJ	0.27U	0.006U
TETRACHLOROETHENE		0.006U	0.64U	0.22U	0.006U	0.005U	0.26U	0.008UJ	6.9U	0.24U	0.006	8.4U	1UJ	0.27U	0.006U
TOLUENE		0.006U	1.3	0.18J	0.006U	0.002J	0.26U	0.008UJ	89	0.24U	0.002J	8.4U	12J	0.14J	0.006U
TRANS-1,2-DICHLOROETHENE		0.006U	0.64U	0.22U	0.006U	0.005U	0.26U	0.008UJ	6.9U	0.24U	0.005U	8.4U	1UJ	0.27U	0.006U
TRANS-1,3-DICHLOROPROPENE		0.006U	0.64U	0.22U	0.006U	0.005U	0.26U	0.008UJ	6.9U	0.24U	0.005U	8.4U	1UJ	0.27U	0.006U
TRICHLOROETHENE		0.006U	0.64U	0.22U	0.006U	0.005U	0.26U	0.008UJ	6.9U	0.24U	0.005U	8.4U	1UJ	0.27U	0.006U
TRICHLOROFLUOROMETHANE		0.006U	0.64U	0.22U	0.006U	0.005U	0.26U	0.008UJ	6.9U	0.24U	0.005U	8.4U	1UJ	0.27U	0.006U
VINYL CHLORIDE		0.006U	0.64U	0.22U	0.006U	0.005U	0.26U	0.008UJ	6.9U	0.24U	0.005U	8.4U	1UJ	0.27U	0.006U
XYLENES, TOTAL		0.006U	18	0.36	0.006U	0.007	0.064J	0.008UJ	220	0.24U	0.001J	4.8J	9.4J	1.3	0.006U

Notes:
mg/kg - milligrams per kilogram [parts per million (PPM)]
Volatile organic compounds (VOCs) analyzed using Method SW8260

TAB[illegible]-2
Summary of Laboratory Analytical Data for Soil
VOCs
Quanta Resources Site
Edgewater, New Jersey

Parameter Name	Field Sample ID Location Sample Date Sample Depth Units	SB-10J-003 SB-10J 8/23/2005 3-4 ft	SB-10J-004 SB-10J 8/23/2005 25.5-26 Ft	SS-11K-001 SB-11K 8/23/2005 0-0.16 ft	SB-11K-002 SB-11K 8/23/2005 1.5-2 ft	SB-11K-003 SB-11K 8/23/2005 4.5-5 ft	SB-11K-004 SB-11K 8/23/2005 23.2-24 ft	SS-12L-001 SB-12L 10/25/2005 0-0.16 ft	SB-12L-003 SB-12L 10/25/2005 22.5-23 ft	SB-12L-004 SB-12L 10/25/2005 29.5-30 ft	SS-13M-001 SB-13M 8/3/2005 0-1 ft	SB-13M-002 SB-13M 8/3/2005 1-2 Ft	SB-13M-004 SB-13M 8/3/2005 11-12 Ft	SS-14N-001 SB-14N 10/24/2005 0-0.16 ft	SB-14N-002 SB-14N 10/24/2005 0.16-0.5 ft
1,1,1-TRICHLOROETHANE	mg/kg	0.42U	0.006U	0.26U	0.41U	3.5U	0.005U	0.005U	0.006U	0.005U	0.007U	0.007UJ	0.56U	0.005U	0.005U
1,1,2,2-TETRACHLOROETHANE	mg/kg	0.42U	0.006U	0.26U	0.41U	3.5U	0.005U	0.005U	0.006U	0.005U	0.007U	0.007UJ	0.56U	0.005U	0.005U
1,1,2-TRICHLOROETHANE	mg/kg	0.42U	0.006U	0.26U	0.41U	3.5U	0.005U	0.005U	0.006U	0.005U	0.007U	0.007UJ	0.56U	0.005U	0.005U
1,1,2-TRICHLOROTRIFLUOROETHANE	mg/kg	0.85U	0.012U	0.51U	0.83U	7U	0.01U	0.01U	0.011U	0.011U	0.013U	0.013UJ	1.1U	0.011U	0.01U
1,1-DICHLOROETHANE	mg/kg	0.42U	0.006U	0.26U	0.41U	3.5U	0.005U	0.005U	0.006U	0.005U	0.007U	0.007UJ	0.56U	0.005U	0.005U
1,1-DICHLOROETHENE	mg/kg	0.42U	0.006U	0.26U	0.41U	3.5U	0.005U	0.005U	0.006U	0.005U	0.007U	0.007UJ	0.56U	0.005U	0.005U
1,2,4-TRICHLOROBENZENE	mg/kg	0.42UJ	0.006U	0.26UJ	0.41UJ	3.5UJ	0.005U	0.005U	0.006U	0.005U	0.007U	0.007UJ	0.56U	0.005U	0.005U
1,2-DIBROMO-3-CHLOROPROPANE	mg/kg	0.42U	0.006U	0.26U	0.41U	3.5U	0.005U	0.005U	0.006U	0.005U	0.007U	0.007UJ	0.56U	0.005U	0.005U
1,2-DIBROMOETHANE	mg/kg	0.42U	0.006U	0.26U	0.41U	3.5U	0.005U	0.005U	0.006U	0.005U	0.007U	0.007UJ	0.56U	0.005U	0.005U
1,2-DICHLOROBENZENE	mg/kg	0.42U	0.006U	0.26U	0.41U	3.5U	0.005U	0.005U	0.006U	0.005U	0.007U	0.007UJ	0.56U	0.005U	0.005U
1,2-DICHLOROETHANE	mg/kg	0.42U	0.006U	0.26U	0.41U	3.5U	0.005U	0.005U	0.006U	0.005U	0.007U	0.007UJ	0.56U	0.005U	0.005U
1,2-DICHLOROPROPANE	mg/kg	0.42U	0.006U	0.26U	0.41U	3.5U	0.005U	0.005U	0.006U	0.005U	0.007U	0.007UJ	0.56U	0.005U	0.005U
1,3-DICHLOROBENZENE	mg/kg	0.42U	0.006U	0.26U	0.41U	3.5U	0.005U	0.005U	0.006U	0.005U	0.007U	0.007UJ	0.56U	0.005U	0.005U
1,4-DICHLOROBENZENE	mg/kg	0.42U	0.006U	0.26U	0.41U	3.5U	0.005U	0.005U	0.006U	0.005U	0.007U	0.007UJ	0.56U	0.005U	0.005U
2-BUTANONE	mg/kg	0.85U	0.012UJ	0.51U	0.83U	7U	0.01UJ	0.004J	0.011UJ	0.011UJ	0.013UJ	0.013UJ	1.1U	0.005J	0.01UJ
2-HEXANONE	mg/kg	0.85U	0.012U	0.51U	0.83U	7U	0.01U	0.01U	0.011U	0.011U	0.013U	0.013UJ	1.1U	0.011U	0.01U
4-METHYL-2-PENTANONE	mg/kg	0.85U	0.012U	0.51U	0.83U	7U	0.01U	0.01U	0.011U	0.011U	0.013U	0.013UJ	1.1U	0.011U	0.01U
ACETONE	mg/kg	1.7UJ	0.024UJ	1UJ	1.7UJ	14UJ	0.021UJ	0.032J	0.025J	0.021UJ	0.19J	0.095J	2.3UJ	0.042J	0.028J
BENZENE	mg/kg	2	0.006U	0.26U	0.41U	0.71J	0.005U	0.001J	0.002J	0.005U	0.007U	0.0008J	0.14J	0.003J	0.0006J
BROMODICHLOROMETHANE	mg/kg	0.42U	0.006U	0.26U	0.41U	3.5U	0.005U	0.005U	0.006U	0.005U	0.007U	0.007UJ	0.56U	0.005U	0.005U
BROMOFORM	mg/kg	0.42U	0.006U	0.26U	0.41U	3.5U	0.005U	0.005U	0.006U	0.005U	0.007U	0.007UJ	0.56U	0.005U	0.005U
BROMOMETHANE	mg/kg	0.42U	0.006U	0.26U	0.41U	3.5U	0.005U	0.005U	0.006U	0.005U	0.007U	0.007UJ	0.56U	0.005U	0.005U
CARBON DISULFIDE	mg/kg	0.42U	0.006U	0.26U	0.41U	3.5U	0.005U	0.007	0.006U	0.005U	0.007U	0.003J	0.56U	0.008	0.006
CARBON TETRACHLORIDE	mg/kg	0.42U	0.006U	0.26U	0.41U	3.5U	0.005U	0.005U	0.006U	0.005U	0.007U	0.007UJ	0.56U	0.005U	0.005U
CHLOROBENZENE	mg/kg	0.42U	0.006U	0.26U	0.41U	3.5U	0.005U	0.005U	0.006U	0.005U	0.007U	0.007UJ	0.56U	0.005U	0.005U
CHLORODIBROMOMETHANE	mg/kg	0.42U	0.006U	0.26U	0.41U	3.5U	0.005U	0.005U	0.006U	0.005U	0.007U	0.007UJ	0.56U	0.005U	0.005U
CHLOROETHANE	mg/kg	0.34U	0.006U	0.2U	0.33U	2.8U	0.005U	0.005U	0.006U	0.005U	0.005U	0.005UJ	0.45UJ	0.005U	0.005U
CHLOROFORM	mg/kg	0.42U	0.006U	0.26U	0.41U	3.5U	0.005U	0.005U	0.006U	0.005U	0.007U	0.007UJ	0.56U	0.005U	0.005U
CHLOROMETHANE	mg/kg	0.42U	0.006U	0.26U	0.41U	3.5U	0.005U	0.005U	0.006U	0.005U	0.007U	0.007UJ	0.56U	0.005U	0.005U
CIS-1,2-DICHLOROETHENE	mg/kg	0.42U	0.006U	0.26U	0.41U	3.5U	0.005U	0.005U	0.006U	0.005U	0.007U	0.007UJ	0.56U	0.005U	0.005U
CIS-1,3-DICHLOROPROPENE	mg/kg	0.42U	0.006U	0.26U	0.41U	3.5U	0.005U	0.005U	0.006U	0.005U	0.007U	0.007UJ	0.56U	0.005U	0.005U
CYCLOHEXANE	mg/kg	0.42U	0.006UJ	0.26U	0.41U	3.5U	0.005UJ	0.005U	0.006U	0.005U	0.007U	0.007UJ	0.56U	0.005U	0.005U
DICHLORODIFLUOROMETHANE	mg/kg	0.42U	0.006U	0.26U	0.41U	3.5U	0.005U	0.005U	0.006U	0.005U	0.007U	0.007UJ	0.56U	0.005U	0.005U
ETHYLBENZENE	mg/kg	3.8	0.006U	0.26U	0.41U	3.5U	0.005U	0.005U	0.007	0.009	0.021	0.007UJ	0.15J	0.004J	0.005U
ISOPROPYLBENZENE	mg/kg	0.41J	0.006U	0.26U	0.41U	3.5U	0.005U	0.005U	0.006	0.005J	0.007U	0.007UJ	0.56U	0.005U	0.005U
METHYL ACETATE	mg/kg	0.42U	0.006U	0.15J	0.41U	3.5U	0.005U	0.005U	0.006U	0.005U	0.007U	0.007UJ	0.56U	0.005U	0.005U
METHYL TERT-BUTYL ETHER	mg/kg	0.42U	0.006U	0.26U	0.41U	3.5U	0.005U	0.005U	0.006U	0.005U	0.007U	0.007UJ	0.56U	0.005U	0.005U
METHYLCYCLOHEXANE	mg/kg	0.42U	0.006UJ	0.26U	0.14J	3.5U	0.005UJ	0.005U	0.006U	0.005U	0.007U	0.007UJ	0.56U	0.005U	0.005U
METHYLENE CHLORIDE	mg/kg	0.42U	0.006U	0.26U	0.41U	3.5U	0.005U	0.005UJ	0.006UJ	0.005UJ	0.007U	0.007UJ	0.56U	0.005UJ	0.005UJ
STYRENE	mg/kg	0.42U	0.006U	0.26U	0.41U	3.5U	0.005U	0.005U	0.006U	0.005U	0.007U	0.007UJ	0.56U	0.005U	0.005U
TETRACHLOROETHENE	mg/kg	0.42U	0.006U	0.088J	0.41U	3.5U	0.005U	0.005U	0.006U	0.005U	0.007U	0.007UJ	0.56U	0.005U	0.005U
TOLUENE	mg/kg	0.36J	0.006U	0.26U	0.41U	3.5U	0.005U	0.001J	0.006U	0.002J	0.007U	0.007UJ	0.56U	0.004J	0.005U
TRANS-1,2-DICHLOROETHENE	mg/kg	0.42U	0.006U	0.26U	0.41U	3.5U	0.005U	0.005U	0.006U	0.005U	0.007U	0.007UJ	0.56U	0.005U	0.005U
TRANS-1,3-DICHLOROPROPENE	mg/kg	0.42U	0.006U	0.26U	0.41U	3.5U	0.005U	0.005U	0.006U	0.005U	0.007U	0.007UJ	0.56U	0.005U	0.005U
TRICHLOROETHENE	mg/kg	0.42U	0.006U	0.26U	0.41U	3.5U	0.005U	0.005U	0.006U	0.005U	0.007U	0.007UJ	0.56U	0.005U	0.005U
TRICHLOROFLUOROMETHANE	mg/kg	0.42U	0.006U	0.26U	0.41U	3.5U	0.005U	0.005U	0.006U	0.005U	0.007U	0.007UJ	0.56U	0.005U	0.005U
VINYL CHLORIDE	mg/kg	0.42U	0.006U	0.26U	0.41U	3.5U	0.005U	0.005U	0.006U	0.005U	0.007U	0.007UJ	0.56U	0.005U	0.005U
XYLENES, TOTAL	mg/kg	7.6	0.006U	0.26U	0.41U	3.5U	0.005U	0.005U	0.006	0.018	0.12	0.007UJ	0.24J	0.027	0.004J

Notes:
mg/kg - milligrams per kilogram (parts per million (PPM))
Volatile organic compounds (VOCs) analyzed using Method SW8260

TABLE F-2
Summary of Laboratory Analytical Data for Soil
VOCs
Quanta Resources Site
Edgewater, New Jersey

Parameter Name	Field Sample ID Location Sample Date Sample Depth Units	SB-14N-004 SB-14N 10/24/2005 22.5-23 ft	SS-15D-001 SB-15D 10/25/2005 0-0.16 Ft	SB-15D-003 SB-15D 10/25/2005 7-7.5 ft	SB-15D-004 SB-15D 10/25/2005 28.5-29 ft	SS-16P-001 SB-16P 11/9/2005 0-0.16 Ft	SB-16P-003 SB-16P 11/15/2005 16.5-17 ft	SB-16P-004 SB-16P 11/15/2005 26-27 ft	SS-17Q-001 SB-17Q 12/10/2005 0.3-0.5 ft	SB-17Q-002 SB-17Q 12/10/2005 4-5 Ft	SB-17Q-003* SB-17Q 12/10/2005 9-10 ft	SB-17Q-004 SB-17Q 12/10/2005 27-28 ft	SS-18R-001 SB-18R 11/10/2005 0-0.16 Ft	SB-18R-004 SB-18R 11/18/2005 26-26.5 ft	SS-101DS-001 SB-101DS 8/30/2005 0-0.16 ft
1,1,1-TRICHLOROETHANE	mg/kg	0.005U	0.005U	0.005U	0.006U	0.005U	0.3U	0.26U	0.005U	0.007U	0.54U	0.005U	0.005U	0.006U	0.005U
1,1,2,2-TETRACHLOROETHANE	mg/kg	0.005U	0.005U	0.005U	0.006U	0.005U	0.3U	0.26U	0.005U	0.007U	0.54U	0.005U	0.005U	0.006U	0.005U
1,1,2-TRICHLOROETHANE	mg/kg	0.005U	0.005U	0.005U	0.006U	0.005U	0.3U	0.26U	0.005U	0.007U	0.54U	0.005U	0.005U	0.006U	0.005U
1,1,2-TRICHLOROTRIFLUOROETHANE	mg/kg	0.01U	0.011U	0.011U	0.011U	0.011U	0.59U	0.52U	0.01U	0.015U	1.1U	0.011U	0.011U	0.012U	0.01U
1,1-DICHLOROETHANE	mg/kg	0.005U	0.005U	0.005U	0.006U	0.005U	0.3U	0.26U	0.005U	0.007U	0.54U	0.005U	0.005U	0.006U	0.005U
1,1-DICHLOROETHENE	mg/kg	0.005U	0.005U	0.005U	0.006U	0.005U	0.3U	0.26U	0.005U	0.007U	0.54U	0.005U	0.005U	0.006U	0.005U
1,2,4-TRICHLOROBENZENE	mg/kg	0.005U	0.005U	0.005U	0.006U	0.005U	0.3U	0.26U	0.005U	0.007U	0.54UJ	0.005U	0.005U	0.006U	0.005U
1,2-DIBROMO-3-CHLOROPROPANE	mg/kg	0.005U	0.005U	0.005U	0.006U	0.005U	0.3U	0.26U	0.005U	0.007U	0.54U	0.005U	0.005U	0.006U	0.005U
1,2-DIBROMOETHANE	mg/kg	0.005U	0.005U	0.005U	0.006U	0.005U	0.3U	0.26U	0.005U	0.007U	0.54U	0.005U	0.005U	0.006U	0.005U
1,2-DICHLOROBENZENE	mg/kg	0.005U	0.005U	0.005U	0.006U	0.005U	0.3U	0.26U	0.005U	0.007U	0.54U	0.005U	0.005U	0.006U	0.005U
1,2-DICHLOROETHANE	mg/kg	0.005U	0.005U	0.005U	0.006U	0.005U	0.3U	0.26U	0.005U	0.007U	0.54U	0.005U	0.005U	0.006U	0.005U
1,2-DICHLOROPROPANE	mg/kg	0.005U	0.005U	0.005U	0.006U	0.005U	0.3U	0.26U	0.005U	0.007U	0.54U	0.005U	0.005U	0.006U	0.005U
1,3-DICHLOROBENZENE	mg/kg	0.005U	0.005U	0.005U	0.006U	0.005U	0.3U	0.26U	0.005U	0.007U	0.54U	0.005U	0.005U	0.006U	0.005U
1,4-DICHLOROBENZENE	mg/kg	0.005U	0.005U	0.005U	0.006U	0.005U	0.3U	0.26U	0.005U	0.007U	0.54U	0.005U	0.005U	0.006U	0.005U
2-BUTANONE	mg/kg	0.01UJ	0.011UJ	0.011UJ	0.011UJ	0.011UJ	0.59U	0.52U	0.01UJ	0.008J	1.1U	0.011UJ	0.011UJ	0.012UJ	0.01UJ
2-HEXANONE	mg/kg	0.01U	0.011U	0.011U	0.011U	0.011U	0.59U	0.52U	0.01U	0.015UJ	1.1U	0.011U	0.011UJ	0.012U	0.01U
4-METHYL-2-PENTANONE	mg/kg	0.01U	0.011U	0.011U	0.011U	0.011U	0.59U	0.52U	0.01U	0.015U	1.1U	0.011U	0.011U	0.012U	0.01U
ACETONE	mg/kg	0.021UJ	0.017J	0.022UJ	0.022UJ	0.019J	1.2UJ	1UJ	0.026J	0.054J	2.2UJ	0.022UJ	0.044J	0.024UJ	0.017J
BENZENE	mg/kg	0.005U	0.005U	0.005U	0.006U	0.005U	0.93	2.4	0.0008J	0.0008J	0.39J	0.005U	0.0009J	0.006U	0.001J
BROMODICHLOROMETHANE	mg/kg	0.005U	0.005U	0.005U	0.006U	0.005U	0.3U	0.26U	0.005U	0.007U	0.54U	0.005U	0.005U	0.006U	0.005U
BROMOFORM	mg/kg	0.005U	0.005U	0.005U	0.006U	0.005U	0.3U	0.26U	0.005U	0.007U	0.54U	0.002J	0.005U	0.006U	0.005U
BROMOMETHANE	mg/kg	0.005U	0.005U	0.005U	0.006U	0.005U	0.3U	0.26U	0.005U	0.007U	0.54U	0.005U	0.005U	0.006U	0.005U
CARBON DISULFIDE	mg/kg	0.005U	0.005U	0.005U	0.006U	0.005U	0.3U	0.26U	0.005U	0.006J	0.54U	0.005U	0.005U	0.006U	0.005U
CARBON TETRACHLORIDE	mg/kg	0.005U	0.005U	0.005U	0.006U	0.005U	0.3U	0.26U	0.005U	0.007U	0.54U	0.005U	0.005U	0.006U	0.005U
CHLOROBENZENE	mg/kg	0.005U	0.005U	0.005U	0.006U	0.005U	0.3U	0.26U	0.005U	0.007U	0.54U	0.005U	0.005U	0.006U	0.005U
CHLORODIBROMOMETHANE	mg/kg	0.005U	0.005U	0.005U	0.006U	0.005U	0.3U	0.26U	0.005U	0.007U	0.54U	0.005U	0.005U	0.006U	0.005U
CHLOROETHANE	mg/kg	0.005U	0.005U	0.005U	0.006U	0.005U	0.3U	0.26U	0.005U	0.007U	0.54U	0.005U	0.005U	0.006U	0.005U
CHLOROFORM	mg/kg	0.005U	0.005U	0.005U	0.006U	0.005U	0.3U	0.26U	0.005U	0.007U	0.54U	0.005U	0.005U	0.006U	0.005U
CHLOROMETHANE	mg/kg	0.005U	0.005U	0.005U	0.006U	0.005U	0.3U	0.26U	0.005U	0.007U	0.54U	0.005U	0.005U	0.006U	0.005U
CIS-1,2-DICHLOROETHENE	mg/kg	0.005U	0.005U	0.005U	0.006U	0.005U	0.3U	0.26U	0.005U	0.007U	0.54U	0.005U	0.005U	0.006U	0.005U
CIS-1,3-DICHLOROPROPENE	mg/kg	0.005U	0.005U	0.005U	0.006U	0.005U	0.3U	0.26U	0.005U	0.007U	0.54U	0.005U	0.005U	0.006U	0.005U
CYCLOHEXANE	mg/kg	0.005U	0.005U	0.005U	0.006U	0.005U	0.3U	0.26U	0.005U	0.007U	0.13J	0.005U	0.005U	0.006U	0.005U
DICHLORODIFLUOROMETHANE	mg/kg	0.005U	0.005U	0.005U	0.006U	0.005UJ	0.3U	0.26U	0.005U	0.007U	0.54UJ	0.005U	0.005U	0.006U	0.005U
ETHYLBENZENE	mg/kg	0.005U	0.005U	0.005U	0.006U	0.005U	0.3	0.26	0.005U	0.007U	9.6	0.005U	0.005U	0.006U	0.005U
ISOPROPYLBENZENE	mg/kg	0.005U	0.005U	0.005U	0.006U	0.005U	0.3U	0.26U	0.005U	0.007U	3.3	0.005U	0.005U	0.006U	0.005U
METHYL ACETATE	mg/kg	0.005U	0.005U	0.005U	0.006U	0.005U	0.3U	0.26U	0.005U	0.007U	0.54U	0.005U	0.005U	0.006U	0.005U
METHYL TERT-BUTYL ETHER	mg/kg	0.005U	0.005U	0.005U	0.006U	0.005U	0.3U	0.26U			0.54U	0.005U	0.005U	0.006U	0.005U
METHYLCYCLOHEXANE	mg/kg	0.005U	0.005U	0.005U	0.006U	0.005U	0.3U	0.26U	0.005U	0.003J	0.4J	0.005U	0.005U	0.006U	0.005U
METHYLENE CHLORIDE	mg/kg	0.005UJ	0.005UJ	0.005UJ	0.006UJ	0.005U	0.3U	0.26U	0.005U	0.007U	0.54U	0.005U	0.005U	0.006U	0.005U
STYRENE	mg/kg	0.005U	0.005U	0.005U	0.006U	0.005U	0.3U	0.062J	0.005U	0.007U	0.54U	0.005U	0.005U	0.006U	0.005U
TETRACHLOROETHENE	mg/kg	0.005U	0.005U	0.005U	0.006U	0.005U	0.3U	0.26U	0.003J	0.007U	0.54U	0.005U	0.005U	0.006U	0.005U
TOLUENE	mg/kg	0.005U	0.005U	0.005U	0.006U	0.005U	0.45	0.3	0.002J	0.007U	0.54U	0.005U	0.005U	0.006U	0.005U
TRANS-1,2-DICHLOROETHENE	mg/kg	0.005U	0.005U	0.005U	0.006U	0.005U	0.3U	0.26U	0.005U	0.007U	0.54U	0.005U	0.005U	0.006U	0.005U
TRANS-1,3-DICHLOROPROPENE	mg/kg	0.005U	0.005U	0.005U	0.006U	0.005U	0.3U	0.26U	0.005U	0.007U	0.54U	0.005U	0.005U	0.006U	0.005U
TRICHLOROETHENE	mg/kg	0.005U	0.005U	0.005U	0.006U	0.005U	0.3U	0.26U	0.005U	0.007U	0.54U	0.005U	0.005U	0.006U	0.005U
TRICHLOROFLUOROMETHANE	mg/kg	0.005U	0.005U	0.005U	0.006U	0.005U	0.3U	0.26U	0.005U	0.007U	0.54U	0.005U	0.005U	0.006U	0.005U
VINYL CHLORIDE	mg/kg	0.005U	0.005U	0.005U	0.006U	0.005U	0.3U	0.26U	0.005U	0.007U	0.54U	0.005U	0.005U	0.006U	0.005U
XYLENES, TOTAL	mg/kg	0.005U	0.005U	0.005U	0.006U	0.005U	0.73	0.74	0.002J	0.002J	1.1	0.005U	0.005U	0.006U	0.005U

Notes:
mg/kg - milligrams per kilogram [parts per million (PPM)]
Volatile organic compounds (VOCs) analyzed using Method SW8260

TAB[illegible]-2
Summary of Laboratory Analytical Data for Soil
VOCs
Quanta Resources Site
Edgewater, New Jersey

Parameter Name	Field Sample ID Location Sample Date Sample Depth Units	SB-101DS-002 SB-101DS 8/30/2005 3.5-4 ft	SB-101DS-003 SB-101DS 8/30/2005 16.2-16.7 ft	SB-101DS-004 SB-101DS 8/31/2005 25-25.5 ft	SB-101DS-005 SB-101DS 9/1/2005 47-47.5 ft	SS-102B-001 SB-102B 7/25/2005 0-0.16 Ft	SB-102B-002 SB-102B 7/25/2005 2.67-3.67 ft	SB-102B-004 SB-102B 7/26/2005 24-26 Ft	SS-103DS-001 SB-103DS 8/26/2005 0-0.16 Ft	SB-103DS-002 SB-103DS 8/26/2005 1.4-1.9 Ft	SB-103DS-003 SB-103DS 8/26/2005 5-6 ft	SB-103DS-004 SB-103DS 8/26/2005 21.5-22 ft	SB-103DS-005 SB-103DS 8/29/2005 51-52 ft
1,1,1-TRICHLOROETHANE	mg/kg	0.012U	0.32U	0.005U	0.007U	0.86U	0.43U	0.005U	0.59U	0.009U	0.63U	0.25U	0.005U
1,1,2,2-TETRACHLOROETHANE	mg/kg	0.012U	0.32U	0.005U	0.007U	0.86U	0.43U	0.005U	0.59U	0.009U	0.63U	0.25U	0.005U
1,1,2-TRICHLOROETHANE	mg/kg	0.012U	0.32U	0.005U	0.007U	0.86U	0.43U	0.005U	0.59U	0.009U	0.63U	0.25U	0.005U
1,1,2-TRICHLOROTRIFLUOROETHANE	mg/kg	0.023U	0.64U	0.011U	0.013U	1.7U	0.86U	0.01U	1.2U	0.018U	1.3U	0.5U	0.01U
1,1-DICHLOROETHANE	mg/kg	0.012U	0.32U	0.005U	0.007U	0.86U	0.43U	0.005U	0.59U	0.009U	0.63U	0.25U	0.005U
1,1-DICHLOROETHENE	mg/kg	0.012U	0.32U	0.005U	0.007U	0.86U	0.43U	0.005U	0.59U	0.009U	0.63U	0.25U	0.005U
1,2,4-TRICHLOROBENZENE	mg/kg	0.012U	0.32U	0.005U	0.007U	0.86U	0.43U	0.005U	0.59U	0.009U	0.63U	0.25U	0.005U
1,2-DIBROMO-3-CHLOROPROPANE	mg/kg	0.012U	0.32U	0.005U	0.007U	0.86U	0.43U	0.005U	0.59U	0.009U	0.63U	0.25U	0.005U
1,2-DIBROMOETHANE	mg/kg	0.012U	0.32U	0.005U	0.007U	0.86U	0.43U	0.005U	0.59U	0.009U	0.63U	0.25U	0.005U
1,2-DICHLOROBENZENE	mg/kg	0.012U	0.32U	0.005U	0.007U	2.9	0.16J	0.005U	0.59U	0.009U	0.63U	0.25U	0.005U
1,2-DICHLOROETHANE	mg/kg	0.012U	0.32U	0.005U	0.007U	0.86U	0.43U	0.005U	0.59U	0.009U	0.63U	0.25U	0.005U
1,2-DICHLOROPROPANE	mg/kg	0.012U	0.32U	0.005U	0.007U	0.86U	0.43U	0.005U	0.59U	0.009U	0.63U	0.25U	0.005U
1,3-DICHLOROBENZENE	mg/kg	0.012U	0.32U	0.005U	0.007U	0.86U	0.43U	0.005U	0.59U	0.009U	0.63U	0.25U	0.005U
1,4-DICHLOROBENZENE	mg/kg	0.012U	0.32U	0.005U	0.007U	0.86U	0.43U	0.005U	0.59U	0.009U	0.63U	0.25U	0.005U
2-BUTANONE	mg/kg	0.018J	0.64U	0.011UJ	0.013UJ	1.7U	0.86U	0.01UJ	1.2U	0.018UJ	1.3U	0.5U	0.01UJ
2-HEXANONE	mg/kg	0.023U	0.64U	0.011U	0.013U	1.7U	0.86U	0.01U	1.2U	0.018U	1.3U	0.5U	0.01U
4-METHYL-2-PENTANONE	mg/kg	0.023U	0.64U	0.011U	0.013U	1.7U	0.86U	0.01U	1.2U	0.018U	1.3U	0.5U	0.01U
ACETONE	mg/kg	0.063J	1.3UJ	0.021UJ	0.026UJ	3.4UJ	1.7UJ	0.02UJ	2.4UJ	0.036UJ	2.5UJ	1UJ	0.019UJ
BENZENE	mg/kg	0.045	0.68	0.005U	0.007U	0.11J	0.42J	0.014	0.59U	0.009U	1.1	0.32	0.005U
BROMODICHLOROMETHANE	mg/kg	0.012U	0.32U	0.005U	0.007U	0.86U	0.43U	0.005U	0.59U	0.009U	0.63U	0.25U	0.005U
BROMOFORM	mg/kg	0.012U	0.32U	0.005U	0.007U	0.86U	0.43U	0.005U	0.59U	0.009U	0.63U	0.25U	0.005U
BROMOMETHANE	mg/kg	0.012U	0.32U	0.005U	0.007U	0.86U	0.43U	0.005U	0.59U	0.009U	0.63U	0.25U	0.005U
CARBON DISULFIDE	mg/kg	0.035	0.65	0.005U	0.007U	0.86U	0.43U	0.005U	0.59U	0.009U	0.63U	0.25U	0.005U
CARBON TETRACHLORIDE	mg/kg	0.012U	0.32U	0.005U	0.007U	0.86U	0.43U	0.005U	0.59U	0.009U	0.63U	0.25U	0.005U
CHLOROBENZENE	mg/kg	0.012U	0.32U	0.005U	0.007U	0.86U	0.43U	0.005U	0.59U	0.009U	0.63U	0.25U	0.005U
CHLORODIBROMOMETHANE	mg/kg	0.012U	0.32U	0.005U	0.007U	0.86U	0.43U	0.005U	0.59U	0.009U	0.63U	0.25U	0.005U
CHLOROETHANE	mg/kg	0.012U	0.32U	0.005U	0.007U	0.86UJ	0.43UJ	0.004U	0.59U	0.009U	0.63U	0.25U	0.005U
CHLOROFORM	mg/kg	0.012U	0.32U	0.005U	0.007U	0.86U	0.43U	0.005U	0.59U	0.003J	0.63U	0.25U	0.005U
CHLOROMETHANE	mg/kg	0.012U	0.32U	0.005U	0.007U	0.86U	0.43U	0.005U	0.59U	0.009U	0.63U	0.25U	0.005U
CIS-1,2-DICHLOROETHENE	mg/kg	0.012U	0.32U	0.005U	0.007U	0.86U	0.43U	0.005U	0.59U	0.009U	0.63U	0.25U	0.005U
CIS-1,3-DICHLOROPROPENE	mg/kg	0.012U	0.32U	0.005U	0.007U	0.86U	0.43U	0.005U	0.59U	0.009U	0.63U	0.25U	0.005U
CYCLOHEXANE	mg/kg	0.012U	0.11J	0.005U	0.007U	0.86U	0.43U	0.005U	0.59U	0.009U	0.63U	0.25U	0.005U
DICHLORODIFLUOROMETHANE	mg/kg	0.012U	0.32U	0.005U	0.007U	0.86UJ	0.43UJ	0.005U	0.59U	0.009U	0.63U	0.25U	0.005U
ETHYLBENZENE	mg/kg	0.009J	0.24J	0.005U	0.007U	0.5J	0.24J	0.002J	0.59U	0.009U	23	0.28	0.002J
ISOPROPYLBENZENE	mg/kg	0.008J	0.29J	0.005U	0.007U	0.29J	0.43U	0.005U	0.48J	0.009U	2.5	0.25U	0.005U
METHYL ACETATE	mg/kg	0.012U	0.32U	0.005U	0.007U	0.86U	0.95	0.005U	1.1	0.009U	0.63U	0.25U	0.005U
METHYL TERT-BUTYL ETHER	mg/kg	0.012U	0.32U	0.005U	0.007U	0.86U	0.43U	0.005U	0.59U	0.009U	0.63U	0.25U	0.005U
METHYLCYCLOHEXANE	mg/kg	0.065	0.4	0.005U	0.007U	0.86U	0.43U	0.005U	0.59U	0.009U	0.63U	0.25U	0.005U
METHYLENE CHLORIDE	mg/kg	0.012U	0.32U	0.005U	0.007U	0.86U	0.43U	0.005UJ	0.59U	0.009U	0.63U	0.25U	0.005U
STYRENE	mg/kg	0.012U	0.32U	0.005U	0.007U	0.86U	0.43U	0.005U	0.59U	0.009U	0.63U	0.2J	0.005U
TETRACHLOROETHENE	mg/kg	0.012U	0.32U	0.005U	0.007U	0.52J	0.43U	0.005U	0.59U	0.009U	0.63U	0.25U	0.005U
TOLUENE	mg/kg	0.009J	1	0.005U	0.007U	0.46J	0.75	0.003J	0.59U	0.009U	0.31J	0.34	0.005
TRANS-1,2-DICHLOROETHENE	mg/kg	0.012U	0.32U	0.005U	0.007U	0.86U	0.43U	0.005U	0.59U	0.009U	0.63U	0.25U	0.005U
TRANS-1,3-DICHLOROPROPENE	mg/kg	0.012U	0.32U	0.005U	0.007U	0.86U	0.43U	0.005U	0.59U	0.009U	0.63U	0.25U	0.005U
TRICHLOROETHENE	mg/kg	0.012U	0.32U	0.005U	0.006J	0.86U	0.43U	0.005U	0.59U	0.009U	0.63U	0.25U	0.009
TRICHLOROFLUOROMETHANE	mg/kg	0.012U	0.32U	0.005U	0.007U	12	1.4	0.005U	0.59U	0.009U	0.63U	0.25U	0.005U
VINYL CHLORIDE	mg/kg	0.012U	0.32U	0.005U	0.007U	0.86U	0.43U	0.005U	0.59U	0.009U	0.63U	0.25U	0.005U
XYLENES, TOTAL	mg/kg	0.018	1.2	0.005U	0.007U	8.4	1.3	0.003J	0.59U	0.009U	34	1.1	0.009

Notes:
mg/kg - milligrams per kilogram [parts per million (PPM)]
Volatile organic compounds (VOCs) analyzed using Method SW8260

TABLE F-2
Summary of Laboratory Analytical Data for Soil
VOCs
Quanta Resources Site
Edgewater, New Jersey

Parameter Name	Field Sample ID Location Sample Date Sample Depth Units	SS-105A-001 SB-105A 8/22/2005 3.4-3.6 ft	SB-082205-DUP1 SB-105A 8/22/2005 3.4-3.6 ft	SB-105A-002 SB-105A 8/22/2005 3.8-3.9 ft	SB-105A-003 SB-105A 8/22/2005 9-10 ft	SB-105A-004 SB-105A 8/22/2005 17-18 ft	SS-106A-001 SB-106A 11/9/2005 0-0.16 Ft	SB-106A-003 SB-106A 11/9/2005 11.5-12 Ft	SS-107DS-001 SB-107DS 11/16/2005 0-0.16 ft	SB-107DS-002 SB-107DS 11/16/2005 3.5-4 ft	SB-107DS-003 SB-107DS 11/16/2005 19.5-20 ft	SB-107DS-004 SB-107DS 11/16/2005 24-25 ft	SB-107DS-005 SB-107DS 11/17/2005 61-61.5 ft
1,1,1-TRICHLOROETHANE	mg/kg	0.55U	0.008U	0.008U	4.1U	0.009U	0.006U	1U	0.005U	0.37U	0.006U	0.005U	0.005U
1,1,2,2-TETRACHLOROETHANE	mg/kg	0.55U	0.008U	0.008U	4.1U	0.009U	0.006U	1U	0.005U	0.37U	0.006U	0.005U	0.005U
1,1,2-TRICHLOROETHANE	mg/kg	0.55U	0.008U	0.008U	4.1U	0.009U	0.006U	1U	0.005U	0.37U	0.006U	0.005U	0.005U
1,1,2-TRICHLOROTRIFLUOROETHANE	mg/kg	1.1U	0.017U	0.017U	8.2U	0.017U	0.011U	2.1U	0.01U	0.74U	0.012U	0.011U	0.011U
1,1-DICHLOROETHANE	mg/kg	0.55U	0.008U	0.008U	4.1U	0.009U	0.006U	1U	0.005U	0.13J	0.006U	0.005U	0.005U
1,1-DICHLOROETHENE	mg/kg	0.55U	0.008U	0.008U	4.1U	0.009U	0.006U	1U	0.005U	0.37U	0.006U	0.005U	0.005U
1,2,4-TRICHLOROBENZENE	mg/kg	0.55UJ	0.008U	0.008U	4.1UJ	0.009U	0.006U	1U	0.005U	0.37U	0.006U	0.005U	0.005U
1,2-DIBROMO-3-CHLOROPROPANE	mg/kg	0.55U	0.008U	0.008U	4.1U	0.009U	0.006U	1U	0.005U	0.37U	0.006U	0.005U	0.005U
1,2-DIBROMOETHANE	mg/kg	0.55U	0.008U	0.008U	4.1U	0.009U	0.006U	1U	0.005U	0.37U	0.006U	0.005U	0.005U
1,2-DICHLOROBENZENE	mg/kg	0.55U	0.008U	0.008U	4.1U	0.009U	0.006U	1U	0.005U	0.37U	0.006U	0.005U	0.005U
1,2-DICHLOROETHANE	mg/kg	0.55U	0.008U	0.008U	4.1U	0.009U	0.006U	1U	0.005U	0.37U	0.006U	0.005U	0.005U
1,2-DICHLOROPROPANE	mg/kg	0.55U	0.008U	0.008U	4.1U	0.009U	0.006U	1U	0.005U	0.37U	0.006U	0.005U	0.005U
1,3-DICHLOROBENZENE	mg/kg	0.55U	0.008U	0.008U	4.1U	0.009U	0.006U	1U	0.005U	0.37U	0.006U	0.005U	0.005U
1,4-DICHLOROBENZENE	mg/kg	0.55U	0.008U	0.008U	4.1U	0.009U	0.006U	1U	0.005U	0.37U	0.006U	0.005U	0.005U
2-BUTANONE	mg/kg	1.1U	0.017UJ	0.017UJ	8.2U	0.017UJ	0.011UJ	2.1U	0.01UJ	0.74U	0.012UJ	0.011UJ	0.011UJ
2-HEXANONE	mg/kg	1.1U	0.017U	0.017U	8.2U	0.017U	0.011U	2.1U	0.01U	0.74U	0.012U	0.011U	0.011U
4-METHYL-2-PENTANONE	mg/kg	1.1U	0.017U	0.017U	8.2U	0.017U	0.011U	2.1U	0.01U	0.74U	0.012U	0.011U	0.011U
ACETONE	mg/kg	2.2UJ	0.014J	0.021J	16UJ	0.048J	0.023J	4.2UJ	0.054J	1.5UJ	0.012J	0.022UJ	0.022UJ
BENZENE	mg/kg	0.11J	0.005J	0.005J	0.48J	0.009U	0.006U	7.7	0.005U	0.37U	0.084	0.005J	0.005U
BROMODICHLOROMETHANE	mg/kg	0.55U	0.008U	0.008U	4.1U	0.009U	0.006U	1U	0.005U	0.37U	0.006U	0.005U	0.005U
BROMOFORM	mg/kg	0.55U	0.008U	0.008U	4.1U	0.009U	0.006U	1U	0.005U	0.37U	0.006U	0.005U	0.005U
BROMOMETHANE	mg/kg	0.55U	0.008U	0.008U	4.1U	0.009U	0.006U	1U	0.005U	0.37U	0.006U	0.005U	0.005U
CARBON DISULFIDE	mg/kg	0.55U	0.008U	0.003J	4.1U	0.003J	0.003J	1U	0.005U	0.37U	0.006U	0.005U	0.006U
CARBON TETRACHLORIDE	mg/kg	0.55U	0.008U	0.008U	4.1U	0.009U	0.006U	1U	0.005U	0.37U	0.006U	0.005U	0.005U
CHLOROBENZENE	mg/kg	0.55U	0.008U	0.008U	4.1U	0.009U	0.006U	1U	0.005U	0.37U	0.006U	0.005U	0.005U
CHLORODIBROMOMETHANE	mg/kg	0.55U	0.008U	0.008U	4.1U	0.009U	0.006U	1U	0.005U	0.37U	0.006U	0.005U	0.005U
CHLOROETHANE	mg/kg	0.44U	0.008U	0.008U	3.3U	0.009U	0.006U	1U	0.005U	0.37U	0.006U	0.005U	0.005U
CHLOROFORM	mg/kg	0.55U	0.008U	0.008U	4.1U	0.009U	0.006U	1U	0.005U	0.37U	0.006U	0.005U	0.005U
CHLOROMETHANE	mg/kg	0.55U	0.008U	0.008U	4.1U	0.009U	0.006U	1U	0.005U	0.37U	0.006U	0.005U	0.005U
CIS-1,2-DICHLOROETHENE	mg/kg	0.55U	0.008U	0.008U	4.1U	0.009U	0.006U	1U	0.005U	0.37U	0.006U	0.005U	0.005U
CIS-1,3-DICHLOROPROPENE	mg/kg	0.55U	0.008U	0.008U	4.1U	0.009U	0.006U	1U	0.005U	0.37U	0.006U	0.005U	0.005U
CYCLOHEXANE	mg/kg	0.55U	0.008UJ	0.008UJ	4.1U	0.009UJ	0.006U	45	0.005U	0.37U	0.006U	0.005U	0.005U
DICHLORODIFLUOROMETHANE	mg/kg	0.55U	0.008U	0.008U	4.1U	0.009U	0.006UJ	1UJ	0.005U	0.37UJ	0.006U	0.005U	0.005U
ETHYLBENZENE	mg/kg	0.55U	0.008U	0.008U	5.2	0.009U	0.006U	20	0.005U	0.37U	0.01	0.014	0.005U
ISOPROPYLBENZENE	mg/kg	0.55U	0.003J	0.008U	6.9	0.009U	0.006U	3	0.005U	0.37U	0.006U	0.005U	0.005U
METHYL ACETATE	mg/kg	0.55U	0.008U	0.008U	4.1U	0.009U	0.006U	1U	0.005U	0.23J	0.006U	0.005U	0.005U
METHYL TERT-BUTYL ETHER	mg/kg	0.55U	0.008U	0.008U	4.1U	0.009U	0.006U	1U	0.005U	0.37U	0.006U	0.005U	0.005U
METHYLCYCLOHEXANE	mg/kg	0.55U	0.008UJ	0.008UJ	4.1U	0.009UJ	0.006U	190	0.005U	0.37U	0.006U	0.005U	0.005U
METHYLENE CHLORIDE	mg/kg	0.55U	0.008U	0.008U	4.1U	0.009U	0.006U	1U	0.005U	0.37U	0.012	0.005U	0.005U
STYRENE	mg/kg	0.55U	0.008U	0.008U	4.1U	0.009U	0.006U	1U	0.005U	0.37U	0.002J	0.005U	0.005U
TETRACHLOROETHENE	mg/kg	0.55U	0.008U	0.008U	4.1U	0.009U	0.006U	1U	0.005U	0.37U	0.006U	0.005U	0.005U
TOLUENE	mg/kg	0.17J	0.008U	0.006J	4.1U	0.009U	0.006U	92	0.005U	0.37U	0.048	0.002J	0.005U
TRANS-1,2-DICHLOROETHENE	mg/kg	0.55U	0.008U	0.008U	4.1U	0.009U	0.006U	1U	0.005U	0.37U	0.006U	0.005U	0.005U
TRANS-1,3-DICHLOROPROPENE	mg/kg	0.55U	0.008U	0.008U	4.1U	0.009U	0.006U	1U	0.005U	0.37U	0.006U	0.005U	0.005U
TRICHLOROETHENE	mg/kg	0.55U	0.008U	0.008U	4.1U	0.009U	0.006U	1U	0.005U	0.37U	0.006U	0.005U	0.005U
TRICHLOROFLUOROMETHANE	mg/kg	0.55U	0.008U	0.008U	4.1U	0.009U	0.006U	1U	0.005U	0.37U	0.006U	0.005U	0.005U
VINYL CHLORIDE	mg/kg	0.55U	0.008U	0.008U	4.1U	0.009U	0.006U	1U	0.005U	0.37U	0.006U	0.005U	0.005U
XYLENES, TOTAL	mg/kg	0.18J	0.008U	0.007J	5.7	0.009	0.006U	130	0.005U	0.37U	0.039	0.013	0.005U

Notes:
mg/kg - milligrams per kilogram [parts per million (PPM)]
Volatile organic compounds (VOCs) analyzed using Method SW8260

TA[illegible]-2
Summary of Laboratory Analytical Data for Soil
VOCs
Quanta Resources Site
Edgewater, New Jersey

Parameter Name	Field Sample ID Location Sample Date Sample Depth Units	SS-109A-001 SB-109A 11/8/2005 0-0.16	SB-109A-002 SB-109A 11/8/2005 4.5-5 Ft	SS-111A-001 SB-111A 8/4/2005 1.7-2 ft	SB-111A-002 SB-111A 8/4/2005 3.8-4 ft	SB-111A-003 SB-111A 8/4/2005 10.7-12 ft	SB-111A-004 SB-111A 8/4/2005 29.5-30 ft	SS-112A-001 SB-112A 8/15/2005 0-0.16 Ft	SB-081505-D1 SB-112A 8/15/2005 0-0.16 Ft	SB-112A-003 SB-112A 8/15/2005 1.8-2 ft	SS-113C-001 SB-113C 11/22/2005 0-0.16 Ft	SS-116B-001 SB-116B 8/16/2005 0-0.16 Ft	SB-116B-002 SB-116B 8/16/2005 1.75-2 ft	SB-116B-003 SB-116B 8/16/2005 4.5-5 ft
1,1,1-TRICHLOROETHANE	mg/kg	0.005U	0.005U	0.007UJ	0.01UJ	0.007U	0.006U	1.2U	1.4U	1.9U	0.006U	0.006U	0.006U	30U
1,1,2,2-TETRACHLOROETHANE	mg/kg	0.005U	0.005U	0.007UJ	0.01UJ	0.007U	0.006U	1.2U	1.4U	1.9U	0.006U	0.006U	0.006U	30U
1,1,2-TRICHLOROETHANE	mg/kg	0.005U	0.005U	0.007UJ	0.01UJ	0.007U	0.006U	1.2U	1.4U	1.9U	0.006U	0.006U	0.006U	30U
1,1,2-TRICHLOROTRIFLUOROETHANE	mg/kg	0.01U	0.01U	0.015UJ	0.019UJ	0.015U	0.012U	2.4U	2.7U	3.8U	0.013U	0.013U	0.013U	59U
1,1-DICHLOROETHANE	mg/kg	0.005U	0.005U	0.007UJ	0.01UJ	0.007U	0.006U	1.2U	1.4U	1.9U	0.006U	0.006U	0.006U	30U
1,1-DICHLOROETHENE	mg/kg	0.005U	0.005U	0.007UJ	0.01UJ	0.007U	0.006U	1.2U	1.4U	1.9U	0.006U	0.006U	0.006U	30U
1,2,4-TRICHLOROBENZENE	mg/kg	0.005U	0.005U	0.007UJ	0.01UJ	0.007U	0.006U	1.2U	1.4U	1.9U	0.006U	0.006U	0.006U	30U
1,2-DIBROMO-3-CHLOROPROPANE	mg/kg	0.005U	0.005U	0.007UJ	0.01UJ	0.007U	0.006U	1.2U	1.4U	1.9U	0.006U	0.006U	0.006U	30U
1,2-DIBROMOETHANE	mg/kg	0.005U	0.005U	0.007UJ	0.01UJ	0.007U	0.006U	1.2U	1.4U	1.9U	0.006U	0.006U	0.006U	30U
1,2-DICHLOROBENZENE	mg/kg	0.005U	0.005U	0.007UJ	0.01UJ	0.007U	0.006U	1.2U	1.4U	1.9U	0.006U	0.006U	0.006U	30U
1,2-DICHLOROETHANE	mg/kg	0.005U	0.005U	0.007UJ	0.01UJ	0.007U	0.006U	1.2U	1.4U	1.9U	0.006U	0.006U	0.006U	30U
1,2-DICHLOROPROPANE	mg/kg	0.005U	0.005U	0.007UJ	0.01UJ	0.007U	0.006U	1.2U	1.4U	1.9U	0.006U	0.006U	0.006U	30U
1,3-DICHLOROBENZENE	mg/kg	0.005U	0.005U	0.007UJ	0.01UJ	0.007U	0.006U	1.2U	1.4U	1.9U	0.006U	0.006U	0.006U	30U
1,4-DICHLOROBENZENE	mg/kg	0.005U	0.005U	0.007UJ	0.01UJ	0.007U	0.006U	1.2U	1.4U	1.9U	0.006U	0.006U	0.006U	30U
2-BUTANONE	mg/kg	0.01UJ	0.01UJ	0.015UJ	0.019UJ	0.015UJ	0.012UJ	2.4U	2.7U	3.8U	0.013U	0.015	0.009J	59U
2-HEXANONE	mg/kg	0.01UJ	0.01UJ	0.015UJ	0.019UJ	0.015U	0.012U	2.4U	2.7U	3.8U	0.013U	0.013U	0.013U	59U
4-METHYL-2-PENTANONE	mg/kg	0.01U	0.01U	0.015UJ	0.019UJ	0.015U	0.012U	2.4U	2.7U	3.8U	0.013U	0.013U	0.013U	59U
ACETONE	mg/kg	0.048J	0.028J	0.037J	0.029J	0.026J	0.025UJ	4.7UJ	5.5UJ	7.5UJ	0.037J	0.11	0.11	120UJ
BENZENE	mg/kg	0.0008J	0.063	0.007UJ	0.008J	0.007U	0.006U	1.8	1.6	4.6	0.0007J	0.022	0.002J	30U
BROMODICHLOROMETHANE	mg/kg	0.005U	0.005U	0.007UJ	0.01UJ	0.007U	0.006U	1.2U	1.4U	1.9U	0.006U	0.006U	0.006U	30UJ
BROMOFORM	mg/kg	0.005U	0.005U	0.007UJ	0.01UJ	0.007U	0.006U	1.2U	1.4U	1.9U	0.006U	0.006U	0.006U	30U
BROMOMETHANE	mg/kg	0.005U	0.005U	0.007UJ	0.01UJ	0.007U	0.006U	1.2U	1.4U	1.9U	0.006U	0.006U	0.006U	30U
CARBON DISULFIDE	mg/kg	0.005U	0.005U	0.007UJ	0.01UJ	0.007U	0.006U	1.2U	1.4U	1.9U	0.002J	0.002J	0.002J	30U
CARBON TETRACHLORIDE	mg/kg	0.005U	0.005U	0.007UJ	0.01UJ	0.007U	0.006U	1.2U	1.4U	1.9U	0.006U	0.006U	0.006U	30U
CHLOROBENZENE	mg/kg	0.005U	0.005U	0.007UJ	0.01UJ	0.007U	0.006U	1.2U	1.4U	1.9U	0.006U	0.006U	0.006U	30U
CHLORODIBROMOMETHANE	mg/kg	0.005U	0.005U	0.007UJ	0.01UJ	0.007U	0.006U	1.2U	1.4U	1.9U	0.006U	0.006U	0.006U	30U
CHLOROETHANE	mg/kg	0.005U	0.005U	0.006UJ	0.008UJ	0.006U	0.005U	0.95U	1.1U	1.5U	0.006U	0.005U	0.005U	24U
CHLOROFORM	mg/kg	0.005U	0.005U	0.007UJ	0.01UJ	0.007U	0.006U	1.2U	1.4U	1.9U	0.006U	0.006U	0.006U	30U
CHLOROMETHANE	mg/kg	0.005U	0.005U	0.007UJ	0.01UJ	0.007U	0.006U	1.2U	1.4U	1.9U	0.006U	0.006U	0.006U	30U
CIS-1,2-DICHLOROETHENE	mg/kg	0.005U	0.005U	0.007UJ	0.01UJ	0.007U	0.006U	1.2U	1.4U	1.9U	0.006U	0.006U	0.006U	30U
CIS-1,3-DICHLOROPROPENE	mg/kg	0.005U	0.005U	0.007UJ	0.01UJ	0.007U	0.006U	1.2U	1.4U	1.9U	0.006U	0.006U	0.006U	30U
CYCLOHEXANE	mg/kg	0.005U	0.002J	0.007UJ	0.01UJ	0.007U	0.006U	1.2U	1.4U	1.9U	0.006U	0.006U	0.006U	30U
DICHLORODIFLUOROMETHANE	mg/kg	0.005U	0.005U	0.007UJ	0.01UJ	0.007U	0.006U	1.2U	1.4U	1.9U	0.006U	0.006U	0.006U	30U
ETHYLBENZENE	mg/kg	0.005U	0.2	0.007UJ	0.01UJ	0.007U	0.006U	0.43J	0.41J	0.84J	0.006U	0.003J	0.006U	9.7J
ISOPROPYLBENZENE	mg/kg	0.005U	0.034	0.007UJ	0.01UJ	0.007U	0.006U	1.2	1.2J	3.3	0.006U	0.006U	0.006U	6.4J
METHYL ACETATE	mg/kg	0.005U	0.005U	0.007UJ	0.01UJ	0.007U	0.006U	1.2U	1.4U	1.9U	0.006U	0.006U	0.006U	30U
METHYL TERT-BUTYL ETHER	mg/kg	0.005U	0.005U	0.007UJ	0.01UJ	0.007U	0.006U	1.2U	1.4U	1.9U	0.006U	0.006U	0.006U	30U
METHYLCYCLOHEXANE	mg/kg	0.005U	0.003J	0.007UJ	0.01UJ	0.007U	0.006U	1.2U	1.4U	1.9U	0.006U	0.006U	0.006U	30U
METHYLENE CHLORIDE	mg/kg	0.005U	0.007	0.007UJ	0.01UJ	0.007UJ	0.006UJ	1.2U	1.4U	1.9U	0.006U	0.006U	0.006U	30U
STYRENE	mg/kg	0.005U	0.018	0.007UJ	0.01UJ	0.007U	0.006U	1.2U	1.4U	1.9U	0.006U	0.006U	0.006U	30U
TETRACHLOROETHENE	mg/kg	0.005U	0.005U	0.007UJ	0.01UJ	0.007U	0.006U	1.2U	1.4U	1.9U	0.006U	0.006U	0.006U	30U
TOLUENE	mg/kg	0.005U	0.12	0.007UJ	0.01UJ	0.007U	0.006U	3.7	3.2	1.6J	0.006U	0.015	0.002J	30U
TRANS-1,2-DICHLOROETHENE	mg/kg	0.005U	0.005U	0.007UJ	0.01UJ	0.007U	0.006U	1.2U	1.4U	1.9U	0.006U	0.006U	0.006U	30U
TRANS-1,3-DICHLOROPROPENE	mg/kg	0.005U	0.005U	0.007UJ	0.01UJ	0.007U	0.006U	1.2U	1.4U	1.9U	0.006U	0.006U	0.006U	30U
TRICHLOROETHENE	mg/kg	0.005U	0.005U	0.007UJ	0.01UJ	0.007U	0.006U	1.2U	1.4U	1.9U	0.006U	0.006U	0.005J	30U
TRICHLOROFLUOROMETHANE	mg/kg	0.005U	0.005U	0.007UJ	0.01UJ	0.007U	0.006U	1.2U	1.4U	1.9U	0.006U	0.006U	0.006U	30U
VINYL CHLORIDE	mg/kg	0.005U	0.005U	0.007UJ	0.01UJ	0.007U	0.006U	1.2U	1.4U	1.9U	0.006U	0.006U	0.006U	30U
XYLENES, TOTAL	mg/kg	0.005U	0.32	0.007UJ	0.002J	0.007U	0.006U	9.4	8.8	8.7	0.006U	0.008	0.004J	10J

Notes:
mg/kg - milligrams per kilogram (parts per million (PPM))
Volatile organic compounds (VOCs) analyzed using Method SW8260

TABLE F-2
Summary of Laboratory Analytical Data for Soil
VOCs
Quanta Resources Site
Edgewater, New Jersey

Parameter Name	Field Sample ID Location Sample Date Sample Depth Units	SB-116B-004 SB-116B 8/16/2005 14.5-15 ft	SB-117B-001 SB-117B 7/26/2005 0-0.16 Ft	SB-117B-002 SB-117B 7/26/2005 4-5.5 ft	SB-117B-004 SB-117B 7/26/2005 15-18 ft	SB-072605-D1 SB-117B 7/26/2005 15-18 Ft	SS-118B-001 SB-118B 7/25/2005 0-0.16 Ft	SB-118B-002 SB-118B 7/25/2005 6.5-7 Ft	SB-118B-004 SB-118B 7/25/2005 16-17 ft	SB-119B-003 SB-119B 10/8/2005 9.5-10 ft	SB-119B-004 SB-119B 10/8/2005 14.5-15 ft	SS-120B-001 SB-120B 11/11/2005 0-0.16 Ft	SB-120B-002 SB-120B 11/11/2005 3.5-4 Ft	SB-120B-004 SB-120B 11/11/2005 18-19 Ft
1,1,1-TRICHLOROETHANE	mg/kg	0.4U	0.46U	0.4U	1U	0.27U	0.009U	0.45U	0.93U	0.008UJ	0.5U	0.005U	0.41U	0.57U
1,1,2,2-TETRACHLOROETHANE	mg/kg	0.4U	0.46U	0.4U	1U	0.27U	0.009U	0.45U	0.93U	0.008UJ	0.5U	0.005U	0.41U	0.57U
1,1,2-TRICHLOROETHANE	mg/kg	0.4U	0.46U	0.4U	1U	0.27U	0.009U	0.45U	0.93U	0.008UJ	0.5U	0.005U	0.41U	0.57U
1,1,2-TRICHLOROTRIFLUOROETHANE	mg/kg	0.81U	0.91U	0.8U	2.1U	0.54U	0.019U	0.91U	1.9U	0.017UJ	1U	0.011U	0.83U	1.1U
1,1-DICHLOROETHANE	mg/kg	0.4U	0.46U	0.4U	1U	0.27U	0.009U	0.45U	0.93U	0.008UJ	0.5U	0.005U	0.41U	0.57U
1,1-DICHLOROETHENE	mg/kg	0.4U	0.46U	0.4U	1U	0.27U	0.009U	0.45U	0.93U	0.008UJ	0.5U	0.005U	0.41U	0.57U
1,2,4-TRICHLOROBENZENE	mg/kg	0.4U	0.46U	0.4U	1U	0.27U	0.009U	0.45U	0.93U	0.008UJ	0.5U	0.005U	0.41U	0.57U
1,2-DIBROMO-3-CHLOROPROPANE	mg/kg	0.4U	0.46U	0.4U	1U	0.27U	0.009U	0.45U	0.93U	0.008UJ	0.5U	0.005U	0.41U	0.57U
1,2-DIBROMOETHANE	mg/kg	0.4U	0.46U	0.4U	1U	0.27U	0.009U	0.45U	0.93U	0.008UJ	0.5U	0.005U	0.41U	0.57U
1,2-DICHLOROBENZENE	mg/kg	0.4U	0.46U	0.4U	1U	0.27U	0.009U	0.45U	0.93U	0.008UJ	0.5U	0.005U	0.23J	0.57U
1,2-DICHLOROETHANE	mg/kg	0.4U	0.46U	0.4U	1U	0.27U	0.009U	0.45U	0.93U	0.008UJ	0.5U	0.005U	0.41U	0.57U
1,2-DICHLOROPROPANE	mg/kg	0.4U	0.46U	0.4U	1U	0.27U	0.009U	0.45U	0.93U	0.008UJ	0.5U	0.005U	0.41U	0.57U
1,3-DICHLOROBENZENE	mg/kg	0.4U	0.46U	0.4U	1U	0.27U	0.009U	0.45U	0.93U	0.008UJ	0.5U	0.005U	0.41U	0.57U
1,4-DICHLOROBENZENE	mg/kg	0.4U	0.46U	0.4U	1U	0.27U	0.009U	0.45U	0.93U	0.008UJ	0.5U	0.005U	0.41U	0.57U
2-BUTANONE	mg/kg	0.81U	0.91U	0.8U	2.1U	0.54U	0.019UJ	0.91U	1.9U	0.01J	1UJ	0.011UJ	0.83U	1.1U
2-HEXANONE	mg/kg	0.81U	0.91U	0.8U	2.1U	0.54U	0.019U	0.91U	1.9U	0.017UJ	1U	0.011UJ	0.83U	1.1U
4-METHYL-2-PENTANONE	mg/kg	0.81U	0.91U	0.8U	2.1U	0.54U	0.019U	0.91U	1.9U	0.017UJ	1U	0.011U	0.83U	1.1U
ACETONE	mg/kg	1.6UJ	1.8UJ	1.6UJ	4.1UJ	1.1U	0.037UJ	1.8UJ	3.7UJ	0.066J	2UJ	0.046J	1.7UJ	2.3UJ
BENZENE	mg/kg	0.82	0.46U	1	0.49J	0.27U	0.003J	0.076J	0.74J	0.0009J	0.079J	0.0006J	0.13J	0.26J
BROMODICHLOROMETHANE	mg/kg	0.4UJ	0.46U	0.4U	1U	0.27U	0.009U	0.45U	0.93U	0.008UJ	0.5U	0.005U	0.41U	0.57U
BROMOFORM	mg/kg	0.4U	0.46U	0.4U	1U	0.27U	0.009U	0.45U	0.93U	0.008UJ	0.5U	0.005U	0.41U	0.57U
BROMOMETHANE	mg/kg	0.4U	0.46U	0.4U	1U	0.27U	0.009U	0.45U	0.93U	0.008UJ	0.5U	0.005U	0.41U	0.57U
CARBON DISULFIDE	mg/kg	0.4U	0.46U	0.4U	1U	0.27U	0.009U	0.45U	0.93U	0.005J	0.5U	0.005U	0.41U	0.57U
CARBON TETRACHLORIDE	mg/kg	0.4U	0.46U	0.4U	1U	0.27U	0.009U	0.45U	0.93U	0.008UJ	0.5U	0.005U	0.41U	0.57U
CHLOROBENZENE	mg/kg	0.4U	0.46U	0.4U	1U	0.27U	0.009U	0.45U	0.93U	0.008UJ	0.5U	0.005U	0.41U	0.57U
CHLORODIBROMOMETHANE	mg/kg	0.4U	0.46U	0.4U	1U	0.27U	0.009U	0.45U	0.93U	0.008UJ	0.5U	0.005U	0.41U	0.57U
CHLOROETHANE	mg/kg	0.32U	0.46UJ	0.4UJ	1UJ	0.27U	0.007U	0.36UJ	0.93UJ	0.008UJ	0.5U	0.005U	0.41U	0.57U
CHLOROFORM	mg/kg	0.4U	0.46U	0.4U	1U	0.27U	0.009U	0.45U	0.93U	0.008UJ	0.5U	0.005U	0.41U	0.57U
CHLOROMETHANE	mg/kg	0.4U	0.46U	0.4U	1U	0.27U	0.009U	0.45U	0.93U	0.008UJ	0.5U	0.005U	0.41U	0.57U
CIS-1,2-DICHLOROETHENE	mg/kg	0.4U	0.46U	0.4U	1U	0.27U	0.009U	0.45U	0.93U	0.008UJ	0.5U	0.005U	0.13J	0.57U
CIS-1,3-DICHLOROPROPENE	mg/kg	0.4U	0.46U	0.4U	1U	0.27U	0.009U	0.45U	0.93U	0.008UJ	0.5U	0.005U	0.41U	0.57U
CYCLOHEXANE	mg/kg	0.4U	0.46U	0.4U	1U	0.27U	0.003J	0.45U	0.93U	0.014J	0.5U	0.005U	0.41U	0.57U
DICHLORODIFLUOROMETHANE	mg/kg	0.4U	0.46U	0.4U	1U	0.27U	0.009U	0.45UJ	0.93UJ	0.008UJ	0.5U	0.005U	0.41U	0.57U
ETHYLBENZENE	mg/kg	1.3	0.27J	17	0.98J	0.27U	0.004J	0.18J	1	0.01J	0.45J	0.005U	0.5	14
ISOPROPYLBENZENE	mg/kg	0.18J	0.46U	9.2	1U	0.27U	0.009U	0.45U	0.2J	0.01J	0.15J	0.005U	0.13J	6.5
METHYL ACETATE	mg/kg	0.4U	0.46U	0.3J	1U	0.27U	0.009U	0.45U	0.93U	0.008UJ	0.5U	0.005U	0.27J	0.57U
METHYL TERT-BUTYL ETHER	mg/kg	0.4U	0.46U	0.4U	1U	0.27U	0.009U	0.45U	0.93U	0.008UJ	0.5U	0.005U	0.41U	0.57U
METHYLCYCLOHEXANE	mg/kg	0.4U	0.46U	0.4U	1U	0.27U	0.006J	0.45U	0.93U	0.008UJ	0.5U	0.005U	0.41U	8.3
METHYLENE CHLORIDE	mg/kg	0.4U	0.46U	0.4U	1U	0.27U	0.009UJ	0.45U	0.93U	0.008UJ	0.5U	0.005U	0.41U	0.57U
STYRENE	mg/kg	0.4U	0.46U	0.4U	1U	0.27U	0.009U	0.18J	0.93U	0.008UJ	0.5U	0.005U	0.41U	0.57U
TETRACHLOROETHENE	mg/kg	0.4U	0.46U	0.4U	1U	0.27U	0.009U	0.45U	0.93U	0.008UJ	0.5U	0.005U	0.094J	0.57U
TOLUENE	mg/kg	0.51	0.11J	2.9	0.91J	0.27U	0.007J	0.24J	0.48J	0.002J	0.5U	0.005U	0.31J	1.8
TRANS-1,2-DICHLOROETHENE	mg/kg	0.4U	0.46U	0.4U	1U	0.27U	0.009U	0.45U	0.93U	0.008UJ	0.5U	0.005U	0.41U	0.57U
TRANS-1,3-DICHLOROPROPENE	mg/kg	0.4U	0.46U	0.4U	1U	0.27U	0.009U	0.45U	0.93U	0.008UJ	0.5U	0.005U	0.41U	0.57U
TRICHLOROETHENE	mg/kg	0.4U	0.46U	0.4U	1U	0.27U	0.009U	0.45U	0.93U	0.008UJ	0.5U	0.005U	0.48	0.57U
TRICHLOROFLUOROMETHANE	mg/kg	0.4U	0.46U	0.4U	1U	0.27U	0.009U	0.45U	0.93U	0.008UJ	0.5U	0.005U	0.41U	0.57U
VINYL CHLORIDE	mg/kg	0.4U	0.46U	0.4U	1U	0.27U	0.009U	0.45U	0.93U	0.008UJ	0.5U	0.005U	0.096J	0.57U
XYLENES, TOTAL	mg/kg	3.9	0.13J	28	3.2	0.27U	0.014	0.76	3.1	0.009J	1.4	0.005U	0.85	37

Notes:
mg/kg - milligrams per kilogram [parts per million (PPM)]
Volatile organic compounds (VOCs) analyzed using Method SW8260

TAB[illegible]-2
Summary of Laboratory Analytical Data for Soil
VOCs
Quanta Resources Site
Edgewater, New Jersey

Parameter Name	Field Sample ID Location Sample Date Sample Depth Units	SS-115B-001 MW-122A 11/10/2005 0-0.16 Ft	SB-111005 MW-122A 11/10/2005 0-0.16 Ft
1,1,1-TRICHLOROETHANE	mg/kg	0.005U	0.005U
1,1,2,2-TETRACHLOROETHANE	mg/kg	0.005U	0.005U
1,1,2-TRICHLOROETHANE	mg/kg	0.005U	0.005U
1,1,2-TRICHLOROTRIFLUOROETHANE	mg/kg	0.011U	0.01U
1,1-DICHLOROETHANE	mg/kg	0.005U	0.005U
1,1-DICHLOROETHENE	mg/kg	0.005U	0.005U
1,2,4-TRICHLOROBENZENE	mg/kg	0.005U	0.005U
1,2-DIBROMO-3-CHLOROPROPANE	mg/kg	0.005U	0.005U
1,2-DIBROMOETHANE	mg/kg	0.005U	0.005U
1,2-DICHLOROBENZENE	mg/kg	0.005U	0.005U
1,2-DICHLOROETHANE	mg/kg	0.005U	0.005U
1,2-DICHLOROPROPANE	mg/kg	0.005U	0.005U
1,3-DICHLOROBENZENE	mg/kg	0.005U	0.005U
1,4-DICHLOROBENZENE	mg/kg	0.005U	0.005U
2-BUTANONE	mg/kg	0.011UJ	0.006J
2-HEXANONE	mg/kg	0.011UJ	0.01U
4-METHYL-2-PENTANONE	mg/kg	0.011U	0.01U
ACETONE	mg/kg	0.054J	0.074J
BENZENE	mg/kg	0.005U	0.005U
BROMODICHLOROMETHANE	mg/kg	0.005U	0.005U
BROMOFORM	mg/kg	0.005U	0.005U
BROMOMETHANE	mg/kg	0.005U	0.005U
CARBON DISULFIDE	mg/kg	0.005U	0.005U
CARBON TETRACHLORIDE	mg/kg	0.005U	0.005U
CHLOROBENZENE	mg/kg	0.005U	0.005U
CHLORODIBROMOMETHANE	mg/kg	0.005U	0.005U
CHLOROETHANE	mg/kg	0.005U	0.005U
CHLOROFORM	mg/kg	0.005U	0.005U
CHLOROMETHANE	mg/kg	0.005U	0.005U
CIS-1,2-DICHLOROETHENE	mg/kg	0.005U	0.005U
CIS-1,3-DICHLOROPROPENE	mg/kg	0.005U	0.005U
CYCLOHEXANE	mg/kg	0.005U	0.005U
DICHLORODIFLUOROMETHANE	mg/kg	0.005U	0.005U
ETHYLBENZENE	mg/kg	0.005U	0.005U
ISOPROPYLBENZENE	mg/kg	0.005U	0.005U
METHYL ACETATE	mg/kg	0.005U	0.005U
METHYL TERT-BUTYL ETHER	mg/kg	0.005U	0.005U
METHYLCYCLOHEXANE	mg/kg	0.005U	0.005U
METHYLENE CHLORIDE	mg/kg	0.005U	0.005U
STYRENE	mg/kg	0.005U	0.005U
TETRACHLOROETHENE	mg/kg	0.005U	0.005U
TOLUENE	mg/kg	0.005U	0.005U
TRANS-1,2-DICHLOROETHENE	mg/kg	0.005U	0.005U
TRANS-1,3-DICHLOROPROPENE	mg/kg	0.005U	0.005U
TRICHLOROETHENE	mg/kg	0.005U	0.005U
TRICHLOROFLUOROMETHANE	mg/kg	0.005U	0.005U
VINYL CHLORIDE	mg/kg	0.005U	0.005U
XYLENES, TOTAL	mg/kg	0.005U	0.005U

Notes:
mg/kg - milligrams per kilogram [parts per million (PPM)]
Volatile organic compounds (VOCs) analyzed using Method SW8260

TAB[illegible]-3
Summary of Laboratory Analytical Data for Soil
Metals, Ammonia, and Cyanide
Quanta Resources Site
Edgewater, New Jersey

Parameter Name	Field Sample ID Location Sample Date Sample Depth Units	SS-01A-001 SB-01A 12/11/2005 1-1.5 ft	SB-01A-003* SB-01A 12/11/2005 9-10 Ft	SB-01A-004 SB-01A 12/11/2005 14-15 ft	SB-02B-003 SB-02B 8/18/2005 9.5-10 Ft	SB-02B-004 SB-02B 8/18/2005 29-30 Ft	SB-03C-002 SB-03C 8/22/2005 3.5-4 ft	SB-03C-003 SB-03C 8/22/2005 11-12 ft	SB-03C-004 SB-03C 8/22/2005 21-22 ft	SS-04D-001 SB-04D 12/10/2005 1.0-1.5 ft	SB-04D-002 SB-04D 12/10/2005 3-3.5 ft	SB-04D-003* SB-04D 12/10/2005 14-15 ft	SB-04D-004 SB-04D 12/10/2005 29.5-30 ft	SB-06F-002 SB-06F 8/2/2005 1.5-2 ft	SB-06F-004 SB-06F 8/2/2005 23-24 ft	SB-07G-003 SB-07G 8/17/2005 16.5-17 ft
ALUMINUM	mg/kg															
ANTIMONY	mg/kg															
ARSENIC	mg/kg	8.9	34.7	29.8	6	7.3	13.4	1.3J	3.2	7.3	10.2	1.6U	9.6	32.9	210	118
BARIUM	mg/kg															
BERYLLIUM	mg/kg															
CADMIUM	mg/kg															
CALCIUM	mg/kg															
CHROMIUM	mg/kg	32.9								9.2						
COBALT	mg/kg															
COPPER	mg/kg															
IRON	mg/kg															
LEAD	mg/kg	39.1	466	350	86.4	10.6	34.8	5.8	10	75.4	592	3.8	11.5	133	10.4	5.3
MAGNESIUM	mg/kg															
MANGANESE	mg/kg															
NICKEL	mg/kg															
POTASSIUM	mg/kg															
SELENIUM	mg/kg															
SILVER	mg/kg															
SODIUM	mg/kg															
THALLIUM	mg/kg															
VANADIUM	mg/kg															
ZINC	mg/kg															
MERCURY	mg/kg															
HEXAVALENT CHROMIUM	mg/kg	2.5U	1.8U	2.3U	1.9U	1.8U	1.6U	1.8U	1.9U	1.8U	1.8U	1.8U	1.8U	1.8U	1.7U	1.7U
AMMONIA	mg/kg															
CYANIDE	mg/kg															

Notes:
mg/kg - milligrams per kilogram [parts per million (PPM)]
Metals analyzed using methods SW6010, SW7196, SW7471.
Cyanide analyzed using method SW9012.
Ammonia analyzed using Method E350.2

TABLE F-3
Summary of Laboratory Analytical Data for Soil
Metals, Ammonia, and Cyanide
Quanta Resources Site
Edgewater, New Jersey

Parameter Name	Field Sample ID Location Sample Date Sample Depth Units	SB-07G-004 SB-07G 8/17/2005 23-24 ft	SB-08H-002 SB-08H 10/9/2005 1-1.5 ft	SB-08H-003 SB-08H 10/9/2005 8.5-9 ft	SB-08H-004 SB-08H 10/9/2005 24-25 ft	SB-09I-002 SB-09I 8/18/2005 0.8-1.3 ft	SB-09I-003 SB-09I 8/18/2005 9.5-10 ft	SB-09I-004 SB-09I 8/18/2005 27.5-28 ft	SS-10J-001 SB-10J 8/23/2005 0-0.16 ft	SB-10J-003 SB-10J 8/23/2005 3-4 ft	SB-10J-004 SB-10J 8/23/2005 25.5-26 Ft	SS-11K-001 SB-11K 8/23/2005 0-0.16 ft	SB-11K-002 SB-11K 8/23/2005 1.5-2 ft	SB-11K-003 SB-11K 8/23/2005 4.5-5 ft	SB-11K-004 SB-11K 8/23/2005 23.2-24 ft	SS-12L-001 SB-12L 10/25/2005 0-0.16 ft
ALUMINUM	mg/kg								11300	3390	16500	15700	4970	3340	14400	9790
ANTIMONY	mg/kg								0.93U	1U	1.1U	0.89U	0.91U	0.97U	0.98U	0.95
ARSENIC	mg/kg	128	11.9	29.7	22.3J	51.9	5.1	34.2	22.2	10.6	8.9	12.9	14	12.5	4.7	6.5
BARIUM	mg/kg								106	41.6	107	112	49.1	54.8	73.8	89.2
BERYLLIUM	mg/kg								0.38J	0.23J	0.97	4.4	0.24J	5.8	0.66	0.44J
CADMIUM	mg/kg								0.37J	0.19J	0.11U	0.8	0.29J	0.26J	0.11U	0.17J
CALCIUM	mg/kg								41400	5640	1520	12900	3950	10600	10600	20100
CHROMIUM	mg/kg		25.2						23.4	10.7	26.4	71.6	13.3	18.7	21.7	23.4
COBALT	mg/kg								9	5.4	14.2	23	6.7	4.6	12.8	7
COPPER	mg/kg								69.3	42.4	23.9	472	87.6	47.3	25.5	39
IRON	mg/kg								21300	8730	34900	30600	16800	8740	28600	14000
LEAD	mg/kg	11.5	443	48.9	12.1	768	10.8	13.9	142J	97.5	15.9	348	123	82	12.7	123
MAGNESIUM	mg/kg								5350	915	5570	7350	1750	925	8390	4410
MANGANESE	mg/kg								354	53.9	389	333	114	77.3	901	250
NICKEL	mg/kg								22.8	12.9	30.8	173	23.6	12.2	28.2	16.6
POTASSIUM	mg/kg								1490J	307	2380	1030	235	323	2320	1840
SELENIUM	mg/kg								1.1U	1.3J	1.3U	2.5	1.1U	1.4J	1.2U	1.2U
SILVER	mg/kg								0.22U	0.24U	0.24U	0.67	0.22U	0.23U	0.23U	0.22U
SODIUM	mg/kg								803J	498	929	1450	539	327	448	722
THALLIUM	mg/kg								1.5J	1.2U	1.3U	1.1U	1.1U	1.2U	1.4U	1.2U
VANADIUM	mg/kg								33.5	14	31.2	50.8	34.3	11.7	23.3	36.6
ZINC	mg/kg								133	75.8	70.8	1000	69.3	118	64.9	107
MERCURY	mg/kg								0.46J	0.42	0.011J	0.3	0.7	2.2	0.0077J	0.17
HEXAVALENT CHROMIUM	mg/kg	1.8U	1.7U	2.2U	1.8U	1.6U	40.4U	1.9U	1.7U	1.9U	1.9U	1.6U	1.7U	1.8U	1.8U	3.8
AMMONIA	mg/kg															176U
CYANIDE	mg/kg											0.52U	0.55U	8.3	0.58U	

Notes:
mg/kg - milligrams per kilogram (parts per million (PPM))
Metals analyzed using methods SW6010, SW7196, SW7471.
Cyanide analyzed using method SW9012.
Ammonia analyzed using Method E350.2

TAB[illegible]-3

Summary of Laboratory Analytical Data for Soil
Metals, Ammonia, and Cyanide
Quanta Resources Site
Edgewater, New Jersey

Parameter Name	Field Sample ID Location Sample Date Sample Depth Units	SB-12L-003 SB-12L 10/25/2005 22.5-23 ft	SB-12L-004 SB-12L 10/25/2005 29.5-30 ft	SS-13M-001 SB-13M 8/3/2005 0-1 ft	SB-13M-002 SB-13M 8/3/2005 1-2 Ft	SB-13M-004 SB-13M 8/3/2005 11-12 Ft	SS-14N-001 SB-14N 10/24/2005 0-0.16 ft	SB-14N-002 SB-14N 10/24/2005 0.16-0.5 ft	SB-14N-004 SB-14N 10/24/2005 22.5-23 ft	SS-15D-001 SB-15D 10/25/2005 0-0.16 Ft	SB-15D-003 SB-15D 10/25/2005 7-7.5 ft	SB-15D-004 SB-15D 10/25/2005 28.5-29 ft	SS-16P-001 SB-16P 11/9/2005 0-0.16 Ft	SB-16P-003 SB-16P 11/15/2005 16.5-17 ft	SB-16P-004 SB-16P 11/15/2005 26-27 ft	SS-17Q-001 SB-17Q 12/10/2005 0.3-0.5 ft
ALUMINUM	mg/kg	8610	19900	5170J	12100J	20600J				14900	11700	22100				
ANTIMONY	mg/kg	1	1.1	24.1	3.1U	1.6U				0.98	5.7	1.1				
ARSENIC	mg/kg	3.5	7.3	913	73.1	10.4	5.3	2.1J	4	2.1J	219	5.8	6.1U	2.1J	8.1	5.3
BARIUM	mg/kg	26.5	129	179	176	58.3				176	315	136				
BERYLLIUM	mg/kg	0.39J	0.97	0.36J	0.45J	0.94				0.36J	0.17J	1.1				
CADMIUM	mg/kg	0.11U	0.17J	0.9	0.097U	0.16U				0.12J	0.31J	0.14J				
CALCIUM	mg/kg	773	19600	14400	30800	2150				12200	14800	19600				
CHROMIUM	mg/kg	10.4	26.5	40.5	34.3	34	17.8			46.3	11.5	30.6	18.4			31.1J
COBALT	mg/kg	5.4	14.3	7.1	11.2	12.3				10.5	11.1	13.5				
COPPER	mg/kg	11.8	29.4	307	221	22.8				37	181	29.1				
IRON	mg/kg	16400	30500	38300J	34100J	39100J				23000	31000	29900				
LEAD	mg/kg	5.6U	14.8	636	402	27.9	48.4	46.3	11.3	22.1	906	14.7	58.1	8.6	14.6	82.2
MAGNESIUM	mg/kg	3170	10100	1780	4310	6540				9300	3030	10600				
MANGANESE	mg/kg	138	712	149	247	452				303	120	653				
NICKEL	mg/kg	13.6	30.5	42.8	38.1	27.1				29	8.6	29.8				
POTASSIUM	mg/kg	1380	4580	681	1140	3910				5450	977	5460				
SELENIUM	mg/kg	1.2U	1.2U	1.7U	1.1U	1.8U				1.2U	12	1.2U				
SILVER	mg/kg	0.24U	0.24U	1.8	0.91	0.36J				0.23U	1.2	0.24U				
SODIUM	mg/kg	114J	445	437	1090	1490				983	2220	374				
THALLIUM	mg/kg	1.2U	1.2U	4.8	1.7J	4.6				1.2U	2.3	1.2U				
VANADIUM	mg/kg	15.3	31.4	41.9	48.2	44.2				57.7	49.7	35.8				
ZINC	mg/kg	31U	69.3U	338	232	102				78.5	98.9	68.5U				
MERCURY	mg/kg	0.0033U	0.013J	2.7	0.65	0.069J				0.04J	3.9	0.0033U				
HEXAVALENT CHROMIUM	mg/kg	1.8U	1.9U	9.4U	1.7U	28U	1.6UJ	1.6U	1.8U	1.8U	1.7U	1.8U	8.4U	1.9U	1.8U	1.6U
AMMONIA	mg/kg	803U	63.4U	318U	292U	476UJ	165U	166U	61.5U	183U	334	62.6U				
CYANIDE	mg/kg			0.61UJ	0.63J	0.91UJ										

Notes:
mg/kg - milligrams per kilogram [parts per million (PPM)]
Metals analyzed using methods SW6010, SW7196, SW7471.
Cyanide analyzed using method SW9012.
Ammonia analyzed using Method E350.2

TABLE F-3
Summary of Laboratory Analytical Data for Soil
Metals, Ammonia, and Cyanide
Quanta Resources Site
Edgewater, New Jersey

Parameter Name	Field Sample ID Location Sample Date Sample Depth Units	SB-17Q-002 SB-17Q 12/10/2005 4-5 Ft	SB-17Q-003* SB-17Q 12/10/2005 9-10 ft	SB-17Q-004 SB-17Q 12/10/2005 27-28 ft	SS-18R-001 SB-18R 11/10/2005 0-0.16 Ft	SB-18R-004 SB-18R 11/18/2005 26-26.5 ft	SS-101DS-001 SB-101DS 8/30/2005 0-0.16 ft	SB-101DS-002 SB-101DS 8/30/2005 3.5-4 ft	SB-101DS-003 SB-101DS 8/30/2005 16.2-16.7 ft	SB-101DS-004 SB-101DS 8/31/2005 25-25.5 ft	SB-101DS-005 SB-101DS 9/1/2005 47-47.5 ft	SB-102B-002 SB-102B 7/25/2005 2.67-3.67 ft	SB-102B-004 SB-102B 7/26/2005 24-26 Ft	SB-103DS-002 SB-103DS 8/26/2005 1.4-1.9 Ft
ALUMINUM	mg/kg													
ANTIMONY	mg/kg													
ARSENIC	mg/kg	28.1	28.6	7.9	45.3	29	19.5	9.2	4	6.5	2.5	9.4	9.6	2.5
BARIUM	mg/kg													
BERYLLIUM	mg/kg													
CADMIUM	mg/kg													
CALCIUM	mg/kg													
CHROMIUM	mg/kg				28.9		26.3				9.8		22	
COBALT	mg/kg													
COPPER	mg/kg													
IRON	mg/kg													
LEAD	mg/kg	956	293	14.4	160	12.6	167	40	16.6	11.8	7.8	167	9.5	7.5
MAGNESIUM	mg/kg													
MANGANESE	mg/kg													
NICKEL	mg/kg													
POTASSIUM	mg/kg													
SELENIUM	mg/kg													
SILVER	mg/kg													
SODIUM	mg/kg													
THALLIUM	mg/kg													
VANADIUM	mg/kg													
ZINC	mg/kg													
MERCURY	mg/kg													
HEXAVALENT CHROMIUM	mg/kg	1.9U	2.7U	1.9U	1.8U	1.9U	1.7U	1.8U	1.9U	1.8U	1.7U	1.6U	1.8U	1.9U
AMMONIA	mg/kg						281U	299U	321U	304U				
CYANIDE	mg/kg													

Notes:
mg/kg - milligrams per kilogram [parts per million (PPM)]
Metals analyzed using methods SW6010, SW7196, SW7471.
Cyanide analyzed using method SW9012.
Ammonia analyzed using Method E350.2

TAB[illegible]-3

Summary of Laboratory Analytical Data for Soil

Metals, Ammonia, and Cyanide

Quanta Resources Site

Edgewater, New Jersey

Parameter Name	Field Sample ID Location Sample Date Sample Depth Units	SB-103DS-003 SB-103DS 8/26/2005 5-6 ft	SB-103DS-004 SB-103DS 8/26/2005 21.5-22 ft	SB-103DS-005 SB-103DS 8/29/2005 51-52 ft	SS-105A-001 SB-105A 8/22/2005 3.4-3.6 ft	SB-082205-DUP1 SB-105A 8/22/2005 3.4-3.6 ft	SB-105A-002 SB-105A 8/22/2005 3.6-3.9 ft	SB-105A-003 SB-105A 8/22/2005 9-10 ft	SB-105A-004 SB-105A 8/22/2005 17-18 ft	SS-106A-001 SB-106A 11/9/2005 0-0.16 Ft	SB-106A-003 SB-106A 11/9/2005 11.5-12 Ft	SS-107DS-001 SB-107DS 11/16/2005 0-0.16 ft	SB-107DS-002 SB-107DS 11/16/2005 3.5-4 ft	SB-107DS-003 SB-107DS 11/16/2005 19.5-20 ft
ALUMINUM	mg/kg													
ANTIMONY	mg/kg													
ARSENIC	mg/kg	5.1	8.6	3.9	14.9	12	5.5	4.7	12.5	22.8	6U	5.3	10.6	138
BARIUM	mg/kg													
BERYLLIUM	mg/kg													
CADMIUM	mg/kg													
CALCIUM	mg/kg													
CHROMIUM	mg/kg			20.8	14.8	17.9				24.5		23.6		
COBALT	mg/kg													
COPPER	mg/kg													
IRON	mg/kg													
LEAD	mg/kg	32.6	11.5	16.6	392	415	270	59.7	65.3	86.9	88.6	86.5	218	3.6
MAGNESIUM	mg/kg													
MANGANESE	mg/kg													
NICKEL	mg/kg													
POTASSIUM	mg/kg													
SELENIUM	mg/kg													
SILVER	mg/kg													
SODIUM	mg/kg													
THALLIUM	mg/kg													
VANADIUM	mg/kg													
ZINC	mg/kg													
MERCURY	mg/kg													
HEXAVALENT CHROMIUM	mg/kg	9.5U	1.8U	1.8U	1.8U	1.8U	1.7U	1.9U	2.4U	8.8U	128U	0.6J	1.9U	1.8U
AMMONIA	mg/kg													
CYANIDE	mg/kg													

Notes:
mg/kg - milligrams per kilogram [parts per million (PPM)]
Metals analyzed using methods SW6010, SW7196, SW7471.
Cyanide analyzed using method SW9012.
Ammonia analyzed using Method E350.2

TABLE F-3
Summary of Laboratory Analytical Data for Soil
Metals, Ammonia, and Cyanide
Quanta Resources Site
Edgewater, New Jersey

Parameter Name	Field Sample ID Location Sample Date Sample Depth Units	SB-107DS-004 SB-107DS 11/16/2005 24-25 ft	SB-107DS-005 SB-107DS 11/17/2005 61-61.5 ft	SS-109A-001 SB-109A 11/8/2005 0-0.16	SB-109A-002 SB-109A 11/8/2005 4.5-5 Ft	SS-111A-001 SB-111A 8/4/2005 1.7-2 ft	SB-111A-002 SB-111A 8/4/2005 3.8-4 ft	SB-111A-003 SB-111A 8/4/2005 10.7-12 ft	SB-111A-004 SB-111A 8/4/2005 29.5-30 ft	SB-112A-003 SB-112A 8/15/2005 1.8-2 ft	SB-116B-002 SB-116B 8/16/2005 1.75-2 ft	SB-116B-003 SB-116B 8/16/2005 4.5-5 ft	SB-116B-004 SB-116B 8/16/2005 14.5-15 ft	SB-117B-002 SB-117B 7/26/2005 4-5.5 ft
ALUMINUM	mg/kg													
ANTIMONY	mg/kg													
ARSENIC	mg/kg	4.9	3.5	7.4	16.7	8.6	17.4	3.9	6.1	343	6.7	20.6	6.9	12.9
BARIUM	mg/kg													
BERYLLIUM	mg/kg													
CADMIUM	mg/kg													
CALCIUM	mg/kg													
CHROMIUM	mg/kg		22.1	14.2		15.2	13.5	27.7	32.3					
COBALT	mg/kg													
COPPER	mg/kg													
IRON	mg/kg													
LEAD	mg/kg	12.4	10	26.9	83.5	95.8	88.4	171	14.2	791	55.4	451	11.2	79.2
MAGNESIUM	mg/kg													
MANGANESE	mg/kg													
NICKEL	mg/kg													
POTASSIUM	mg/kg													
SELENIUM	mg/kg													
SILVER	mg/kg													
SODIUM	mg/kg													
THALLIUM	mg/kg													
VANADIUM	mg/kg													
ZINC	mg/kg													
MERCURY	mg/kg													
HEXAVALENT CHROMIUM	mg/kg	0.78J	1.9U	4J	2	1.7U	1.7UJ	9.2U	2U	1.7U	1.7U	9.9U	10.1U	1.7U
AMMONIA	mg/kg					283U	290U	330	332U	288U				
CYANIDE	mg/kg													

Notes:
mg/kg - milligrams per kilogram [parts per million (PPM)]
Metals analyzed using methods SW6010, SW7196, SW7471.
Cyanide analyzed using method SW9012.
Ammonia analyzed using Method E350.2

TAB[illegible]-3
Summary of Laboratory Analytical Data for Soil
Metals, Ammonia, and Cyanide
Quanta Resources Site
Edgewater, New Jersey

Parameter Name	Field Sample ID Location Sample Date Sample Depth Units	SB-117B-004 SB-117B 7/26/2005 15-18 ft	SB-072605-D1 SB-117B 7/26/2005 15-18 Ft	SB-118B-002 SB-118B 7/25/2005 6.5-7 Ft	SB-118B-004 SB-118B 7/25/2005 16-17 ft	SB-119B-003 SB-119B 10/8/2005 9.5-10 ft	SB-119B-004 SB-119B 10/8/2005 14.5-15 ft	SS-120B-001 SB-120B 11/11/2005 0-0.16 Ft	SB-120B-002 SB-120B 11/11/2005 3.5-4 Ft	SB-120B-004 SB-120B 11/11/2005 18-19 Ft	SS-115B-001 SB-122A 11/10/2005 0-0.16 Ft	SB-111005 SB-122A 11/10/2005 0-0.16 Ft
ALUMINUM	mg/kg											
ANTIMONY	mg/kg											
ARSENIC	mg/kg	12.1	10.5	25.7	14.1	47.4	26.9	33.2J	72.2	251	6.7	5.8
BARIUM	mg/kg											
BERYLLIUM	mg/kg											
CADMIUM	mg/kg											
CALCIUM	mg/kg											
CHROMIUM	mg/kg		20			29.4		25.3			17.1	15.2
COBALT	mg/kg											
COPPER	mg/kg											
IRON	mg/kg											
LEAD	mg/kg	61.8	8.7	486	85.4	1040	143	166	276	647	53.3	51.9
MAGNESIUM	mg/kg											
MANGANESE	mg/kg											
NICKEL	mg/kg											
POTASSIUM	mg/kg											
SELENIUM	mg/kg											
SILVER	mg/kg											
SODIUM	mg/kg											
THALLIUM	mg/kg											
VANADIUM	mg/kg											
ZINC	mg/kg											
MERCURY	mg/kg											
HEXAVALENT CHROMIUM	mg/kg	12.3U	1.8U	2U	11.8U	2U	13.1U	7.2UJ	19.3U	2.8	7.1U	1.8U
AMMONIA	mg/kg											
CYANIDE	mg/kg											

Notes:
mg/kg - milligrams per kilogram [parts per million (PPM)]
Metals analyzed using methods SW6010, SW7196, SW7471.
Cyanide analyzed using method SW9012.
Ammonia analyzed using Method E350.2

TA[illegible]-4

Summary of Laboratory Analytical Data for Soil

Pesticides and PCBs

Quanta Resources Site

Edgewater, New Jersey

Parameter Name	Field Sample ID Location Sample Date Sample Depth Units	SS-01A-001 SB-01A 12/11/2005 1-1.5 ft	SB-01A-003* SB-01A 12/11/2005 9-10 Ft	SB-01A-004 SB-01A 12/11/2005 14-15 ft	SB-02B-003 SB-02B 8/18/2005 9.5-10 Ft	SB-02B-004 SB-02B 8/18/2005 29-30 Ft	SB-03C-002 SB-03C 8/22/2005 3.5-4 ft	SB-03C-003 SB-03C 8/22/2005 11-12 ft	SB-03C-004 SB-03C 8/22/2005 21-22 ft	SS-04D-001 SB-04D 12/10/2005 1.0-1.5 ft	SB-04D-002 SB-04D 12/10/2005 3-3.5 ft	SB-04D-003* SB-04D 12/10/2005 14-15 ft	SB-04D-004 SB-04D 12/10/2005 29.5-30 ft	SB-06F-002 SB-06F 8/2/2005 1.5-2 ft	SB-06F-004 SB-06F 8/2/2005 23-24 ft	SB-07G-003 SB-07G 8/17/2005 16.5-17 ft	SB-07G-004 SB-07G 8/17/2005 23-24 ft	SB-08H-002 SB-08H 10/9/2005 1-1.5 ft
4,4'-DDD	mg/kg																	
4,4'-DDE	mg/kg																	
4,4'-DDT	mg/kg																	
ALDRIN	mg/kg																	
ALPHA-BHC	mg/kg																	
ALPHA-CHLORDANE	mg/kg																	
BETA-BHC	mg/kg																	
BETA-CHLORDANE	mg/kg																	
DELTA-BHC	mg/kg																	
DIELDRIN	mg/kg																	
ENDOSULFAN I	mg/kg																	
ENDOSULFAN II	mg/kg																	
ENDOSULFAN SULFATE	mg/kg																	
ENDRIN	mg/kg																	
ENDRIN ALDEHYDE	mg/kg																	
ENDRIN KETONE	mg/kg																	
GAMMA-BHC (LINDANE)	mg/kg																	
HEPTACHLOR	mg/kg																	
HEPTACHLOR EPOXIDE	mg/kg																	
METHOXYCHLOR	mg/kg																	
TOXAPHENE	mg/kg																	
AROCLOR-1016	mg/kg	0.029U	0.1U	0.077U	0.065U	0.021U	0.037U	0.02U	0.021U	0.02U	0.02U	0.02U	0.02U	0.02U	0.02U	0.02U	0.021U	0.039U
AROCLOR-1221	mg/kg	0.029U	0.1U	0.077U	0.065U	0.021U	0.037U	0.02U	0.021U	0.02U	0.02U	0.02U	0.02U	0.02U	0.02U	0.02U	0.021U	0.039U
AROCLOR-1232	mg/kg	0.029U	0.1U	0.077U	0.065U	0.021U	0.037U	0.02U	0.021U	0.02U	0.02U	0.02U	0.02U	0.02U	0.02U	0.02U	0.021U	0.039U
AROCLOR-1242	mg/kg	0.029U	0.1U	0.077U	0.065U	0.021U	0.037U	0.02U	0.021U	0.02U	0.02U	0.02U	0.02U	0.02U	0.02U	0.02U	0.021U	0.039U
AROCLOR-1248	mg/kg	0.029U	0.1U	0.077U	0.065U	0.021U	0.037U	0.02U	0.021U	0.02U	0.02U	0.02U	0.02U	0.02U	0.02U	0.02U	0.021U	0.039U
AROCLOR-1254	mg/kg	0.029U	0.1U	0.51	0.065U	0.021U	0.037U	0.02U	0.021U	0.02U	0.02U	0.02U	0.02U	0.02U	0.02U	0.02U	0.021U	0.047
AROCLOR-1260	mg/kg	0.029U	0.37	0.12	0.065U	0.021U	0.037U	0.02U	0.021U	0.02U	0.02U	0.02U	0.02U	0.0073J	0.02U	0.02U	0.021U	0.039U

Notes:
mg/kg - milligrams per kilogram [parts per million (PPM)]
Pesticides analyzed using method SW8081.
Polychlorinated biphenyls (PCBs) analyzed for using method SW8082.

TABLE F-4
Summary of Laboratory Analytical Data for Soil
Pesticides and PCBs
Quanta Resources Site
Edgewater, New Jersey

Parameter Name	Field Sample ID Location Sample Date Sample Depth Units	SB-08H-003 SB-08H 10/9/2005 8.5-9 ft	SB-08H-004 SB-08H 10/9/2005 24-25 ft	SB-09I-002 SB-09I 8/18/2005 0.8-1.3 ft	SB-09I-003 SB-09I 8/18/2005 9.5-10 ft	SB-09I-004 SB-09I 8/18/2005 27.5-28 ft	SS-10J-001 SB-10J 8/23/2005 0-0.16 ft	SB-10J-003 SB-10J 8/23/2005 3-4 ft	SB-10J-004 SB-10J 8/23/2005 25.5-26 Ft	SS-11K-001 SB-11K 8/23/2005 0-0.16 ft	SB-11K-002 SB-11K 8/23/2005 1.5-2 ft	SB-11K-003 SB-11K 8/23/2005 4.5-5 ft	SB-11K-004 SB-11K 8/23/2005 23.2-24 ft	SS-12L-001 SB-12L 10/25/2005 0-0.16 ft	SB-12L-003 SB-12L 10/25/2005 22.5-23 ft	SB-12L-004 SB-12L 10/25/2005 29.5-30 ft	SS-13M-001 SB-13M 8/3/2005 0-1 ft	SB-13M-002 SB-13M 8/3/2005 1-2 Ft	SB-13M-004 SB-13M 8/3/2005 11-12 Ft
4,4'-DDD	mg/kg																		
4,4'-DDE	mg/kg																		
4,4'-DDT	mg/kg																		
ALDRIN	mg/kg																		
ALPHA-BHC	mg/kg																		
ALPHA-CHLORDANE	mg/kg																		
BETA-BHC	mg/kg																		
BETA-CHLORDANE	mg/kg																		
DELTA-BHC	mg/kg																		
DIELDRIN	mg/kg																		
ENDOSULFAN I	mg/kg																		
ENDOSULFAN II	mg/kg																		
ENDOSULFAN SULFATE	mg/kg																		
ENDRIN	mg/kg																		
ENDRIN ALDEHYDE	mg/kg																		
ENDRIN KETONE	mg/kg																		
GAMMA-BHC (LINDANE)	mg/kg																		
HEPTACHLOR	mg/kg																		
HEPTACHLOR EPOXIDE	mg/kg																		
METHOXYCHLOR	mg/kg																		
TOXAPHENE	mg/kg																		
AROCLOR-1016	mg/kg	0.05U	0.02U	0.18U	0.046U	0.021U	0.097U	0.063U	0.022U	0.018U	0.019U	0.1U	0.021U	0.02U	0.021U	0.021U	0.21U	0.019U	0.032U
AROCLOR-1221	mg/kg	0.05U	0.02U	0.18U	0.046U	0.021U	0.097U	0.063U	0.022U	0.018U	0.019U	0.1U	0.021U	0.02U	0.021U	0.021U	0.21U	0.019U	0.032U
AROCLOR-1232	mg/kg	0.05U	0.02U	0.18U	0.046U	0.021U	0.097U	0.063U	0.022U	0.018U	0.019U	0.1U	0.021U	0.02U	0.021U	0.021U	0.21U	0.019U	0.032U
AROCLOR-1242	mg/kg	0.05U	0.02U	0.81	0.046U	0.021U	0.097U	0.063U	0.022U	0.051	0.019U	0.1U	0.021U	0.02U	0.021U	0.021U	0.21U	0.019U	0.032U
AROCLOR-1248	mg/kg	0.05U	0.02U	0.18U	0.046U	0.021U	0.77J	0.063U	0.022U	0.018U	0.019U	0.1U	0.021U	0.02U	0.021U	0.021U	0.21U	0.019U	0.032U
AROCLOR-1254	mg/kg	0.05U	0.02U	0.18U	0.046U	0.021U	0.29J	0.063U	0.022U	0.065	0.09	0.1U	0.021U	0.046J	0.021U	0.021U	0.21U	0.019U	0.032U
AROCLOR-1260	mg/kg	0.05U	0.02U	1.6	0.036J	0.021U	0.15	0.044J	0.022U	0.027	0.025	0.1U	0.021U	0.072J	0.021UJ	0.021UJ	0.1J	0.019U	0.032U

Notes:
mg/kg - milligrams per kilogram [parts per million (PPM)]
Pesticides analyzed using method SW8081.
Polychlorinated biphenyls (PCBs) analyzed for using method SW8082.

TA[illegible]F-4

Summary of Laboratory Analytical Data for Soil

Pesticides and PCBs

Quanta Resources Site

Edgewater, New Jersey

Parameter Name	Field Sample ID Location Sample Date Sample Depth Units	SS-14N-001 SB-14N 10/24/2005 0-0.16 ft	SB-14N-002 SB-14N 10/24/2005 0.16-0.5 ft	SB-14N-004 SB-14N 10/24/2005 22.5-23 ft	SS-15D-001 SB-15D 10/25/2005 0-0.16 Ft	SB-15D-003 SB-15D 10/25/2005 7-7.5 ft	SB-15D-004 SB-15D 10/25/2005 28.5-29 ft	SS-16P-001 SB-16P 11/9/2005 0-0.16 Ft	SB-16P-003 SB-16P 11/15/2005 16.5-17 ft	SB-16P-004 SB-16P 11/15/2005 26-27 ft	SS-17Q-001 SB-17Q 12/10/2005 0.3-0.5 ft	SB-17Q-002 SB-17Q 12/10/2005 4-5 Ft	SB-17Q-003* SB-17Q 12/10/2005 9-10 ft	SB-17Q-004 SB-17Q 12/10/2005 27-28 ft	SS-18R-001 SB-18R 11/10/2005 0-0.16 Ft	SB-18R-004 SB-18R 11/18/2005 26-26.5 ft	SS-101DS-001 SB-101DS 8/30/2005 0-0.16 ft	SB-101DS-002 SB-101DS 8/30/2005 3.5-4 ft
4,4'-DDD	mg/kg																0.036U	0.0077U
4,4'-DDE	mg/kg																0.036U	0.0077U
4,4'-DDT	mg/kg																0.036U	0.0077U
ALDRIN	mg/kg																0.019U	0.004U
ALPHA-BHC	mg/kg																0.019U	0.004U
ALPHA-CHLORDANE	mg/kg																19U	4U
BETA-BHC	mg/kg																0.019U	0.004U
BETA-CHLORDANE	mg/kg																0.11U	0.023U
DELTA-BHC	mg/kg																0.023U	0.0049U
DIELDRIN	mg/kg																0.036U	0.0077U
ENDOSULFAN I	mg/kg																0.019U	0.004U
ENDOSULFAN II	mg/kg																0.036U	0.0077U
ENDOSULFAN SULFATE	mg/kg																0.036U	0.0077U
ENDRIN	mg/kg																0.036U	0.0077U
ENDRIN ALDEHYDE	mg/kg																0.036U	0.0077U
ENDRIN KETONE	mg/kg																0.036U	0.0077U
GAMMA-BHC (LINDANE)	mg/kg																0.019U	0.004U
HEPTACHLOR	mg/kg																0.019U	0.004U
HEPTACHLOR EPOXIDE	mg/kg																0.019U	0.004U
METHOXYCHLOR	mg/kg																0.19U	0.04U
TOXAPHENE	mg/kg																1.2U	0.26U
AROCLOR-1016	mg/kg	0.018U	0.018U	0.021U	0.02U	0.019UJ	0.021U	0.019U	0.021U	0.02U	0.09U	0.022U	0.093U	0.021U	0.04U	0.022U	0.82U	0.17U
AROCLOR-1221	mg/kg	0.018U	0.018U	0.021U	0.02U	0.019UJ	0.021U	0.019U	0.021U	0.02U	0.09U	0.022U	0.093U	0.021U	0.04U	0.022U	0.36U	0.077U
AROCLOR-1232	mg/kg	0.018U	0.018U	0.021U	0.02U	0.019UJ	0.021U	0.019U	0.021U	0.02U	0.09U	0.022U	0.093U	0.021U	0.04U	0.022U	0.53U	0.11U
AROCLOR-1242	mg/kg	0.018U	0.018U	0.021U	0.02U	0.019UJ	0.021U	0.019U	0.021U	0.02U	0.09U	0.022U	0.093U	0.021U	0.04U	0.022U	0.36U	0.077U
AROCLOR-1248	mg/kg	0.018U	0.018U	0.021U	0.02U	0.019UJ	0.021U	0.019U	0.021U	0.02U	0.09U	0.022U	0.093U	0.021U	0.04U	0.022U	1.2U	0.26U
AROCLOR-1254	mg/kg	0.06	0.033	0.021U	0.067	0.0099J	0.021U	0.019U	0.021U	0.02U	0.2	0.022U	0.093U	0.021U	0.37	0.022U	0.36U	0.077U
AROCLOR-1260	mg/kg	0.031J	0.042J	0.021UJ	0.018J	0.02J	0.021UJ	0.023J	0.021U	0.02U	0.11	0.022	0.093U	0.021U	0.11J	0.022U	1.2U	0.26U

Notes:
mg/kg - milligrams per kilogram (parts per million (PPM))
Pesticides analyzed using method SW8081.
Polychlorinated biphenyls (PCBs) analyzed for using method SW8082.

TABLE F-4
Summary of Laboratory Analytical Data for Soil
Pesticides and PCBs
Quanta Resources Site
Edgewater, New Jersey

Parameter Name	Field Sample ID Location Sample Date Sample Depth Units	SB-101DS-003 SB-101DS 8/30/2005 16.2-16.7 ft	SB-101DS-004 SB-101DS 8/31/2005 25-25.5 ft	SB-101DS-005 SB-101DS 9/1/2005 47-47.5 ft	SB-102B-002 SB-102B 7/25/2005 2.67-3.67 ft	SB-102B-004 SB-102B 7/26/2005 24-26 Ft	SB-103DS-002 SB-103DS 8/26/2005 1.4-1.9 Ft	SB-103DS-003 SB-103DS 8/26/2005 5-6 ft	SB-103DS-004 SB-103DS 8/26/2005 21.5-22 ft	SB-103DS-005 SB-103DS 8/29/2005 51-52 ft	SS-105A-001 SB-105A 8/22/2005 3.4-3.6 ft	SB-082205-DUP1 SB-105A 8/22/2005 3.4-3.6 ft	SB-105A-002 SB-105A 8/22/2005 3.6-3.9 ft	SB-105A-003 SB-105A 8/22/2005 9-10 ft	SB-105A-004 SB-105A 8/22/2005 17-18 ft	SS-106A-001 SB-106A 11/9/2005 0-0.16 Ft
4,4'-DDD	mg/kg	0.0083U	0.00039U				0.0041U	0.0084U	0.017J							
4,4'-DDE	mg/kg	0.0083U	0.00039U				0.0041U	0.0084U	0.0079U							
4,4'-DDT	mg/kg	0.0083U	0.00039U				0.0041U	0.0084U	0.0079U							
ALDRIN	mg/kg	0.0043U	0.0002U				0.0021U	0.0043U	0.0041U							
ALPHA-BHC	mg/kg	0.0043U	0.0002U				0.0021U	0.0043U	0.0041U							
ALPHA-CHLORDANE	mg/kg	4.3U	0.2U				2.1U	4.3U	4.1U							
BETA-BHC	mg/kg	0.0043U	0.0002U				0.0021U	0.0043U	0.0041U							
BETA-CHLORDANE	mg/kg	0.025U	0.0012U				0.012U	0.025U	0.024U							
DELTA-BHC	mg/kg	0.0053U	0.00025U				0.0026U	0.0053U	0.0051U							
DIELDRIN	mg/kg	0.0083U	0.00039U				0.0041U	0.0084U	0.0079U							
ENDOSULFAN I	mg/kg	0.0043U	0.0002U				0.0021U	0.0043U	0.0041U							
ENDOSULFAN II	mg/kg	0.0083U	0.00039U				0.0041U	0.0084U	0.0079U							
ENDOSULFAN SULFATE	mg/kg	0.0083U	0.00039U				0.0041U	0.0084U	0.0093J							
ENDRIN	mg/kg	0.0083U	0.00039U				0.0041U	0.0084U	0.0079U							
ENDRIN ALDEHYDE	mg/kg	0.0083U	0.00039U				0.0041U	0.0084U	0.0079U							
ENDRIN KETONE	mg/kg	0.0083U	0.00039U				0.0041U	0.0084U	0.0079U							
GAMMA-BHC (LINDANE)	mg/kg	0.0043U	0.0002U				0.0021U	0.0043U	0.0041U							
HEPTACHLOR	mg/kg	0.0043U	0.0002U				0.0021U	0.0043U	0.0041U							
HEPTACHLOR EPOXIDE	mg/kg	0.0043U	0.0002U				0.0021U	0.0043U	0.0041U							
METHOXYCHLOR	mg/kg	0.043U	0.002U				0.021UJ	0.043UJ	0.041UJ							
TOXAPHENE	mg/kg	0.28U	0.013U				0.14U	0.28U	0.26U							
AROCLOR-1016	mg/kg	0.19U	0.0086U	1.9U	0.091U	0.021U	0.092U	0.19U	0.18U	0.02U	0.02U	0.02U	0.02UJ	0.022UJ	0.027U	0.02U
AROCLOR-1221	mg/kg	0.083U	0.0039U	1.9U	0.091U	0.021U	0.041U	0.084U	0.079U	0.02U	0.02U	0.02U	0.02UJ	0.022UJ	0.027U	0.02U
AROCLOR-1232	mg/kg	0.12U	0.0057U	1.9U	0.091U	0.021U	0.059U	0.12U	0.12U	0.02U	0.02U	0.02U	0.02UJ	0.022UJ	0.027U	0.02U
AROCLOR-1242	mg/kg	0.083U	0.0039U	1.9U	0.34	0.021U	0.041U	0.084U	0.079U	0.02U	0.02U	0.02U	0.02UJ	0.022UJ	0.027U	0.02U
AROCLOR-1248	mg/kg	0.28U	0.013U	1.9U	0.091U	0.021U	0.14U	0.28U	0.26U	0.02U	0.02U	0.02U	0.02UJ	0.022UJ	0.027U	0.02U
AROCLOR-1254	mg/kg	0.083U	0.0039U	1.9U	0.19	0.021U	0.041U	0.084U	0.079U	0.02U	0.02U	0.02U	0.02UJ	0.014J	0.027U	0.13
AROCLOR-1260	mg/kg	0.28U	0.013U	16	0.22	0.021U	0.14U	0.28U	0.26U	0.02U	0.013J	0.02U	0.02UJ	0.022UJ	0.027U	0.072

Notes:
mg/kg - milligrams per kilogram (parts per million (PPM))
Pesticides analyzed using method SW8081.
Polychlorinated biphenyls (PCBs) analyzed for using method SW8082.

TA[illegible]-4
Summary of Laboratory Analytical Data for Soil
Pesticides and PCBs
Quanta Resources Site
Edgewater, New Jersey

Parameter Name	Field Sample ID Location Sample Date Sample Depth Units	SB-106A-003 SB-106A 11/9/2005 11.5-12 Ft	SS-107DS-001 SB-107DS 11/16/2005 0-0.16 ft	SB-107DS-002 SB-107DS 11/16/2005 3.5-4 ft	SB-107DS-003 SB-107DS 11/16/2005 19.5-20 ft	SB-107DS-004 SB-107DS 11/16/2005 24-25 ft	SB-107DS-005 SB-107DS 11/17/2005 61-61.5 ft	SS-109A-001 SB-109A 11/8/2005 0-0.16	SB-109A-002 SB-109A 11/8/2005 4.5-5 Ft	SS-111A-001 SB-111A 8/4/2005 1.7-2 ft	SB-111A-002 SB-111A 8/4/2005 3.8-4 ft	SB-111A-003 SB-111A 8/4/2005 10.7-12 ft	SB-111A-004 SB-111A 8/4/2005 29.5-30 ft	SB-112A-003 SB-112A 8/15/2005 1.8-2 ft	SB-116B-002 SB-116B 8/16/2005 1.75-2 ft	SB-116B-003 SB-116B 8/16/2005 4.5-5 ft
4,4'-DDD	mg/kg									0.038U	0.039U	0.0026J	0.011U	0.56J		
4,4'-DDE	mg/kg									0.038U	0.013J	0.01U	0.011U	1.1J		
4,4'-DDT	mg/kg									0.023J	0.047	0.01U	0.011U	1.9U		
ALDRIN	mg/kg									0.018U	0.019U	0.0051U	0.0054U	0.94U		
ALPHA-BHC	mg/kg									0.018U	0.019U	0.0051U	0.0054U	0.94U		
ALPHA-CHLORDANE	mg/kg									18U	19U	5.1U	5.4U	940U		
BETA-BHC	mg/kg									0.018U	0.019U	0.0051U	0.0054U	0.94U		
BETA-CHLORDANE	mg/kg									0.067U	0.068U	0.018U	0.02U	3.4U		
DELTA-BHC	mg/kg									0.018U	0.019U	0.0051U	0.0054U	0.94U		
DIELDRIN	mg/kg									0.038U	0.039U	0.01U	0.011U	1.9U		
ENDOSULFAN I	mg/kg									0.018U	0.019U	0.0051U	0.0054U	0.94U		
ENDOSULFAN II	mg/kg									0.015J	0.012J	0.01U	0.011U	1.9U		
ENDOSULFAN SULFATE	mg/kg									0.038U	0.039U	0.01U	0.011U	1.9U		
ENDRIN	mg/kg									0.038U	0.039U	0.01U	0.011U	1.9U		
ENDRIN ALDEHYDE	mg/kg									0.038U	0.0092J	0.01U	0.011U	1.9U		
ENDRIN KETONE	mg/kg										0.039U	0.01U	0.011U	1.9U		
GAMMA-BHC (LINDANE)	mg/kg									0.018U	0.019U	0.0051U	0.0054U	0.94U		
HEPTACHLOR	mg/kg									0.018U	0.019U	0.0051U	0.0054U	0.35J		
HEPTACHLOR EPOXIDE	mg/kg									0.018U	0.019U	0.0051U	0.0054U	0.94U		
METHOXYCHLOR	mg/kg									0.18U	0.19U	0.051U	0.054U	9.4U		
TOXAPHENE	mg/kg									0.73U	0.75U	0.2U	0.21U	37U		
AROCLOR-1016	mg/kg	0.029U	0.019U	0.022U	0.021U	0.021U	0.022U	0.019U	0.019U	0.38U	0.39U	0.1U	0.11U	19U	0.02U	0.11U
AROCLOR-1221	mg/kg	0.029U	0.019U	0.022U	0.021U	0.021U	0.022U	0.019U	0.019U	0.38U	0.39U	0.1U	0.11U	19U	0.02U	0.11U
AROCLOR-1232	mg/kg	0.029U	0.019U	0.022U	0.021U	0.021U	0.022U	0.019U	0.019U	0.38U	0.39U	0.1U	0.11U	19U	0.02U	0.11U
AROCLOR-1242	mg/kg	0.029U	0.019U	0.022U	0.021U	0.021U	0.022U	0.019U	0.019U	0.38U	0.39U	0.1U	0.11U	19U	0.02U	0.11U
AROCLOR-1248	mg/kg	0.029U	0.019U	0.18	0.021U	0.021U	0.022U	0.019U	0.043	0.73U	0.75U	0.2U	0.21U	37U	0.02U	0.11U
AROCLOR-1254	mg/kg	0.0094J	0.023	0.21	0.0071J	0.021U	0.022U	0.017J	0.062	0.38U	0.39U	0.1U	0.11U	19U	0.02U	0.11U
AROCLOR-1260	mg/kg	0.029UJ	0.02	0.12	0.021U	0.021U	0.022U	0.014J	0.041J	0.73U	0.75U	0.2U	0.21U	37U	0.021J	0.062J

Notes:
mg/kg - milligrams per kilogram [parts per million (PPM)]
Pesticides analyzed using method SW8081.
Polychlorinated biphenyls (PCBs) analyzed for using method SW8082.

TABLE F-4
Summary of Laboratory Analytical Data for Soil
Pesticides and PCBs
Quanta Resources Site
Edgewater, New Jersey

Parameter Name	Field Sample ID Location Sample Date Sample Depth Units	SB-116B-004 SB-116B 8/16/2005 14.5-15 ft	SB-117B-002 SB-117B 7/26/2005 4-5.5 ft	SB-117B-004 SB-117B 7/26/2005 15-18 ft	SB-072605-D1 SB-117B 7/26/2005 15-18 Ft	SB-118B-002 SB-118B 7/25/2005 6.5-7 Ft	SB-118B-004 SB-118B 7/25/2005 16-17 ft	SB-119B-003 SB-119B 10/8/2005 9.5-10 ft	SB-119B-004 SB-119B 10/8/2005 14.5-15 ft	SS-120B-001 SB-120B 11/11/2005 0-0.16 Ft	SB-120B-002 SB-120B 11/11/2005 3.5-4 Ft	SB-120B-004 SB-120B 11/11/2005 16-19 Ft	SS-115B-001 SB-122A 11/10/2005 0-0.16 Ft	SB-111005 SB-122A 11/10/2005 0-0.16 Ft
4,4'-DDD	mg/kg													
4,4'-DDE	mg/kg													
4,4'-DDT	mg/kg													
ALDRIN	mg/kg													
ALPHA-BHC	mg/kg													
ALPHA-CHLORDANE	mg/kg													
BETA-BHC	mg/kg													
BETA-CHLORDANE	mg/kg													
DELTA-BHC	mg/kg													
DIELDRIN	mg/kg													
ENDOSULFAN I	mg/kg													
ENDOSULFAN II	mg/kg													
ENDOSULFAN SULFATE	mg/kg													
ENDRIN	mg/kg													
ENDRIN ALDEHYDE	mg/kg													
ENDRIN KETONE	mg/kg													
GAMMA-BHC (LINDANE)	mg/kg													
HEPTACHLOR	mg/kg													
HEPTACHLOR EPOXIDE	mg/kg													
METHOXYCHLOR	mg/kg													
TOXAPHENE	mg/kg													
AROCLOR-1016	mg/kg	0.023U	0.049U	0.028U	0.02U	0.068U	0.053UJ	0.11U	0.03U	0.041U	0.065U	0.09U	0.02U	0.02U
AROCLOR-1221	mg/kg	0.023U	0.049U	0.028U	0.02U	0.068U	0.053UJ	0.11U	0.03U	0.041U	0.065U	0.09U	0.02U	0.02U
AROCLOR-1232	mg/kg	0.023U	0.049U	0.028U	0.02U	0.068U	0.053UJ	0.11U	0.03U	0.041U	0.065U	0.09U	0.02U	0.02U
AROCLOR-1242	mg/kg	0.023U	0.049U	0.028U	0.02U	0.068U	0.053UJ	0.11U	0.03U	0.041U	0.065U	0.09U	0.02U	0.02U
AROCLOR-1248	mg/kg	0.023U	0.049U	0.028U	0.02U	0.068U	0.053UJ	0.11U	0.03U	0.041U	0.065U	0.09U	0.02U	0.02U
AROCLOR-1254	mg/kg	0.023U	0.049U	0.028U	0.02U	0.068U	0.053UJ	0.11U	0.03U	0.25	0.093	0.09U	0.02U	0.042
AROCLOR-1260	mg/kg	0.023U	0.049U	0.028U	0.02U	0.068U	0.053UJ	0.09J	0.03U	0.18J	0.087	0.09U	0.029J	0.024J

Notes:
mg/kg - milligrams per kilogram (parts per million (PPM))
Pesticides analyzed using method SW8081.
Polychlorinated biphenyls (PCBs) analyzed for using method SW8082.

Appendix G

Appendix G
Summary of Laboratory Analytical Groundwater Data for Constituents Exceeding Screening Criteria

TAB[illegible]-1
Summary of Laboratory Analytical Data for Groundwater
SVOCs
Quanta Resources Site
Edgewater, New Jersey

Parameter Name	Field Sample ID	MW-101A-111705	MW-101DS-111705	MW-102-111505	MW-102A-111805	MW-102B-111505	MW-103-111805	MW-103A-111705
	Location	MW-101A	MW-101DS	MW-102	MW-102A	MW-102B	MW-103	MW-103A
	Sample Date	11/17/2005	11/17/2005	11/15/2005	11/18/2005	11/15/2005	11/18/2005	11/17/2005
	Units							
1,1'-BIPHENYL	mg/l	0.005U	0.005U	0.11	0.18	0.11	0.14	0.11
2,2'-OXYBIS(1-CHLOROPROPANE)	ug/l	5U	5U	5U	48U	5U	48U	5U
2,4,5-TRICHLOROPHENOL	ug/l	5U	5U	5U	48U	5U	48U	5U
2,4,6-TRICHLOROPHENOL	ug/l	5U	5U	5U	48U	5U	48U	5U
2,4-DICHLOROPHENOL	ug/l	5U	5U	5U	48U	5U	48U	5U
2,4-DIMETHYLPHENOL	ug/l	9U	9U	4300	7400	930J	930	120
2,4-DINITROPHENOL	ug/l	57U	57U	57U	580U	57U	580U	57U
2,4-DINITROTOLUENE	ug/l	5U	5U	5U	48U	5U	48U	5U
2,6-DINITROTOLUENE	ug/l	5U	5U	5U	48U	5U	48U	5U
2-CHLORONAPHTHALENE	ug/l	5U	5U	5U	48U	5U	48U	5U
2-CHLOROPHENOL	ug/l	5U	5U	5U	48U	5U	48U	5U
2-METHYLNAPHTHALENE	ug/l	5U	5U	1100	1300	770	1400	1200
2-METHYLPHENOL	ug/l	5U	5U	2800	4200	200J	270	97
2-NITROANILINE	ug/l	5U	5U	5U	48U	5U	48U	5U
2-NITROPHENOL	ug/l	5U	5U	5U	48U	5U	48U	5U
3,3'-DICHLOROBENZIDINE	ug/l	5U	5U	5U	48U	5U	48U	5U
3-NITROANILINE	ug/l	5U	5U	5U	48U	5U	48U	5U
4,6-DINITRO-2-METHYLPHENOL	ug/l	14U	14U	14U	140U	14U	140U	14U
4-BROMOPHENYL PHENYL ETHER	ug/l	5U	5U	5U	48U	5U	48U	5U
4-CHLORO-3-METHYLPHENOL	ug/l	5U	5U	5U	48U	5U	48U	5U
4-CHLOROANILINE	ug/l	5U	5U	5U	48U	5U	48U	5U
4-CHLOROPHENYL PHENYL ETHER	ug/l	5U	5U	5U	48U	5U	48U	5U
4-METHYLPHENOL	ug/l	5U	5U	2800	5800	460J	230	12
4-NITROANILINE	ug/l	5U	5U	5U	48U	5U	48U	5U
4-NITROPHENOL	ug/l	28U	28U	29U	290U	28U	290U	29U
ACENAPHTHENE	ug/l	5U	5U	180	290	180J	290	180
ACENAPHTHYLENE	ug/l	5U	5U	140	170	61	49	6
ACETOPHENONE	mg/l	0.005U	0.005U	0.005U	0.048U	0.005U	0.048U	0.005U
ANTHRACENE	ug/l	5U	5U	46	42J	17	27J	15
ATRAZINE	mg/l	0.005U	0.005U	0.005U	0.048U	0.005U	0.048U	0.005U
BENZALDEHYDE	mg/l	0.005U	0.005U	0.005U	0.048U	0.005U	0.048U	0.005U
BENZO(A)ANTHRACENE	ug/l	5U	5U	18	48U	5U	48U	5U
BENZO(A)PYRENE	ug/l	5U	5U	16	48U	5U	48U	5U

Notes:
mg/l - milligrams per liter [parts per million (PPM)]
ug/l - micrograms per liter [parts per billion (PPB)]
Semi-volatile organic compounds (SVOCs) analyzed using method SW8270.

TABLE G-1
Summary of Laboratory Analytical Data for Groundwater
SVOCs
Quanta Resources Site
Edgewater, New Jersey

Parameter Name	Field Sample ID	MW-101A-111705	MW-101DS-111705	MW-102-111505	MW-102A-111805	MW-102B-111505	MW-103-111805	MW-103A-111705
	Location	MW-101A	MW-101DS	MW-102	MW-102A	MW-102B	MW-103	MW-103A
	Sample Date	11/17/2005	11/17/2005	11/15/2005	11/18/2005	11/15/2005	11/18/2005	11/17/2005
	Units							
BENZO(B)FLUORANTHENE	ug/l	5U	5U	17	48U	5U	48U	5U
BENZO(G,H,I)PERYLENE	ug/l	5U	5U	9	48U	5U	48U	5U
BENZO(G,H,I)PERYLENE	ug/l	5U	5U	9	48U	5U	48U	5U
BENZO(K)FLUORANTHENE	ug/l	5U	5U	6	48U	5U	48U	5U
BIS(2-CHLOROETHOXY)METHANE	ug/l	5U	5U	5U	48U	5U	48U	5U
BIS(2-CHLOROETHYL)ETHER	ug/l	5U	5U	5U	48U	5U	48U	5U
BUTYLBENZYL PHTHALATE	ug/l	5U	5U	5U	48U	5U	48U	5U
CAPROLACTAM	mg/l	0.014U	0.014U	0.014U	0.14U	0.014U	0.14U	0.014U
CARBAZOLE	ug/l	5U	5U	260	380	180J	300	74
CHRYSENE	ug/l	5U	5U	15	48U	5U	48U	5U
DIBENZO(A,H)ANTHRACENE	ug/l	5U	5U	2J	48U	5U	48U	5U
DIBENZOFURAN	ug/l	5U	5U	160	240	120J	180	65
DIETHYL PHTHALATE	ug/l	5U	5U	5U	48U	5U	48U	5U
DIMETHYL PHTHALATE	ug/l	5U	5U	5U	48U	5U	48U	5U
DI-N-BUTYL PHTHALATE	ug/l	5U	5U	5U	48U	5U	48U	5U
DI-N-OCTYL PHTHALATE	ug/l	5U	5U	5U	48U	5U	48U	5U
FLUORANTHENE	ug/l	1J	5U	61	30J	10	19J	6
FLUORENE	ug/l	5U	5U	140	170	110J	140	92
HEXACHLOROBENZENE	ug/l	5U	5U	5U	48U	5U	48U	5U
HEXACHLOROBUTADIENE	ug/l	5U	5U	5U	48U	5U	48U	5U
HEXACHLOROCYCLOPENTADIENE	ug/l	14U	14U	14U	140UJ	14U	140UJ	14U
HEXACHLOROETHANE	ug/l	5U	5U	5U	48U	5U	48U	5U
INDENO(1,2,3-CD)PYRENE	ug/l	5U	5U	7	48U	5U	48U	5U
ISOPHORONE	ug/l	5U	5U	5U	48U	5U	48U	5U
NAPHTHALENE	ug/l	5U	2J	11000	16000	10000	15000	12000
NITROBENZENE	ug/l	5U	5U	5U	48U	5U	48U	5U
N-NITROSO-DI-N-PROPYLAMINE	ug/l	5U	5U	5U	48U	5U	48U	5U
N-NITROSODIPHENYLAMINE	ug/l	5U	5U	5U	48U	5U	48U	5U
PENTACHLOROPHENOL	ug/l	14U	14U	14U	140U	14U	140U	14U
PHENANTHRENE	ug/l	5U	5U	210	190	110J	130	83
PHENOL	ug/l	5U	5U	1800	3100	46	40J	5U
PYRENE	ug/l	1J	5U	54	25J	8	15J	5J

Notes:
mg/l - milligrams per liter [parts per million (PPM)]
ug/l - micrograms per liter [parts per billion (PPB)]
Semi-volatile organic compounds (SVOCs) analyzed using method SW8270.

TAB[illegible]-1
Summary of Laboratory Analytical Data for Groundwater
SVOCs
Quanta Resources Site
Edgewater, New Jersey

Parameter Name	Field Sample ID	MW-103DS-111705	MW-105-112105	MW-105A-112105	MW-106-120605	DUP-120605-GW	MW-106A-120605	MW-107-120605	MW-107A-120505
	Location	MW-103DS	MW-105A	MW-105A	MW-106	MW-106A	MW-106A	MW-107	MW-107A
	Sample Date	11/17/2005	11/21/2005	11/21/2005	12/6/2005	12/6/2005	12/6/2005	12/6/2005	12/5/2005
	Units								
1,1'-BIPHENYL	mg/l	0.001J	0.13	0.015	0.005U	0.005U	0.005U	0.12	0.17
2,2'-OXYBIS(1-CHLOROPROPANE)	ug/l	5U	5U	5U	5U	5U	5U	5U	5U
2,4,5-TRICHLOROPHENOL	ug/l	5U	5U	5U	5U	5U	5U	5U	5U
2,4,6-TRICHLOROPHENOL	ug/l	5U	5U	5U	5U	5U	5U	5U	5U
2,4-DICHLOROPHENOL	ug/l	5U	5U	5U	5U	5U	5U	5U	5U
2,4-DIMETHYLPHENOL	ug/l	10U	44	14	9U	10U	10U	72	470
2,4-DINITROPHENOL	ug/l	57U	57U	57U	57U	58U	59U	57U	57U
2,4-DINITROTOLUENE	ug/l	5U	5U	5U	5U	5U	5U	5U	5U
2,6-DINITROTOLUENE	ug/l	5U	5U	5U	5U	5U	5U	5U	5U
2-CHLORONAPHTHALENE	ug/l	5U	5U	5U	5U	5U	5U	5U	5U
2-CHLOROPHENOL	ug/l	5U	5U	5U	5U	5U	5U	5U	5U
2-METHYLNAPHTHALENE	ug/l	3J	870	310	5U	3J	3J	1400	1300
2-METHYLPHENOL	ug/l	5U	9	15	5U	5U	5U	11	41
2-NITROANILINE	ug/l	5U	5U	5U	5U	5U	5U	5U	5U
2-NITROPHENOL	ug/l	5U	5U	5U	5U	5U	5U	5U	5U
3,3'-DICHLOROBENZIDINE	ug/l	5U	5U	5U	5U	5U	5U	5U	5U
3-NITROANILINE	ug/l	5U	5U	5U	5U	5U	5U	5U	5U
4,6-DINITRO-2-METHYLPHENOL	ug/l	14U	14U	14U	14U	14U	15U	14U	14U
4-BROMOPHENYL PHENYL ETHER	ug/l	5U	5U	5U	5U	5U	5U	5U	5U
4-CHLORO-3-METHYLPHENOL	ug/l	5U	5U	5U	5U	5U	5U	5U	5U
4-CHLOROANILINE	ug/l	5U	5U	5U	5U	5U	5U	5U	5U
4-CHLOROPHENYL PHENYL ETHER	ug/l	5U	5U	5U	5U	5U	5U	5U	5U
4-METHYLPHENOL	ug/l	5U	7	5U	5U	6	7	13	69
4-NITROANILINE	ug/l	5U	5U	5U	5U	5U	5U	5U	5U
4-NITROPHENOL	ug/l	29U	28U	28U	28U	29U	29U	29U	28U
ACENAPHTHENE	ug/l	1J	370	140	5U	27	28	280	280
ACENAPHTHYLENE	ug/l	5U	5	4J	5U	5U	5U	30	31
ACETOPHENONE	mg/l	0.005U	0.005U	0.005U	0.005U	0.005U	0.005U	0.005U	0.005U
ANTHRACENE	ug/l	5U	31	23	5U	4J	4J	9	5U
ATRAZINE	mg/l	0.005U	0.005U	0.005U	0.005U	0.005U	0.005U	0.005U	0.005U
BENZALDEHYDE	mg/l	0.005U	0.005U	0.005U	0.005U	0.005U	0.005U	0.005U	0.005U
BENZO(A)ANTHRACENE	ug/l	5U	4J	2J	5U	5U	5U	2J	5U
BENZO(A)PYRENE	ug/l	5U	3J	5U	5U	5U	5U	5U	5U

Notes:
mg/l - milligrams per liter [parts per million (PPM)]
ug/l - micrograms per liter [parts per billion (PPB)]
Semi-volatile organic compounds (SVOCs) analyzed using method SW8270.

TABLE G-1
Summary of Laboratory Analytical Data for Groundwater
SVOCs
Quanta Resources Site
Edgewater, New Jersey

Parameter Name	Field Sample ID	MW-103DS-111705	MW-105-112105	MW-105A-112105	MW-106-120605	DUP-120605-GW	MW-106A-120605	MW-107-120605	MW-107A-120505
	Location	MW-103DS	MW-105A	MW-105A	MW-106	MW-106A	MW-106A	MW-107	MW-107A
	Sample Date	11/17/2005	11/21/2005	11/21/2005	12/6/2005	12/6/2005	12/6/2005	12/6/2005	12/5/2005
	Units								
BENZO(B)FLUORANTHENE	ug/l	5U	3J	1J	5U	5U	5U	1J	5U
BENZO(G,H,I)PERYLENE	ug/l	5U	1J	5U	5U	5U	5U	5U	5U
BENZO(G,H,I)PERYLENE	ug/l	5U	1J	5U	5U	5U	5U	5U	5U
BENZO(K)FLUORANTHENE	ug/l	5U	1J	5U	5U	5U	5U	5U	5U
BIS(2-CHLOROETHOXY)METHANE	ug/l	5U	5U	5U	5U	5U	5U	5U	5U
BIS(2-CHLOROETHYL)ETHER	ug/l	5U	5U	5U	5U	5U	5U	5U	5U
BUTYLBENZYL PHTHALATE	ug/l	5U	5U	5U	5U	5U	5U	5U	5U
CAPROLACTAM	mg/l	0.014U	0.014U	0.014U	0.014U	0.014U	0.015U	0.014U	0.014U
CARBAZOLE	ug/l	5U	460	200	5U	8	9	100	110
CHRYSENE	ug/l	5U	4J	2J	5U	5U	5U	2J	5U
DIBENZO(A,H)ANTHRACENE	ug/l	5U	5U	5U	5U	5U	5U	5U	5U
DIBENZOFURAN	ug/l	5U	260	97	5U	13	14	160	150
DIETHYL PHTHALATE	ug/l	5U	5U	5U	5U	5U	5U	5U	5U
DIMETHYL PHTHALATE	ug/l	5U	5U	5U	5U	5U	5U	5U	5U
DI-N-BUTYL PHTHALATE	ug/l	5U	5U	5U	5U	5U	5U	5U	5U
DI-N-OCTYL PHTHALATE	ug/l	5U	5U	5U	5U	5U	5U	5U	5U
FLUORANTHENE	ug/l	5U	29	18	5U	3J	3J	11	5U
FLUORENE	ug/l	2J	240	100	5U	15	17	120	110
HEXACHLOROBENZENE	ug/l	5U	5U	5U	5U	5U	5U	5U	5U
HEXACHLOROBUTADIENE	ug/l	5U	5U	5U	5U	5U	5U	5U	5U
HEXACHLOROCYCLOPENTADIENE	ug/l	14U	14U	14U	14U	14U	15U	14U	14U
HEXACHLOROETHANE	ug/l	5U	5U	5U	5U	5U	5U	5U	5U
INDENO(1,2,3-CD)PYRENE	ug/l	5U	1J	5U	5U	5U	5U	5U	5U
ISOPHORONE	ug/l	5U	5U	5U	5U	5U	5U	5U	5U
NAPHTHALENE	ug/l	10	4700	4400	5U	3J	4J	14000	10000
NITROBENZENE	ug/l	5U	5U	5U	5U	5U	5U	5U	5U
N-NITROSO-DI-N-PROPYLAMINE	ug/l	5U	5U	5U	5U	5U	5U	5U	5U
N-NITROSODIPHENYLAMINE	ug/l	5U	5U	5U	5U	5U	5U	5U	5U
PENTACHLOROPHENOL	ug/l	14U	14U	14U	14U	14U	15U	14U	14U
PHENANTHRENE	ug/l	3J	230	110	5U	22	23	77	15
PHENOL	ug/l	5U	5U	5U	5U	5U	5U	5U	10
PYRENE	ug/l	5U	22	13	5U	2J	2J	8	5U

Notes:
mg/l - milligrams per liter [parts per million (PPM)]
ug/l - micrograms per liter [parts per billion (PPB)]
Semi-volatile organic compounds (SVOCs) analyzed using method SW8270.

TAB[illegible]-1
Summary of Laboratory Analytical Data for Groundwater
SVOCs
Quanta Resources Site
Edgewater, New Jersey

Parameter Name	Field Sample ID	MW-108-120705	MW-109-120605	MW-111A-111605	DUP-111605-GW	MW-111B-111605	MW-112A-112105	MW-112B-111805
	Location	MW-108	MW-109	MW-111A	MW-111B	MW-111B	MW-112A	MW-112B
	Sample Date	12/7/2005	12/6/2005	11/16/2005	11/16/2005	11/16/2005	11/21/2005	11/18/2005
	Units							
1,1'-BIPHENYL	mg/l	0.005U	0.002J	0.005	0.005	0.005U	0.068	0.086
2,2'-OXYBIS(1-CHLOROPROPANE)	ug/l	5U	5U	5U	5U	5U	5U	48U
2,4,5-TRICHLOROPHENOL	ug/l	5U	5U	5U	5U	5U	5U	48U
2,4,6-TRICHLOROPHENOL	ug/l	5U	5U	5U	5U	5U	5U	48U
2,4-DICHLOROPHENOL	ug/l	5U	5U	5U	5U	5U	5U	48U
2,4-DIMETHYLPHENOL	ug/l	10U	10U	9U	9U	9U	1300	460
2,4-DINITROPHENOL	ug/l	57U	58U	57U	57U	57UJ	57U	570U
2,4-DINITROTOLUENE	ug/l	5U	5U	5U	5U	5U	5U	48U
2,6-DINITROTOLUENE	ug/l	5U	5U	5U	5U	5U	5U	48U
2-CHLORONAPHTHALENE	ug/l	5U	5U	5U	5U	5U	5U	48U
2-CHLOROPHENOL	ug/l	5U	5U	5U	5U	5U	5U	48U
2-METHYLNAPHTHALENE	ug/l	5U	14	6	6	5U	630	1000
2-METHYLPHENOL	ug/l	5U	5U	5U	5U	5U	790	63
2-NITROANILINE	ug/l	5U	5U	5U	5U	5U	5U	48U
2-NITROPHENOL	ug/l	5U	5U	5U	5U	5U	5U	48U
3,3'-DICHLOROBENZIDINE	ug/l	5U	5U	5U	5U	5U	5U	48U
3-NITROANILINE	ug/l	5U	5U	5U	5U	5U	5U	48U
4,6-DINITRO-2-METHYLPHENOL	ug/l	14U	14U	14U	14U	14U	14U	140U
4-BROMOPHENYL PHENYL ETHER	ug/l	5U	5U	5U	5U	5U	5U	48U
4-CHLORO-3-METHYLPHENOL	ug/l	5U	5U	5U	5U	5U	5U	48U
4-CHLOROANILINE	ug/l	5U	5U	5U	5U	5U	5U	48U
4-CHLOROPHENYL PHENYL ETHER	ug/l	5U	5U	5U	5U	5U	5U	48U
4-METHYLPHENOL	ug/l	5U	5U	5U	5U	5U	1400	83
4-NITROANILINE	ug/l	5U	5U	5U	5U	5U	5U	48U
4-NITROPHENOL	ug/l	29U	29U	28U	28U	28U	28U	290U
ACENAPHTHENE	ug/l	24	41	24	24	1J	120	130
ACENAPHTHYLENE	ug/l	5U	1J	5U	5U	5U	150	210
ACETOPHENONE	mg/l	0.005U	0.005U	0.005U	0.005U	0.005U	0.005U	0.048U
ANTHRACENE	ug/l	5U	8	8	8	5U	33	19J
ATRAZINE	mg/l	0.005U	0.005U	0.005U	0.005U	0.005U	0.005U	0.048U
BENZALDEHYDE	mg/l	0.005U	0.005U	0.005U	0.005U	0.005U	0.005U	0.048U
BENZO(A)ANTHRACENE	ug/l	5U	1J	5U	5U	5U	2J	48U
BENZO(A)PYRENE	ug/l	5U	5U	5U	5U	5U	1J	48U

Notes:
mg/l - milligrams per liter [parts per million (PPM)]
ug/l - micrograms per liter [parts per billion (PPB)]
Semi-volatile organic compounds (SVOCs) analyzed using method SW8270.

TABLE G-1
Summary of Laboratory Analytical Data for Groundwater
SVOCs
Quanta Resources Site
Edgewater, New Jersey

Parameter Name	Field Sample ID	MW-108-120705	MW-109-120605	MW-111A-111605	DUP-111605-GW	MW-111B-111605	MW-112A-112105	MW-112B-111805
	Location	MW-108	MW-109	MW-111A	MW-111B	MW-111B	MW-112A	MW-112B
	Sample Date	12/7/2005	12/6/2005	11/16/2005	11/16/2005	11/16/2005	11/21/2005	11/18/2005
	Units							
BENZO(B)FLUORANTHENE	ug/l	5U	5U	5U	5U	5U	1J	48U
BENZO(G,H,I)PERYLENE	ug/l	5U	5U	5U	5U	5U	5U	48U
BENZO(G,H,I)PERYLENE	ug/l	5U	5U	5U	5U	5U	5U	48U
BENZO(K)FLUORANTHENE	ug/l	5U	5U	5U	5U	5U	5U	48U
BIS(2-CHLOROETHOXY)METHANE	ug/l	5U	5U	5U	5U	5U	5U	48U
BIS(2-CHLOROETHYL)ETHER	ug/l	5U	5U	5U	5U	5U	5U	48U
BUTYLBENZYL PHTHALATE	ug/l	5U	5U	5U	5U	5U	5U	48U
CAPROLACTAM	mg/l	0.014U	0.014U	0.014U	0.014U	0.014U	0.014U	0.14U
CARBAZOLE	ug/l	5U	20	6	5	5U	300J	140
CHRYSENE	ug/l	5U	1J	5U	5U	5U	2J	48U
DIBENZO(A,H)ANTHRACENE	ug/l	5U	5U	5U	5U	5U	5U	48U
DIBENZOFURAN	ug/l	5U	15	10	10	5U	100	94
DIETHYL PHTHALATE	ug/l	5U	5U	5U	5U	5U	5U	48U
DIMETHYL PHTHALATE	ug/l	5U	5U	5U	5U	5U	5U	48U
DI-N-BUTYL PHTHALATE	ug/l	5U	5U	5U	5U	5U	5U	48U
DI-N-OCTYL PHTHALATE	ug/l	5U	5U	5U	5U	5U	5U	48U
FLUORANTHENE	ug/l	1J	9	8	7	5U	5U	48U
FLUORENE	ug/l	2J	19	21	21	5U	120	110
HEXACHLOROBENZENE	ug/l	5U	5U	5U	5U	5U	5U	48U
HEXACHLOROBUTADIENE	ug/l	5U	5U	5U	5U	5U	5U	48U
HEXACHLOROCYCLOPENTADIENE	ug/l	14U	14U	14UJ	14U	14UJ	14U	140UJ
HEXACHLOROETHANE	ug/l	5U	5U	5U	5U	5U	5U	48U
INDENO(1,2,3-CD)PYRENE	ug/l	5U	5U	5U	5U	5U	5U	48U
ISOPHORONE	ug/l	5U	5U	5U	5U	5U	5U	48U
NAPHTHALENE	ug/l	5U	110	140	130	5U	6100	10000
NITROBENZENE	ug/l	5U	5U	5U	5U	5U	5U	48U
N-NITROSO-DI-N-PROPYLAMINE	ug/l	5U	5U	5U	5U	5U	5U	48U
N-NITROSODIPHENYLAMINE	ug/l	5U	5U	5U	5U	5U	5U	48U
PENTACHLOROPHENOL	ug/l	14U	14U	14U	14U	14U	14U	140U
PHENANTHRENE	ug/l	5U	40	36	37	5U	140	100
PHENOL	ug/l	5U	5U	5U	5U	5U	570	48U
PYRENE	ug/l	5U	6	7	8	5U	11	48U

Notes:
mg/l - milligrams per liter [parts per million (PPM)]
ug/l - micrograms per liter [parts per billion (PPB)]
Semi-volatile organic compounds (SVOCs) analyzed using method SW8270.

TAB[illegible]-1
Summary of Laboratory Analytical Data for Groundwater
SVOCs
Quanta Resources Site
Edgewater, New Jersey

Parameter Name	Field Sample ID	MW-113A-111505	MW-113B-111505	DUP-112205-GW	MW-116A112205	MW-116B-112305	MW-116DS-112205	MW-117A-112105
	Location	MW-113A	MW-113B	MW-116A	MW-116A	MW-116B	MW-116DS	MW-117A
	Sample Date	11/15/2005	11/15/2005	11/22/2005	11/22/2005	11/22/2005	11/22/2005	11/21/2005
	Units							
1,1'-BIPHENYL	mg/l	0.005U	0.001J	0.081	0.11	0.13	0.003J	0.013
2,2'-OXYBIS(1-CHLOROPROPANE)	ug/l	5U	5U	5U	5U	24U	5U	5U
2,4,5-TRICHLOROPHENOL	ug/l	5U	5U	5U	5U	24U	5U	5U
2,4,6-TRICHLOROPHENOL	ug/l	5U	5U	5U	5U	24U	5U	5U
2,4-DICHLOROPHENOL	ug/l	5U	5U	5U	5U	24U	5U	5U
2,4-DIMETHYLPHENOL	ug/l	9U	9U	610J	760J	6300	9U	90
2,4-DINITROPHENOL	ug/l	57U	57U	57U	57U	290U	57U	57U
2,4-DINITROTOLUENE	ug/l	5U	5U	5U	5U	24U	5U	5U
2,6-DINITROTOLUENE	ug/l	5U	5U	5U	5U	24U	5U	5U
2-CHLORONAPHTHALENE	ug/l	5U	5U	5U	5U	24U	5U	5U
2-CHLOROPHENOL	ug/l	5U	5U	5U	5U	24U	5U	5U
2-METHYLNAPHTHALENE	ug/l	5U	4J	820	1100J	1300	13	63
2-METHYLPHENOL	ug/l	5U	5U	120	180	2700	1J	26
2-NITROANILINE	ug/l	5U	5U	5U	5U	24U	5U	5U
2-NITROPHENOL	ug/l	5U	5U	5U	5U	24U	5U	5U
3,3'-DICHLOROBENZIDINE	ug/l	5U	5U	5U	5U	24U	5U	5U
3-NITROANILINE	ug/l	5U	5U	5U	5U	24U	5U	5U
4,6-DINITRO-2-METHYLPHENOL	ug/l	14U	14U	14U	14U	71U	14U	14U
4-BROMOPHENYL PHENYL ETHER	ug/l	5U	5U	5U	5U	24U	5U	5U
4-CHLORO-3-METHYLPHENOL	ug/l	5U	5U	5U	5U	24U	5U	5U
4-CHLOROANILINE	ug/l	5U	5U	5U	5U	24U	5U	5U
4-CHLOROPHENYL PHENYL ETHER	ug/l	5U	5U	5U	5U	24U	5U	5U
4-METHYLPHENOL	ug/l	5U	5U	110	170	4500	3J	21
4-NITROANILINE	ug/l	5U	5U	5U	5U	24U	5U	5U
4-NITROPHENOL	ug/l	28U	28U	28U	28U	140U	28U	28U
ACENAPHTHENE	ug/l	11	4J	230	310	330	8	100
ACENAPHTHYLENE	ug/l	5U	5U	14	18	71	5U	5
ACETOPHENONE	mg/l	0.005U	0.005U	0.005U	0.005U	0.024U	0.005U	0.005U
ANTHRACENE	ug/l	4J	2J	18	24	69	2J	22
ATRAZINE	mg/l	0.005U	0.005U	0.005U	0.005U	0.024U	0.005U	0.005U
BENZALDEHYDE	mg/l	0.005U	0.005U	0.005U	0.005U	0.024U	0.005U	0.005U
BENZO(A)ANTHRACENE	ug/l	5U	5U	1J	1J	46	5U	1J
BENZO(A)PYRENE	ug/l	5U	5U	5U	5U	32	5U	5U

Notes:
mg/l - milligrams per liter [parts per million (PPM)]
ug/l - micrograms per liter [parts per billion (PPB)]
Semi-volatile organic compounds (SVOCs) analyzed using method SW8270.

TABLE G-1
Summary of Laboratory Analytical Data for Groundwater
SVOCs
Quanta Resources Site
Edgewater, New Jersey

Parameter Name	Field Sample ID	MW-113A-111505	MW-113B-111505	DUP-112205-GW	MW-116A112205	MW-116B-112305	MW-116DS-112205	MW-117A-112105
	Location	MW-113A	MW-113B	MW-116A	MW-116A	MW-116B	MW-116DS	MW-117A
	Sample Date	11/15/2005	11/15/2005	11/22/2005	11/22/2005	11/22/2005	11/22/2005	11/21/2005
	Units							
BENZO(B)FLUORANTHENE	ug/l	5U	5U	5U	5U	39	5U	5U
BENZO(G,H,I)PERYLENE	ug/l	5U	5U	5U	5U	15J	5U	5U
BENZO(G,H,I)PERYLENE	ug/l	5U	5U	5U	5U	15J	5U	5U
BENZO(K)FLUORANTHENE	ug/l	5U	5U	5U	5U	13J	5U	5U
BIS(2-CHLOROETHOXY)METHANE	ug/l	5U	5U	5U	5U	24U	5U	5U
BIS(2-CHLOROETHYL)ETHER	ug/l	5U	5U	5U	5U	24U	5U	5U
BUTYLBENZYL PHTHALATE	ug/l	5U	5U	5U	5U	24U	5U	5U
CAPROLACTAM	mg/l	0.014U	0.014U	0.014U	0.014U	0.071U	0.014U	0.014U
CARBAZOLE	ug/l	5	5	230	320	340	2J	20
CHRYSENE	ug/l	5U	5U	5U	1J	47	5U	1J
DIBENZO(A,H)ANTHRACENE	ug/l	5U	5U	5U	5U	24U	5U	5U
DIBENZOFURAN	ug/l	2J	2J	110	160	200	5	51
DIETHYL PHTHALATE	ug/l	5U	5U	5U	5U	24U	5U	5U
DIMETHYL PHTHALATE	ug/l	5U	5U	5U	5U	24U	5U	5U
DI-N-BUTYL PHTHALATE	ug/l	5U	5U	5U	5U	24U	5U	5U
DI-N-OCTYL PHTHALATE	ug/l	5U	5U	5U	5U	24U	5U	5U
FLUORANTHENE	ug/l	4J	3J	12	16	140	3J	20
FLUORENE	ug/l	4J	4J	100	140	190	5	73
HEXACHLOROBENZENE	ug/l	5U	5U	5U	5U	24U	5U	5U
HEXACHLOROBUTADIENE	ug/l	5U	5U	5U	5U	24U	5U	5U
HEXACHLOROCYCLOPENTADIENE	ug/l	14U	14U	14U	14U	71U	14U	14U
HEXACHLOROETHANE	ug/l	5U	5U	5U	5U	24U	5U	5U
INDENO(1,2,3-CD)PYRENE	ug/l	5U	5U	5U	5U	12J	5U	5U
ISOPHORONE	ug/l	5U	5U	5U	5U	24U	5U	5U
NAPHTHALENE	ug/l	3J	10	11000	14000	16000	87	67
NITROBENZENE	ug/l	5U	5U	5U	5U	24U	5U	5U
N-NITROSO-DI-N-PROPYLAMINE	ug/l	5U	5U	5U	5U	24U	5U	5U
N-NITROSODIPHENYLAMINE	ug/l	5U	5U	5U	5U	24U	5U	5U
PENTACHLOROPHENOL	ug/l	14U	14U	14U	14U	71U	14U	14U
PHENANTHRENE	ug/l	7	7	110	150	370	13	110
PHENOL	ug/l	5U	5U	30	39	1100	1J	2J
PYRENE	ug/l	3J	3J	8	11	120	2J	17

Notes:
mg/l - milligrams per liter [parts per million (PPM)]
ug/l - micrograms per liter [parts per billion (PPB)]
Semi-volatile organic compounds (SVOCs) analyzed using method SW8270.

TAB[illegible]-1
Summary of Laboratory Analytical Data for Groundwater
SVOCs
Quanta Resources Site
Edgewater, New Jersey

Parameter Name	Field Sample ID	MW-117B-112105	MW-118A-112105	MW-118B-112105	MW-119A-120705	MW-119B-120705	MW-120A-120505	MW-120B-120505	MW-122A-120505
	Location	MW-117B	MW-118A	MW-118B	MW-119A	MW-119B	MW-120A	MW-120B	MW-122A
	Sample Date	11/21/2005	11/21/2005	11/21/2005	12/7/2005	12/7/2005	12/5/2005	12/5/2005	12/5/2005
	Units								
1,1'-BIPHENYL	mg/l	0.064	0.004J	0.047	0.005U	0.001J	0.005U	0.002J	0.088
2,2'-OXYBIS(1-CHLOROPROPANE)	ug/l	5U	5U	5U	5U	5U	5U	5U	5U
2,4,5-TRICHLOROPHENOL	ug/l	5U	5U	5U	5U	5U	5U	5U	5U
2,4,6-TRICHLOROPHENOL	ug/l	5U	5U	5U	5U	5U	5U	5U	5U
2,4-DICHLOROPHENOL	ug/l	5U	5U	5U	5U	5U	5U	5U	5U
2,4-DIMETHYLPHENOL	ug/l	1700	9U	120	10U	10U	10U	9U	26
2,4-DINITROPHENOL	ug/l	57U	57U	57U	57U	60U	57U	57U	57U
2,4-DINITROTOLUENE	ug/l	5U	5U	5U	5U	5U	5U	5U	5U
2,6-DINITROTOLUENE	ug/l	5U	5U	5U	5U	5U	5U	5U	5U
2-CHLORONAPHTHALENE	ug/l	5U	5U	5U	5U	5U	5U	5U	5U
2-CHLOROPHENOL	ug/l	5U	5U	5U	5U	5U	5U	5U	5U
2-METHYLNAPHTHALENE	ug/l	690	12	400	2J	2J	5U	19	680
2-METHYLPHENOL	ug/l	340	1J	8	5U	5U	5U	5U	6
2-NITROANILINE	ug/l	5U	5U	5U	5U	5U	5U	5U	5U
2-NITROPHENOL	ug/l	5U	5U	5U	5U	5U	5U	5U	5U
3,3'-DICHLOROBENZIDINE	ug/l	5U	5U	5U	5U	5U	5U	5U	5U
3-NITROANILINE	ug/l	5U	5U	5U	5U	5U	5U	5U	5U
4,6-DINITRO-2-METHYLPHENOL	ug/l	14U	14U	14U	14U	15U	14U	14U	14U
4-BROMOPHENYL PHENYL ETHER	ug/l	5U	5U	5U	5U	5U	5U	5U	5U
4-CHLORO-3-METHYLPHENOL	ug/l	5U	5U	5U	5U	5U	5U	5U	5U
4-CHLOROANILINE	ug/l	5U	5U	5U	5U	5U	5U	5U	5U
4-CHLOROPHENYL PHENYL ETHER	ug/l	5U	5U	5U	5U	5U	5U	5U	5U
4-METHYLPHENOL	ug/l	110	5U	3J	5U	5U	5U	5U	9
4-NITROANILINE	ug/l	5U	5U	5U	5U	5U	5U	5U	5U
4-NITROPHENOL	ug/l	28U	28U	28U	29U	30U	29U	28U	28U
ACENAPHTHENE	ug/l	230	92	170	29	110	5U	11	180J
ACENAPHTHYLENE	ug/l	34	2J	3J	5U	5U	5U	5U	22
ACETOPHENONE	mg/l	0.005U	0.005U	0.005U	0.005U	0.005U	0.005U	0.005U	0.005U
ANTHRACENE	ug/l	19	16	25	2J	7	5U	3J	5U
ATRAZINE	mg/l	0.005U	0.005U	0.005U	0.005U	0.005U	0.005U	0.005U	0.005U
BENZALDEHYDE	mg/l	0.005U	0.005U	0.005U	0.005U	0.005U	0.005U	0.005U	0.005U
BENZO(A)ANTHRACENE	ug/l	1J	1J	1J	5U	5U	5U	5U	5U
BENZO(A)PYRENE	ug/l	5U	5U	5U	5U	5U	5U	5U	5U

Notes:
mg/l - milligrams per liter [parts per million (PPM)]
ug/l - micrograms per liter [parts per billion (PPB)]
Semi-volatile organic compounds (SVOCs) analyzed using method SW8270.

TABLE G-1
Summary of Laboratory Analytical Data for Groundwater
SVOCs
Quanta Resources Site
Edgewater, New Jersey

Parameter Name	Field Sample ID	MW-117B-112105	MW-118A-112105	MW-118B-112105	MW-119A-120705	MW-119B-120705	MW-120A-120505	MW-120B-120505	MW-122A-120505
	Location	MW-117B	MW-118A	MW-118B	MW-119A	MW-119B	MW-120A	MW-120B	MW-122A
	Sample Date	11/21/2005	11/21/2005	11/21/2005	12/7/2005	12/7/2005	12/5/2005	12/5/2005	12/5/2005
	Units								
BENZO(B)FLUORANTHENE	ug/l	5U	5U	5U	5U	5U	5U	5U	5U
BENZO(G,H,I)PERYLENE	ug/l	5U	5U	5U	5U	5U	5U	5U	5U
BENZO(G,H,I)PERYLENE	ug/l	5U	5U	5U	5U	5U	5U	5U	5U
BENZO(K)FLUORANTHENE	ug/l	5U	5U	5U	5U	5U	5U	5U	5U
BIS(2-CHLOROETHOXY)METHANE	ug/l	5U	5U	5U	5U	5U	5U	5U	5U
BIS(2-CHLOROETHYL)ETHER	ug/l	5U	5U	5U	5U	5U	5U	5U	5U
BUTYLBENZYL PHTHALATE	ug/l	5U	5U	5U	5U	5U	5U	5U	5U
CAPROLACTAM	mg/l	0.014U	0.014U	0.014U	0.014U	0.015U	0.014U	0.014U	0.014U
CARBAZOLE	ug/l	260	20	270	8	7	5U	1J	170J
CHRYSENE	ug/l	1J	5U	5U	5U	5U	5U	5U	5U
DIBENZO(A,H)ANTHRACENE	ug/l	5U	5U	5U	5U	5U	5U	5U	5U
DIBENZOFURAN	ug/l	140	49	100	11	27	5U	4J	83
DIETHYL PHTHALATE	ug/l	5U	5U	5U	5U	5U	5U	5U	5U
DIMETHYL PHTHALATE	ug/l	5U	5U	5U	5U	5U	5U	5U	5U
DI-N-BUTYL PHTHALATE	ug/l	5U	5U	5U	5U	5U	5U	5U	5U
DI-N-OCTYL PHTHALATE	ug/l	5U	5U	5U	5U	5U	5U	5U	5U
FLUORANTHENE	ug/l	15	19	18	3J	9	5U	3J	1J
FLUORENE	ug/l	130	75	100	13	17	5U	7	76
HEXACHLOROBENZENE	ug/l	5U	5U	5U	5U	5U	5U	5U	5U
HEXACHLOROBUTADIENE	ug/l	5U	5U	5U	5U	5U	5U	5U	5U
HEXACHLOROCYCLOPENTADIENE	ug/l	14U	14U	14U	14U	15U	14U	14U	14U
HEXACHLOROETHANE	ug/l	5U	5U	5U	5U	5U	5U	5U	5U
INDENO(1,2,3-CD)PYRENE	ug/l	5U	5U	5U	5U	5U	5U	5U	5U
ISOPHORONE	ug/l	5U	5U	5U	5U	5U	5U	5U	5U
NAPHTHALENE	ug/l	8600	81	4900	10	25	1J	71	4300
NITROBENZENE	ug/l	5U	5U	5U	5U	5U	8	5U	5U
N-NITROSO-DI-N-PROPYLAMINE	ug/l	5U	5U	5U	5U	5U	5U	5U	5U
N-NITROSODIPHENYLAMINE	ug/l	5U	5U	5U	5U	5U	5U	5U	5U
PENTACHLOROPHENOL	ug/l	14U	14U	14U	14U	15U	14U	14U	14U
PHENANTHRENE	ug/l	130	38	110	14	19	5U	15	6
PHENOL	ug/l	49	5U	5U	5U	5U	5U	5U	5U
PYRENE	ug/l	13	14	14	3J	5	5U	2J	1J

Notes:
mg/l - milligrams per liter [parts per million (PPM)]
ug/l - micrograms per liter [parts per billion (PPB)]
Semi-volatile organic compounds (SVOCs) analyzed using method SW8270.

TAB[illegible]-2
Summary of Laboratory Analytical Data for Groundwater
VOCs
Quanta Resources Site
Edgewater, New Jersey

Parameter Name	Field Sample ID	MW-101A-111705	MW-101DS-111705	MW-102-111505	MW-102A-111805	MW-102B-111505	MW-103-111805	MW-103A-111705	MW-103DS-111705	MW-105-112105	MW-105A-112105
	Location	MW-101A	MW-101DS	MW-102	MW-102A	MW-102B	MW-103	MW-103A	MW-103DS	MW-105A	MW-105A
	Sample Date	11/17/2005	11/17/2005	11/15/2005	11/18/2005	11/15/2005	11/18/2005	11/17/2005	11/17/2005	11/21/2005	11/21/2005
	Units										
1,1,1-TRICHLOROETHANE	ug/l	0.5U	2.1J	100U	100U	50U	25U	10U	0.5J	5U	5U
1,1,2,2-TETRACHLOROETHANE	ug/l	0.5U	5U	100U	100U	50U	25U	10U	1U	5U	5U
1,1,2-TRICHLOROETHANE	ug/l	0.5U	5U	100U	100U	50U	25U	10U	1U	5U	5U
1,1,2-TRICHLOROTRIFLUOROETHANE	mg/l	0.0005U	0.005U	0.1U	0.1U	0.05U	0.025U	0.01U	0.001U	0.005U	0.005U
1,1-DICHLOROETHANE	ug/l	0.5U	1.6J	100U	100U	50U	5.1J	10U	0.9J	5U	5U
1,1-DICHLOROETHENE	ug/l	0.5U	3.5J	100U	100U	50U	25U	10U	1.6	5U	5U
1,2,4-TRICHLOROBENZENE	ug/l	0.5U	5U	100U	100U	50U	25U	10U	1U	5U	5U
1,2-DIBROMO-3-CHLOROPROPANE	mg/l	0.002U	0.02U	0.4U	0.4U	0.2U	0.1U	0.04U	0.004U	0.02U	0.02U
1,2-DIBROMOETHANE	mg/l	0.0005U	0.005U	0.1U	0.1U	0.05U	0.025U	0.01U	0.001U	0.005U	0.005U
1,2-DICHLOROBENZENE	ug/l	0.5U	5U	100U	100U	50U	25U	10U	1U	5U	1.1J
1,2-DICHLOROETHANE	ug/l	0.5U	5U	100U	100U	50U	25U	10U	0.2J	5U	5U
1,2-DICHLOROPROPANE	ug/l	0.5U	5U	100U	100U	50U	25U	10U	1U	5U	5U
1,3-DICHLOROBENZENE	ug/l	0.5U	5U	100U	100U	50U	25U	10U	1U	5U	5U
1,4-DICHLOROBENZENE	ug/l	0.5U	5U	100U	100U	50U	25U	10U	1U	5U	5U
2-BUTANONE	ug/l	5U	50U	1000U	1000U	500U	250U	100U	10U	50U	50U
2-HEXANONE	ug/l	5U	50U	1000U	1000U	500U	250U	100U	10U	50U	50U
4-METHYL-2-PENTANONE	ug/l	5U	50U	1000U	1000U	500U	250U	100U	10U	50U	50U
ACETONE	ug/l	5UJ	50UJ	1000UJ	1000UJ	500UJ	250UJ	100UJ	10UJ	50UJ	50UJ
BENZENE	ug/l	0.5U	5U	11000	6400	3400	860	160	1U	170	81
BROMODICHLOROMETHANE	ug/l	0.5U	5U	100U	100U	50U	25U	10U	1U	5U	5U
BROMOFORM	ug/l	0.5U	5U	100U	100U	50U	25U	10U	1U	5U	5U
BROMOMETHANE	ug/l	0.5U	5U	100U	100U	50U	25U	10U	1U	5U	5U
CARBON DISULFIDE	ug/l	0.5U	5U	22J	33J	11J	25U	10U	1U	5U	1.3J
CARBON TETRACHLORIDE	ug/l	0.5U	5U	100U	100U	50U	25U	10U	1U	5U	5U
CHLOROBENZENE	ug/l	0.5U	5U	100U	100U	50U	25U	10U	1U	5U	5U
CHLORODIBROMOMETHANE	ug/l	0.5U	5U	100U	100U	50U	25U	10U	1U	5U	5U
CHLOROETHANE	ug/l	0.5U	5U	100U	100U	50U	25U	10U	1U	5U	5U
CHLOROFORM	ug/l	0.5U	1J	100U	100U	50U	25U	10U	0.7J	5U	5U
CHLOROMETHANE	ug/l	0.5U	5U	21J	100U	16J	25U	10U	1U	5U	5U
CIS-1,2-DICHLOROETHENE	ug/l	0.1J	11	100U	100U	50U	25U	10U	2.4	5U	5U
CIS-1,3-DICHLOROPROPENE	ug/l	0.5U	5U	100U	100U	50U	25U	10U	1U	5U	5U
CYCLOHEXANE	mg/l	0.0005U	0.005U	0.1U	0.1U	0.05U	0.025U	0.01U	0.001U	0.005U	0.005U
DICHLORODIFLUOROMETHANE	mg/l	0.0005U	0.005U	0.1U	0.1U	0.05U	0.025U	0.01U	0.001U	0.005U	0.005U
ETHYLBENZENE	ug/l	0.5U	5U	1000	810	830	1100	930	1U	200	83
ISOPROPYLBENZENE	mg/l	0.0005U	0.005U	0.025J	0.025J	0.038J	0.14	0.12	0.001U	0.075	0.088
METHYL ACETATE	mg/l	0.001U	0.01U	0.2U	0.2U	0.1U	0.05U	0.02U	0.002U	0.01U	0.01U
METHYL TERT-BUTYL ETHER	mg/l	0.0002J	0.0018J	0.1U	0.1U	0.05U	0.025U	0.01U	0.001U	0.005U	0.005U
METHYLCYCLOHEXANE	mg/l	0.0005U	0.005U	0.1U	0.1U	0.05U	0.025U	0.01U	0.001U	0.005U	0.005U
METHYLENE CHLORIDE	ug/l	0.5U	5U	100U	100U	50U	25U	10U	1U	5U	5U
STYRENE	ug/l	0.5U	5UJ	100U	460J	50U	25U	10UJ	1UJ	5U	5U
TETRACHLOROETHENE	ug/l	0.5U	7.5	100U	100U	50U	25U	10U	0.7J	5U	5U
TOLUENE	ug/l	0.5U	5U	4400	4100	1200	1700	110	1U	64	7
TRANS-1,2-DICHLOROETHENE	ug/l	0.5U	5U	100U	100U	50U	25U	10U	1U	5U	5U
TRANS-1,3-DICHLOROPROPENE	ug/l	0.5U	5U	100U	100U	50U	25U	10U	1U	5U	5U
TRICHLOROETHENE	ug/l	0.1J	380	100U	100U	50U	25U	10U	100	5U	5U
TRICHLOROFLUOROMETHANE	mg/l	0.0005U	0.005U	0.1U	0.1U	0.05U	0.025U	0.01U	0.001U	0.005U	0.005U
VINYL CHLORIDE	ug/l	0.5U	5U	100U	100U	50U	25U	10U	1U	5U	5U
XYLENES, TOTAL	ug/l	0.5U	5U	2300	2400	1400	3400	2400	0.2J	280	79

Notes:
mg/l - milligrams per liter [parts per million (PPM)]
ug/l - micrograms per liter [parts per billion (PPB)]
Volatile organic compounds (VOCs) analyzed using method SW8260

TABLE G-2
Summary of Laboratory Analytical Data for Groundwater
VOCs
Quanta Resources Site
Edgewater, New Jersey

Parameter Name	Field Sample ID	MW-106-120605	DUP-120605-GW	MW-106A-120605	MW-107-120605	MW-107A-120505	MW-108-120705	MW-109-120605	MW-111A-111605	DUP-111605-GW	MW-111B-111605
	Location	MW-106	MW-106A	MW-106A	MW-107	MW-107A	MW-108	MW-109	MW-111A	MW-111B	MW-111B
	Sample Date	12/6/2005	12/6/2005	12/6/2005	12/6/2005	12/5/2005	12/7/2005	12/6/2005	11/16/2005	11/16/2005	11/16/2005
	Units										
1,1,1-TRICHLOROETHANE	ug/l	0.5U	5U	5U	50U	25U	0.5U	1U	1U	0.5U	0.5U
1,1,2,2-TETRACHLOROETHANE	ug/l	0.5U	5U	5U	50U	25U	0.5U	1U	1U	0.5U	0.5U
1,1,2-TRICHLOROETHANE	ug/l	0.5U	5U	5U	50U	25U	0.5U	1U	1U	0.5U	0.5U
1,1,2-TRICHLOROTRIFLUOROETHANE	mg/l	0.0005U	0.005U	0.005U	0.05U	0.025U	0.0005U	0.001U	0.001U	0.0005U	0.0005U
1,1-DICHLOROETHANE	ug/l	0.5U	5U	5U	50U	25U	0.5U	1U	1U	0.5U	0.5U
1,1-DICHLOROETHENE	ug/l	0.5U	5U	5U	50U	25U	0.5U	1U	1U	0.5U	0.5U
1,2,4-TRICHLOROBENZENE	ug/l	0.5U	5U	5U	50U	25U	0.5U	1U	1U	0.5U	0.5U
1,2-DIBROMO-3-CHLOROPROPANE	mg/l	0.002U	0.02U	0.02U	0.2U	0.1U	0.002U	0.004U	0.004U	0.002U	0.002U
1,2-DIBROMOETHANE	mg/l	0.0005U	0.005U	0.005U	0.05U	0.025U	0.0005U	0.001U	0.001U	0.0005U	0.0005U
1,2-DICHLOROBENZENE	ug/l	0.5U	5U	5U	50U	25U	0.5U	1U	1U	0.5U	0.5U
1,2-DICHLOROETHANE	ug/l	0.5U	5U	5U	50U	25U	0.5U	1U	1U	0.5U	0.5U
1,2-DICHLOROPROPANE	ug/l	0.5U	5U	5U	50U	25U	0.5U	1U	1U	0.5U	0.5U
1,3-DICHLOROBENZENE	ug/l	0.5U	5U	5U	50U	25U	0.5U	1U	1U	0.5U	0.5U
1,4-DICHLOROBENZENE	ug/l	0.5U	5U	5U	50U	25U	0.5U	1U	1U	0.5U	0.5U
2-BUTANONE	ug/l	5U	50U	50U	500U	250U	5U	10U	10U	5U	5U
2-HEXANONE	ug/l	5U	50U	50U	500U	250U	5U	10U	10U	5U	5U
4-METHYL-2-PENTANONE	ug/l	5U	50U	50U	500U	250U	5U	10U	10U	5U	5U
ACETONE	ug/l	5UJ	50UJ	50UJ	500UJ	250UJ	5UJ	10UJ	10UJ	5UJ	5UJ
BENZENE	ug/l	0.5U	25	25	640	1900	0.5U	5.1	0.3J	0.1J	0.5U
BROMODICHLOROMETHANE	ug/l	0.5U	5U	5U	50U	25U	0.5U	1U	1U	0.5U	0.5U
BROMOFORM	ug/l	0.5U	5U	5U	50U	25U	0.5U	1U	1U	0.5U	0.5U
BROMOMETHANE	ug/l	0.5U	5U	5U	50U	25U	0.5U	1U	1U	0.5U	0.5U
CARBON DISULFIDE	ug/l	0.7U	1.7J	2.2J	14J	14J	2.5	1U	1U	0.5U	0.5U
CARBON TETRACHLORIDE	ug/l	0.5U	5U	5U	50U	25U	0.5U	1U	1U	0.5U	0.5U
CHLOROBENZENE	ug/l	0.5U	5U	5U	50U	25U	1.8	1U	1U	0.5U	0.5U
CHLORODIBROMOMETHANE	ug/l	0.5U	5U	5U	50U	25U	0.5U	1U	1U	0.5U	0.5U
CHLOROETHANE	ug/l	0.5U	3.1J	5.5	50U	25U	0.5U	1U	1U	0.5U	0.5U
CHLOROFORM	ug/l	0.5U	5U	5U	50U	25U	0.5U	1U	1U	0.5U	0.5U
CHLOROMETHANE	ug/l	0.5U	2J	2.7J	14J	25U	0.5U	0.2J	0.4J	0.5U	0.5U
CIS-1,2-DICHLOROETHENE	ug/l	0.5U	5U	1J	50U	25U	0.5U	1U	1U	0.5U	0.5U
CIS-1,3-DICHLOROPROPENE	ug/l	0.5U	5U	5U	50U	25U	0.5U	1U	1U	0.5U	0.5U
CYCLOHEXANE	mg/l	0.0005U	0.029	0.028	0.05U	0.025U	0.0002J	0.001U	0.001U	0.0005U	0.0005U
DICHLORODIFLUOROMETHANE	mg/l	0.0005U	0.005U	0.005U	0.05U	0.025UJ	0.0005U	0.001U	0.001U	0.0005U	0.0005U
ETHYLBENZENE	ug/l	0.5U	18	18	670	450	0.5U	1.6	1.1	1.3	0.5U
ISOPROPYLBENZENE	mg/l	0.0005U	0.0028J	0.0028J	0.045J	0.038	0.0002J	0.0014	0.001U	0.0002J	0.0005U
METHYL ACETATE	mg/l	0.001U	0.01U	0.01U	0.1U	0.05U	0.001U	0.002U	0.002U	0.001U	0.001U
METHYL TERT-BUTYL ETHER	mg/l	0.0005U	0.005U	0.005U	0.05U	0.025U	0.0004J	0.001U	0.001U	0.0002J	0.0003J
METHYLCYCLOHEXANE	mg/l	0.0005U	0.085	0.082	0.05U	0.025U	0.0005J	0.001U	0.001U	0.0005U	0.0005U
METHYLENE CHLORIDE	ug/l	0.5U	5U	5U	50U	25U	0.5U	1U	1U	0.5U	0.5U
STYRENE	ug/l	0.5U	5U	5U	50U	25U	0.5U	1U	1U	0.5U	0.5U
TETRACHLOROETHENE	ug/l	0.5U	5U	5U	50U	25U	0.5U	1U	1U	0.5U	0.5U
TOLUENE	ug/l	0.5U	150	140	1200	1600	0.5U	0.7J	0.3J	0.3J	0.5U
TRANS-1,2-DICHLOROETHENE	ug/l	0.5U	5U	5U	50U	25U	0.5U	1U	1U	0.5U	0.5U
TRANS-1,3-DICHLOROPROPENE	ug/l	0.5U	5U	5U	50U	25U	0.5U	1U	1U	0.5U	0.5U
TRICHLOROETHENE	ug/l	0.5U	5U	5U	50U	25U	0.5U	1U	1U	0.5U	0.5U
TRICHLOROFLUOROMETHANE	mg/l	0.0005U	0.005U	0.005U	0.05U	0.025U	0.0005U	0.001U	0.001U	0.0005U	0.0005U
VINYL CHLORIDE	ug/l	0.5U	5U	5U	50U	25U	0.5U	1U	1U	0.5U	0.5U
XYLENES, TOTAL	ug/l	0.5U	130	130	1700	1400	0.2J	5.1	0.9J	1.1	0.5U

Notes:
mg/l - milligrams per liter (parts per million (PPM))
ug/l - micrograms per liter (parts per billion (PPB))
Volatile organic compounds (VOCs) analyzed using method SW8260

TAB [illegible]-2
Summary of Laboratory Analytical Data for Groundwater
VOCs
Quanta Resources Site
Edgewater, New Jersey

Parameter Name	Field Sample ID	MW-112A-112105	MW-112B-111805	MW-113A-111505	MW-113B-111505	DUP-112205-GW	MW-116A112205	MW-116B-112305	MW-116DS-112205	MW-117A-112105
	Location	MW-112A	MW-112B	MW-113A	MW-113B	MW-116A	MW-116A	MW-116B	MW-116DS	MW-117A
	Sample Date	11/21/2005	11/18/2005	11/15/2005	11/15/2005	11/22/2005	11/22/2005	11/22/2005	11/22/2005	11/21/2005
	Units									
1,1,1-TRICHLOROETHANE	ug/l	25U	50U	5U	0.5U	50U	50U	25U	0.1J	0.5U
1,1,2,2-TETRACHLOROETHANE	ug/l	25U	50U	5U	0.5U	50U	50U	25U	0.5U	0.5U
1,1,2-TRICHLOROETHANE	ug/l	25U	50U	5U	0.5U	50U	50U	25U	0.5U	0.5U
1,1,2-TRICHLOROTRIFLUOROETHANE	mg/l	0.025U	0.05U	0.005U	0.0005U	0.05U	0.05U	0.025U	0.0005U	0.0005U
1,1-DICHLOROETHANE	ug/l	25U	50U	5U	0.1J	50U	50U	25U	0.4J	0.5U
1,1-DICHLOROETHENE	ug/l	25U	50U	5U	0.5U	50U	50U	25U	0.4J	0.5U
1,2,4-TRICHLOROBENZENE	ug/l	25U	50U	5U	0.5U	50U	50U	25U	0.5U	0.5U
1,2-DIBROMO-3-CHLOROPROPANE	mg/l	0.1U	0.2U	0.02U	0.002U	0.2U	0.2U	0.1U	0.002U	0.002U
1,2-DIBROMOETHANE	mg/l	0.025U	0.05U	0.005U	0.0005U	0.05U	0.05U	0.025U	0.0005U	0.0005U
1,2-DICHLOROBENZENE	ug/l	25U	50U	5U	0.3J	50U	50U	25U	0.5U	0.5U
1,2-DICHLOROETHANE	ug/l	25U	50U	5U	0.5U	50U	50U	25U	0.5U	0.5U
1,2-DICHLOROPROPANE	ug/l	25U	50U	5U	0.5U	50U	50U	25U	0.5U	0.5U
1,3-DICHLOROBENZENE	ug/l	25U	50U	5U	0.5U	50U	50U	25U	0.5U	0.5U
1,4-DICHLOROBENZENE	ug/l	25U	50U	5U	1.4	50U	50U	25U	0.5U	0.5U
2-BUTANONE	ug/l	61J	500U	50U	1.6J	500U	500U	250U	5U	5U
2-HEXANONE	ug/l	250U	500U	50U	5U	500U	500U	250U	5U	5U
4-METHYL-2-PENTANONE	ug/l	250U	500U	50U	5U	500U	500U	250U	5U	5U
ACETONE	ug/l	470J	500UJ	50UJ	5.2J	500UJ	500UJ	250UJ	5UJ	5UJ
BENZENE	ug/l	1800	3000	5U	2	630	630	2200	2.9J	15
BROMODICHLOROMETHANE	ug/l	25U	50U	5U	0.5U	50U	50U	25U	0.5U	0.5U
BROMOFORM	ug/l	25U	50U	5U	0.5U	50U	50U	25U	0.5U	0.5U
BROMOMETHANE	ug/l	25U	50U	5U	0.5U	50U	50U	25U	0.5U	0.5U
CARBON DISULFIDE	ug/l	11J	50U	5U	0.9	14J	14J	25U	0.5U	0.9
CARBON TETRACHLORIDE	ug/l	25U	50U	5U	0.5U	50U	50U	25U	0.5U	0.5U
CHLOROBENZENE	ug/l	25U	50U	5U	0.5U	50U	50U	25U	0.5UJ	0.5U
CHLORODIBROMOMETHANE	ug/l	25U	50U	5U	0.5U	50U	50U	25U	0.5U	0.5U
CHLOROETHANE	ug/l	25U	50U	5U	0.5U	50U	50U	25U	0.5U	0.5U
CHLOROFORM	ug/l	25U	50U	5U	0.5U	50U	50U	25U	0.1J	0.5U
CHLOROMETHANE	ug/l	25U	50U	1.5J	0.5U	50U	12J	5.1J	0.5U	0.5U
CIS-1,2-DICHLOROETHENE	ug/l	25U	50U	5U	0.5U	50U	50U	25U	0.7	0.5U
CIS-1,3-DICHLOROPROPENE	ug/l	25U	50U	5U	0.5U	50U	50U	25U	0.5U	0.5U
CYCLOHEXANE	mg/l	0.025U	0.05U	0.005U	0.0004J	0.05U	0.05U	0.025U	0.0005U	0.0005U
DICHLORODIFLUOROMETHANE	mg/l	0.025U	0.05U	0.005U	0.0005U	0.05U	0.05U	0.025U	0.0005U	0.0005U
ETHYLBENZENE	ug/l	460	1200	5U	0.9	810	810	970	3.5J	18
ISOPROPYLBENZENE	mg/l	0.016J	0.023J	0.005U	0.0002J	0.06	0.059	0.047	0.0003J	0.006
METHYL ACETATE	mg/l	0.05U	0.1U	0.01U	0.001U	0.1U	0.1U	0.05U	0.001U	0.001U
METHYL TERT-BUTYL ETHER	mg/l	0.025U	0.05U	0.005U	0.0005U	0.05U	0.05U	0.025U	0.0005U	0.0005U
METHYLCYCLOHEXANE	mg/l	0.025U	0.05U	0.005U	0.0005U	0.05U	0.05U	0.025U	0.0005U	0.0005U
METHYLENE CHLORIDE	ug/l	25U	50U	5U	0.5U	50U	50U	25U	0.5U	0.5U
STYRENE	ug/l	25U	50U	5U	0.5U	50U	50U	25U	0.5U	0.5U
TETRACHLOROETHENE	ug/l	25U	50U	5U	0.5U	50U	50U	25U	0.5U	0.5U
TOLUENE	ug/l	810	900	5U	0.7	480	480	2300	4.3J	11
TRANS-1,2-DICHLOROETHENE	ug/l	25U	50U	5U	0.5U	50U	50U	25U	0.5U	0.5U
TRANS-1,3-DICHLOROPROPENE	ug/l	25U	50U	5U	0.5U	50U	50U	25U	0.5U	0.5U
TRICHLOROETHENE	ug/l	25U	50U	5U	0.1J	50U	50U	25U	12J	0.5U
TRICHLOROFLUOROMETHANE	mg/l	0.025U	0.05U	0.005U	0.0005U	0.05U	0.05U	0.025U	0.0005U	0.0005U
VINYL CHLORIDE	ug/l	25U	50U	5U	0.5U	50U	50U	25U	0.5U	0.5U
XYLENES, TOTAL	ug/l	1200	2900	5U	2.9	1100	1000	2100	7.7	29

Notes:
mg/l - milligrams per liter [parts per million (PPM)]
ug/l - micrograms per liter [parts per billion (PPB)]
Volatile organic compounds (VOCs) analyzed using method SW8260

TABLE G-2
Summary of Laboratory Analytical Data for Groundwater
VOCs
Quanta Resources Site
Edgewater, New Jersey

Parameter Name	Field Sample ID	MW-117B-112105	MW-118A-112105	MW-118B-112105	MW-119A-120705	MW-119B-120705	MW-120A-120505	MW-120B-120505	MW-122A-120505
	Location	MW-117B	MW-118A	MW-118B	MW-119A	MW-119B	MW-120A	MW-120B	MW-122A
	Sample Date	11/21/2005	11/21/2005	11/21/2005	12/7/2005	12/7/2005	12/5/2005	12/5/2005	12/5/2005
	Units								
1,1,1-TRICHLOROETHANE	ug/l	5U	0.5U	5U	0.5U	0.5U	0.5UJ	0.5U	5U
1,1,2,2-TETRACHLOROETHANE	ug/l	5U	0.5U	5U	0.5U	0.5U	0.5U	0.5U	5U
1,1,2-TRICHLOROETHANE	ug/l	5U	0.5U	5U	0.5U	0.5U	0.5U	0.5U	5U
1,1,2-TRICHLOROTRIFLUOROETHANE	mg/l	0.005U	0.0005U	0.005U	0.0005U	0.0005U	0.0005UJ	0.0005U	0.005U
1,1-DICHLOROETHANE	ug/l	5U	0.5U	5U	0.5U	0.5U	0.5UJ	0.5U	1.4J
1,1-DICHLOROETHENE	ug/l	5U	0.5U	5U	0.5U	0.5U	0.5UJ	0.5U	5U
1,2,4-TRICHLOROBENZENE	ug/l	5U	0.5U	5U	0.5U	0.5U	0.5U	0.5U	5U
1,2-DIBROMO-3-CHLOROPROPANE	mg/l	0.02U	0.002U	0.02U	0.002U	0.002U	0.002U	0.002U	0.02U
1,2-DIBROMOETHANE	mg/l	0.005U	0.0005U	0.005U	0.0005U	0.0005U	0.0005U	0.0005U	0.005U
1,2-DICHLOROBENZENE	ug/l	5U	0.5U	5U	0.5U	0.5U	0.5U	0.5U	5U
1,2-DICHLOROETHANE	ug/l	5U	0.5U	5U	0.5U	0.5U	0.5UJ	0.5U	5U
1,2-DICHLOROPROPANE	ug/l	5U	0.5U	5U	0.5U	0.5U	0.5UJ	0.5U	5U
1,3-DICHLOROBENZENE	ug/l	5U	0.5U	5U	0.5U	0.5U	0.5U	0.5U	5U
1,4-DICHLOROBENZENE	ug/l	5U	0.5U	5U	0.5U	0.5U	0.5U	0.5U	5U
2-BUTANONE	ug/l	50U	5U	50U	5U	5U	5UJ	5U	50U
2-HEXANONE	ug/l	50U	5U	50U	5U	5U	5U	5U	50U
4-METHYL-2-PENTANONE	ug/l	50U	5U	50U	5U	5U	5UJ	5U	50U
ACETONE	ug/l	50UJ	5UJ	50UJ	5UJ	5UJ	5UJ	5UJ	50UJ
BENZENE	ug/l	430	1.6	130	9.8	30J	0.5UJ	0.1J	220
BROMODICHLOROMETHANE	ug/l	5U	0.5U	5U	0.5U	0.5U	0.5UJ	0.5U	5U
BROMOFORM	ug/l	5U	0.5U	5U	0.5U	0.5U	0.5U	0.5U	5U
BROMOMETHANE	ug/l	5U	0.5U	5U	0.5U	0.5U	0.5UJ	0.5U	5U
CARBON DISULFIDE	ug/l	1.7J	0.1J	1.6J	0.5U	0.5U	0.2J	0.2J	5.3
CARBON TETRACHLORIDE	ug/l	5U	0.5U	5U	0.5U	0.5U	0.5UJ	0.5U	5U
CHLOROBENZENE	ug/l	5U	0.5U	5U	0.5U	0.5U	0.5U	0.5U	5U
CHLORODIBROMOMETHANE	ug/l	5U	0.5U	5U	0.5U	0.5U	0.5U	0.5U	5U
CHLOROETHANE	ug/l	5U	0.5U	5U	0.5U	0.1J	0.5UJ	0.5U	5U
CHLOROFORM	ug/l	5U	0.5U	5U	0.5U	0.5U	0.5UJ	0.5U	5U
CHLOROMETHANE	ug/l	5U	0.5U	5U	0.5U	0.5U	0.5UJ	0.5U	5U
CIS-1,2-DICHLOROETHENE	ug/l	5U	0.5U	5U	0.5U	0.5U	0.2J	0.2J	1.6J
CIS-1,3-DICHLOROPROPENE	ug/l	5U	0.5U	5U	0.5U	0.5UJ	0.5UJ	0.5U	5U
CYCLOHEXANE	mg/l	0.005U	0.0005U	0.005U	0.0002J	0.0005U	0.0005UJ	0.0003J	0.005U
DICHLORODIFLUOROMETHANE	mg/l	0.005U	0.0005U	0.005U	0.0005U	0.0005U	0.0005UJ	0.0005UJ	0.005UJ
ETHYLBENZENE	ug/l	510	3	250	11	1.2	0.5U	1.3	200
ISOPROPYLBENZENE	mg/l	0.032	0.0029	0.005U	0.0014	0.0032	0.0005U	0.0005	0.034
METHYL ACETATE	mg/l	0.01U	0.001U	0.01U	0.001U	0.001U	0.001UJ	0.001U	0.01U
METHYL TERT-BUTYL ETHER	mg/l	0.005U	0.0005U	0.005U	0.0005U	0.0005U	0.0005UJ	0.0005U	0.005U
METHYLCYCLOHEXANE	mg/l	0.005U	0.0005U	0.005U	0.0002J	0.0002J	0.0005UJ	0.0014	0.005U
METHYLENE CHLORIDE	ug/l	5U	0.5U	5U	0.5U	0.5U	0.5UJ	0.5U	5U
STYRENE	ug/l	5U	0.5U	5U	0.5U	0.5UJ	0.5UJ	0.5U	5U
TETRACHLOROETHENE	ug/l	5U	0.5U	5U	0.5U	0.5U	0.5U	0.5U	5U
TOLUENE	ug/l	830	1.2	31	1.6	1.8	0.5U	0.2J	140
TRANS-1,2-DICHLOROETHENE	ug/l	5U	0.5U	5U	0.5U	0.5U	0.5UJ	0.5U	5U
TRANS-1,3-DICHLOROPROPENE	ug/l	5U	0.5U	5U	0.5U	0.5UJ	0.5UJ	0.5U	5U
TRICHLOROETHENE	ug/l	5U	0.5U	5U	0.5U	0.5U	0.5UJ	0.5U	1.4J
TRICHLOROFLUOROMETHANE	mg/l	0.005U	0.0005U	0.005U	0.0005U	0.0005U	0.0005UJ	0.0005U	0.005U
VINYL CHLORIDE	ug/l	5U	0.5U	5U	0.5U	0.5U	0.5UJ	0.5U	5U
XYLENES, TOTAL	ug/l	1100	5.2	420	4	5.5	0.5U	3.6	250

Notes:
mg/l - milligrams per liter [parts per million (PPM)]
ug/l - micrograms per liter [parts per billion (PPB)]
Volatile organic compounds (VOCs) analyzed using method SW8260

TABLE 3-3
Summary of Laboratory Analytical Data for Groundwater
Ammonia, Arsenic, and Lead
Quanta Resources Site
Edgewater, New Jersey

Parameter Name	Field Sample ID Location Sample Date Units	MW-101A-111705 MW-101A 11/17/2005	MW-101DS-111705 MW-101DS 11/17/2005	MW-102-111505 MW-102 11/15/2005	MW-102A-111805 MW-102A 11/18/2005	MW-102B-111505 MW-102B 11/15/2005	MW-103-111805 MW-103 11/18/2005	MW-103A-111705 MW-103A 11/17/2005	MW-103DS-111705 MW-103DS 11/17/2005	MW-105-112105 MW-105A 11/21/2005	MW-105A-112105 MW-105A 11/21/2005
AMMONIA	mg/l	1.9									
ARSENIC	ug/l	21.3	0.87J	30.1	24.4	149	1720	6.1	5.9	1.8J	2.2
LEAD	ug/l	0.18U	0.26J	0.18J	0.66J	0.18U	1	0.85J	0.18U	0.23J	0.45J

Notes:
mg/l - milligrams per liter [parts per million (PPM)]
ug/l - micrograms per liter [parts per billion (PPB)]
Ammonia analyzed using method E350.2.
Arsenic and lead analyzed using method SW6020.

TABLE G-3
Summary of Laboratory Analytical Data for Groundwater
Ammonia, Arsenic, and Lead
Quanta Resources Site
Edgewater, New Jersey

Parameter Name	Field Sample ID Location Sample Date Units	MW-106-120605 MW-106 12/6/2005	DUP-120605-GW MW-106A 12/6/2005	MW-106A-120605 MW-106A 12/6/2005	MW-107-120605 MW-107 12/6/2005	MW-107A-120505 MW-107A 12/5/2005	MW-108-120705 MW-108 12/7/2005	MW-109-120605 MW-109 12/6/2005	MW-111A-111605 MW-111A 11/16/2005	DUP-111605-GW MW-111B 11/16/2005	MW-111B-111605 MW-111B 11/16/2005
AMMONIA	mg/l								5	4.9	5.8
ARSENIC	ug/l	3.3J	16.4	15.5	14800	22400	5.2J	57.9	38600	37400	62100
LEAD	ug/l	0.9U	0.9U	0.9U	0.9U	3.9J	16.2	2.1J	1.2	1.3	5.9

Notes:
mg/l - milligrams per liter [parts per million (PPM)]
ug/l - micrograms per liter [parts per billion (PPB)]
Ammonia analyzed using method E350.2.
Arsenic and lead analyzed using method SW6020.

TAB[illegible]-3
Summary of Laboratory Analytical Data for Groundwater
Ammonia, Arsenic, and Lead
Quanta Resources Site
Edgewater, New Jersey

Parameter Name	Field Sample ID Location Sample Date Units	MW-112A-112105 MW-112A 11/21/2005	MW-112B-111805 MW-112B 11/18/2005	MW-113A-111505 MW-113A 11/15/2005	MW-113B-111505 MW-113B 11/15/2005	DUP-112205-GW MW-116A 11/22/2005	MW-116A112205 MW-116A 11/22/2005	MW-116B-112305 MW-116B 11/22/2005	MW-116DS-112205 MW-116DS 11/22/2005	MW-117A-112105 MW-117A 11/21/2005	MW-117B-112105 MW-117B 11/21/2005
AMMONIA	mg/l	17.1	22.3								
ARSENIC	ug/l	1570	28800	1380	8750	1.5J	1.8J	4.5	1.9J	3.9	3.1
LEAD	ug/l	3.7	1.3	0.71J	6.3	0.47J	0.39J	14.9	0.29J	3.1	0.76J

Notes:
mg/l - milligrams per liter [parts per million (PPM)]
ug/l - micrograms per liter [parts per billion (PPB)]
Ammonia analyzed using method E350.2.
Arsenic and lead analyzed using method SW6020.

TABLE G-3
Summary of Laboratory Analytical Data for Groundwater
Ammonia, Arsenic, and Lead
Quanta Resources Site
Edgewater, New Jersey

Parameter Name	Field Sample ID Location Sample Date Units	MW-118A-112105 MW-118A 11/21/2005	MW-118B-112105 MW-118B 11/21/2005	MW-119A-120705 MW-119A 12/7/2005	MW-119B-120705 MW-119B 12/7/2005	MW-120A-120505 MW-120A 12/5/2005	MW-120B-120505 MW-120B 12/5/2005	MW-122A-120505 MW-122A 12/5/2005
AMMONIA	mg/l							
ARSENIC	ug/l	1J	1.9J	5J	5.8J	6J	14	17500
LEAD	ug/l	0.36J	0.4J	3.3J	2.1J	0.2J	1.3	5

Notes:
mg/l - milligrams per liter [parts per million (PPM)]
ug/l - micrograms per liter [parts per billion (PPB)]
Ammonia analyzed using method E350.2.
Arsenic and lead analyzed using method SW6020.

TAB[illegible]5-4

Summary of Laboratory Analytical Data for Groundwater

Pesticides and PCBs

Quanta Resources Site

Edgewater, New Jersey

	Field Sample ID	MW-101A-111705	MW-101DS-111705	MW-102-111505	MW-102A-111805	MW-102B-111505	MW-103-111805	MW-103A-111705	MW-103DS-111705	MW-105-112105
	Location	MW-101A	MW-101DS	MW-102	MW-102A	MW-102B	MW-103	MW-103A	MW-103DS	MW-105A
	Sample Date	11/17/2005	11/17/2005	11/15/2005	11/18/2005	11/15/2005	11/18/2005	11/17/2005	11/17/2005	11/21/2005
Parameter Name	Units									
4,4'-DDD	ug/l	0.019UJ					0.019UJ	0.095U		
4,4'-DDE	ug/l	0.019UJ					0.13J	0.095U		
4,4'-DDT	ug/l	0.019UJ					0.019UJ	0.095U		
ALDRIN	ug/l	0.019UJ					0.019UJ	0.095U		
ALPHA-BHC	ug/l	0.0094UJ					0.0095UJ	0.047U		
ALPHA-CHLORDANE	ug/l	0.0094UJ					0.0095UJ	0.047U		
BETA-BHC	ug/l	0.038UJ					0.038UJ	0.19U		
BETA-CHLORDANE	mg/l	9.4e-005UJ					9.5e-005UJ	0.00047U		
DIELDRIN	ug/l	0.028UJ					0.029UJ	0.14U		
ENDOSULFAN I	ug/l	0.0094UJ					0.0095UJ	0.047U		
ENDOSULFAN II	ug/l	0.019UJ					0.019UJ	0.095U		
ENDOSULFAN SULFATE	ug/l	0.019UJ					0.019UJ	0.095U		
ENDRIN	ug/l	0.019UJ					0.095J	0.025J		
ENDRIN ALDEHYDE	mg/l	9.4e-005UJ					9.5e-005UJ	0.00047U		
ENDRIN KETONE	ug/l	0.019UJ					0.019UJ	0.095U		
GAMMA-BHC (LINDANE)	ug/l	0.0094UJ					0.0095UJ	0.047U		
HEPTACHLOR	ug/l	0.0094UJ					0.0095UJ	0.047U		
HEPTACHLOR EPOXIDE	ug/l	0.0094UJ					0.0095UJ	0.047U		
METHOXYCHLOR	ug/l	0.094UJ					0.16J	0.47U		
AROCLOR-1016	ug/l	0.47UJ	0.48U	0.47U	0.48U	0.47U	0.48UJ	2.4U	0.47U	0.48U
AROCLOR-1221	ug/l	0.47UJ	0.48U	0.47U	0.48U	0.47U	0.48UJ	2.4U	0.47U	0.48U
AROCLOR-1232	ug/l	0.47UJ	0.48U	0.47U	0.48U	0.47U	0.48UJ	2.4U	0.47U	0.48U
AROCLOR-1242	ug/l	0.47UJ	0.48U	0.47U	0.48U	0.47U	0.48UJ	2.4U	0.47U	0.48U
AROCLOR-1248	ug/l	0.47UJ	0.48U	0.47U	0.48U	0.47U	0.48UJ	2.4U	0.47U	0.48U
AROCLOR-1254	ug/l	0.47UJ	0.48U	0.47U	0.48U	0.47U	0.48UJ	2.4U	0.47U	0.48U
AROCLOR-1260	ug/l	0.47UJ	0.48U	0.47U	0.48U	0.47U	0.48UJ	2.4U	0.47U	0.48U

Notes:
mg/l - milligrams per liter [parts per million (PPM)]
ug/l - micrograms per liter [parts per billion (PPB)]
Pesticides analyzed using method SW8081.
Polychlorinated biphenyls (PCBs) analyzed using method SW8082.

TABLE G-4
Summary of Laboratory Analytical Data for Groundwater
Pesticides and PCBs
Quanta Resources Site
Edgewater, New Jersey

	Field Sample ID	MW-105A-112105	MW-106-120605	DUP-120605-GW	MW-106A-120605	MW-107-120605	MW-107A-120505	MW-108-120705	MW-109-120605	MW-111A-111605	DUP-111605-GW
	Location	MW-105A	MW-106	MW-106A	MW-106A	MW-107	MW-107A	MW-108	MW-109	MW-111A	MW-111B
	Sample Date	11/21/2005	12/6/2005	12/6/2005	12/6/2005	12/6/2005	12/5/2005	12/7/2005	12/6/2005	11/16/2005	11/16/2005
Parameter Name	Units										
4,4'-DDD	ug/l									0.019UJ	0.019UJ
4,4'-DDE	ug/l									0.019UJ	0.019UJ
4,4'-DDT	ug/l									0.019UJ	0.019UJ
ALDRIN	ug/l									0.019UJ	0.019UJ
ALPHA-BHC	ug/l									0.0095UJ	0.0095UJ
ALPHA-CHLORDANE	ug/l									0.0095UJ	0.0095UJ
BETA-BHC	ug/l									0.038UJ	0.038UJ
BETA-CHLORDANE	mg/l									9.5e-005UJ	9.5e-005UJ
DIELDRIN	ug/l									0.028UJ	0.028UJ
ENDOSULFAN I	ug/l									0.0095UJ	0.0095UJ
ENDOSULFAN II	ug/l									0.019UJ	0.019UJ
ENDOSULFAN SULFATE	ug/l									0.019UJ	0.019UJ
ENDRIN	ug/l									0.019UJ	0.019UJ
ENDRIN ALDEHYDE	mg/l									9.5e-005UJ	9.5e-005UJ
ENDRIN KETONE	ug/l									0.019UJ	0.019UJ
GAMMA-BHC (LINDANE)	ug/l									0.0095UJ	0.0095UJ
HEPTACHLOR	ug/l									0.0095UJ	0.0095UJ
HEPTACHLOR EPOXIDE	ug/l									0.0095UJ	0.0095UJ
METHOXYCHLOR	ug/l									0.095UJ	0.095UJ
AROCLOR-1016	ug/l	0.47U	0.47U	0.48U	0.5U	0.48U	0.48UJ	0.48U	0.47UJ	0.47UJ	0.47UJ
AROCLOR-1221	ug/l	0.47U	0.47U	0.48U	0.5U	0.48U	0.48U	0.48U	0.47UJ	0.47UJ	0.47UJ
AROCLOR-1232	ug/l	0.47U	0.47U	0.48U	0.5U	0.48U	0.48U	0.48U	0.47UJ	0.47UJ	0.47UJ
AROCLOR-1242	ug/l	0.47U	0.47U	0.48U	0.5U	0.48U	0.48U	0.48U	0.47UJ	0.47UJ	0.47UJ
AROCLOR-1248	ug/l	0.47U	0.47U	0.48U	0.5U	0.48U	0.48U	0.48U	0.47UJ	0.47UJ	0.47UJ
AROCLOR-1254	ug/l	0.47U	0.47U	0.48U	0.5U	0.48U	0.48U	0.48U	0.47UJ	0.47UJ	0.47UJ
AROCLOR-1260	ug/l	0.47U	0.47U	0.48U	0.5U	0.48U	0.48U	0.48U	0.47UJ	0.47UJ	0.47UJ

Notes:
mg/l - milligrams per liter [parts per million (PPM)]
ug/l - micrograms per liter [parts per billion (PPB)]
Pesticides analyzed using method SW8081.
Polychlorinated biphenyls (PCBs) analyzed using method SW8082.

TABLE G-4
Summary of Laboratory Analytical Data for Groundwater
Pesticides and PCBs
Quanta Resources Site
Edgewater, New Jersey

	Field Sample ID	MW-111B-111605	MW-112A-112105	MW-112B-111805	MW-113A-111505	MW-113B-111505	DUP-112205-GW	MW-116A112205	MW-116B-112305	MW-116DS-112205	MW-117A-112105
	Location	MW-111B	MW-112A	MW-112B	MW-113A	MW-113B	MW-116A	MW-116A	MW-116B	MW-116DS	MW-117A
	Sample Date	11/16/2005	11/21/2005	11/18/2005	11/15/2005	11/15/2005	11/22/2005	11/22/2005	11/22/2005	11/22/2005	11/21/2005
Parameter Name	Units										
4,4'-DDD	ug/l	0.019UJ	0.96U	0.019UJ	0.019UJ	0.019U					0.019U
4,4'-DDE	ug/l	0.019UJ	0.96U	0.019UJ	0.0052J	0.013J					0.021J
4,4'-DDT	ug/l	0.019UJ	0.96UJ	0.019UJ	0.019UJ	0.019U					0.03J
ALDRIN	ug/l	0.019UJ	0.96U	0.019UJ	0.019UJ	0.019U					0.019U
ALPHA-BHC	ug/l	0.0095UJ	0.48U	0.0095UJ	0.0094UJ	0.0095U					0.0095U
ALPHA-CHLORDANE	ug/l	0.0095UJ	0.48U	0.014J	0.0024J	0.0095U					0.0095U
BETA-BHC	ug/l	0.038UJ	1.9U	0.038UJ	0.038UJ	0.038U					0.038U
BETA-CHLORDANE	mg/l	9.5e-005UJ	0.0048U	9.5e-005UJ	9.4e-005UJ	9.5e-005U					9.5e-005U
DIELDRIN	ug/l	0.028UJ	1.4U	0.028UJ	0.028UJ	0.029U					0.029U
ENDOSULFAN I	ug/l	0.0037J	0.14J	0.0073J	0.0094UJ	0.0043J					0.0095U
ENDOSULFAN II	ug/l	0.019UJ	0.96U	0.019UJ	0.019UJ	0.019U					0.019U
ENDOSULFAN SULFATE	ug/l	0.019UJ	0.96U	0.02J	0.019UJ	0.019U					0.0084J
ENDRIN	ug/l	0.019UJ	0.51J	0.019UJ	0.019UJ	0.019U					0.018J
ENDRIN ALDEHYDE	mg/l	9.5e-005UJ	0.0048U	9.5e-005UJ	9.4e-005UJ	9.5e-005U					9.5e-005U
ENDRIN KETONE	ug/l	0.019UJ	0.96U	0.019UJ	0.019UJ	0.019U					0.019U
GAMMA-BHC (LINDANE)	ug/l	0.0095UJ	0.48U	0.0095UJ	0.0094UJ	0.0095U					0.0095U
HEPTACHLOR	ug/l	0.0095UJ	0.48U	0.0095UJ	0.0026J	0.0021J					0.0095U
HEPTACHLOR EPOXIDE	ug/l	0.0095UJ	0.48U	0.0095UJ	0.0094UJ	0.0095U					0.0095U
METHOXYCHLOR	ug/l	0.095UJ	4.8U	0.095UJ	0.094UJ	0.095U					0.095U
AROCLOR-1016	ug/l	0.47UJ	24U	0.47UJ	0.47UJ	0.48U	0.48U	0.48U	0.095U	0.48U	0.48U
AROCLOR-1221	ug/l	0.47UJ	24U	0.47UJ	0.47UJ	0.48U	0.48U	0.48U	0.16U	0.48U	0.48U
AROCLOR-1232	ug/l	0.47UJ	24U	0.47UJ	0.47UJ	0.48U	0.48U	0.48U	0.095U	0.48U	0.48U
AROCLOR-1242	ug/l	0.47UJ	24U	0.47UJ	0.47UJ	0.48U	0.48U	0.48U	0.095U	0.48U	0.48U
AROCLOR-1248	ug/l	0.47UJ	24U	0.47UJ	0.47UJ	0.48U	0.48U	0.48U	0.095U	0.48U	0.48U
AROCLOR-1254	ug/l	0.47UJ	24U	0.47UJ	0.47UJ	0.48U	0.48U	0.48U	0.095U	0.48U	0.48U
AROCLOR-1260	ug/l	0.47UJ	24U	0.47UJ	0.47UJ	0.48U	0.48U	0.48U	0.095U	0.48U	0.48U

Notes:
mg/l - milligrams per liter [parts per million (PPM)]
ug/l - micrograms per liter [parts per billion (PPB)]
Pesticides analyzed using method SW8081.
Polychlorinated biphenyls (PCBs) analyzed using method SW8082.

TABLE G-4
Summary of Laboratory Analytical Data for Groundwater
Pesticides and PCBs
Quanta Resources Site
Edgewater, New Jersey

	Field Sample ID	MW-117B-112105	MW-118A-112105	MW-118B-112105	MW-119A-120705	MW-119B-120705	MW-120A-120505	MW-120B-120505	MW-122A-120505
	Location	MW-117B	MW-118A	MW-118B	MW-119A	MW-119B	MW-120A	MW-120B	MW-122A
	Sample Date	11/21/2005	11/21/2005	11/21/2005	12/7/2005	12/7/2005	12/5/2005	12/5/2005	12/5/2005
Parameter Name	Units								
4,4'-DDD	ug/l	0.072J							
4,4'-DDE	ug/l	0.032J							
4,4'-DDT	ug/l	0.034J							
ALDRIN	ug/l	0.032J							
ALPHA-BHC	ug/l	0.047J							
ALPHA-CHLORDANE	ug/l	0.0095U							
BETA-BHC	ug/l	0.038U							
BETA-CHLORDANE	mg/l	9.5e-005U							
DIELDRIN	ug/l	0.028U							
ENDOSULFAN I	ug/l	0.0095U							
ENDOSULFAN II	ug/l	0.019U							
ENDOSULFAN SULFATE	ug/l	0.019U							
ENDRIN	ug/l	0.038J							
ENDRIN ALDEHYDE	mg/l	9.5e-005U							
ENDRIN KETONE	ug/l	0.019U							
GAMMA-BHC (LINDANE)	ug/l	0.0095U							
HEPTACHLOR	ug/l	0.0095U							
HEPTACHLOR EPOXIDE	ug/l	0.0095U							
METHOXYCHLOR	ug/l	0.095U							
AROCLOR-1016	ug/l	0.47U	0.48U	0.47U	0.48U	0.47U	0.47U	0.47U	0.47UJ
AROCLOR-1221	ug/l	0.47U	0.48U	0.47U	0.48U	0.47U	0.47U	0.47U	0.47U
AROCLOR-1232	ug/l	0.47U	0.48U	0.47U	0.48U	0.47U	0.47U	0.47U	0.47U
AROCLOR-1242	ug/l	0.47U	0.48U	0.47U	0.48U	0.47U	0.47U	0.47U	0.47U
AROCLOR-1248	ug/l	0.47U	0.48U	0.47U	0.48U	0.47U	0.47U	0.47U	0.47U
AROCLOR-1254	ug/l	0.47U	0.48U	0.47U	0.48U	0.47U	0.47U	0.47U	0.47U
AROCLOR-1260	ug/l	0.47U	0.48U	0.47U	0.48U	0.47U	0.47U	0.47U	0.47U

Notes:
mg/l - milligrams per liter [parts per million (PPM)]
ug/l - micrograms per liter [parts per billion (PPB)]
Pesticides analyzed using method SW8081.
Polychlorinated biphenyls (PCBs) analyzed using method SW8082.

Table G-5
Summary of Analytical Results for Seasonal Standing Water
Quanta Resources Site
Edgewater, New Jersey

Parameter Name	Field Sample ID	30916SW-A-111705	30916SW-B-111705	30916SW-C-111705	DUP-111705	30916SW-D-111705
	Location	SW-A	SW-B	SW-C	SW-C	SW-D
	Sample Date	11/17/2005	11/17/2005	11/17/2005	11/17/2005	11/17/2005
	Units					
VOCs						
1,1,1-TRICHLOROETHANE	ug/l	0.5U	2.5U	0.5U	0.5U	2.5U
1,1,2,2-TETRACHLOROETHANE	ug/l	0.5U	2.5U	0.5U	0.5U	2.5U
1,1,2-TRICHLOROETHANE	ug/l	0.5U	2.5U	0.5U	0.5U	2.5U
1,1,2-TRICHLOROTRIFLUOROETH	mg/l	0.0005U	0.0025U	0.0005U	0.0005U	0.0025U
1,1-DICHLOROETHANE	ug/l	0.5U	2.5U	0.5U	0.5U	2.5U
1,1-DICHLOROETHENE	ug/l	0.5U	2.5U	0.5U	0.5U	2.5U
1,2,4-TRICHLOROBENZENE	ug/l	0.5U	2.5U	0.5U	0.5U	2.5U
1,2-DIBROMO-3-CHLOROPROPAN	mg/l	0.002U	0.01U	0.002U	0.002U	0.01U
1,2-DIBROMOETHANE	mg/l	0.0005U	0.0025U	0.0005U	0.0005U	0.0025U
1,2-DICHLOROBENZENE	ug/l	0.5U	2.5U	0.5U	0.5U	2.5U
1,2-DICHLOROETHANE	ug/l	0.5U	2.5U	0.5U	0.5U	2.5U
1,2-DICHLOROPROPANE	ug/l	0.5U	2.5U	0.5U	0.5U	2.5U
1,3-DICHLOROBENZENE	ug/l	0.5U	2.5U	0.5U	0.5U	2.5U
1,4-DICHLOROBENZENE	ug/l	0.5U	2.5U	0.5U	0.5U	2.5U
2-BUTANONE	ug/l	5U	25U	5U	5U	25U
2-HEXANONE	ug/l	5U	25U	5U	5U	25U
4-METHYL-2-PENTANONE	ug/l	5U	25U	5U	5U	25U
ACETONE	ug/l	3.7J	25UJ	6.8J	6.4J	25UJ
BENZENE	ug/l	0.5U	2.5U	0.5U	0.5U	2.5U
BROMODICHLOROMETHANE	ug/l	0.5U	2.5U	0.5U	0.5U	2.5U
BROMOFORM	ug/l	0.5U	2.5U	0.5U	0.5U	2.5U
BROMOMETHANE	ug/l	0.5U	2.5U	0.5U	0.5U	2.5U
CARBON DISULFIDE	ug/l	0.5U	2.5U	0.1J	0.1J	2.5U
CARBON TETRACHLORIDE	ug/l	0.5U	2.5U	0.5U	0.5U	2.5U
CHLOROBENZENE	ug/l	0.5U	2.5U	0.5U	0.5U	2.5U
CHLORODIBROMOMETHANE	ug/l	0.5U	2.5U	0.5U	0.5U	2.5U
CHLOROETHANE	ug/l	0.5U	2.5U	0.5U	0.5U	2.5U
CHLOROFORM	ug/l	0.5U	2.5U	0.5U	0.5U	2.5U
CHLOROMETHANE	ug/l	0.5U	0.5J	0.5U	0.5U	0.6J
CIS-1,2-DICHLOROETHENE	ug/l	0.5U	2.5U	0.5U	0.5U	2.5U
CIS-1,3-DICHLOROPROPENE	ug/l	0.5U	2.5U	0.5U	0.5U	2.5U
CYCLOHEXANE	mg/l	0.0005U	0.0025U	0.0005U	0.0005U	0.0025U
DICHLORODIFLUOROMETHANE	mg/l	0.0005U	0.0025U	0.0005U	0.0005U	0.0025U
ETHYLBENZENE	ug/l	0.5U	2.5U	0.5U	0.5U	2.5U
ISOPROPYLBENZENE	mg/l	0.0005U	0.0025U	0.0005U	0.0005U	0.0025U
METHYL ACETATE	mg/l	0.001U	0.005U	0.001U	0.001U	0.005U
METHYL TERT-BUTYL ETHER	mg/l	0.0005U	0.0025U	0.0005U	0.0005U	0.0025U
METHYLCYCLOHEXANE	mg/l	0.0005U	0.0025U	0.0005U	0.0005U	0.0025U
METHYLENE CHLORIDE	ug/l	0.5U	2.5U	0.5U	0.5U	2.5U
STYRENE	ug/l	0.5U	2.5UJ	0.5UJ	0.5UJ	2.5UJ
TETRACHLOROETHENE	ug/l	0.5U	2.5U	0.5U	0.5U	2.5U
TOLUENE	ug/l	0.5U	2.5U	0.5U	0.5U	2.5U
TRANS-1,2-DICHLOROETHENE	ug/l	0.5U	2.5U	0.5U	0.5U	2.5U
TRANS-1,3-DICHLOROPROPENE	ug/l	0.5U	2.5U	0.5U	0.5U	2.5U
TRICHLOROETHENE	ug/l	0.5U	2.5U	0.5U	0.5U	2.5U
TRICHLOROFLUOROMETHANE	mg/l	0.0005U	0.0025U	0.0005U	0.0005U	0.0025U
VINYL CHLORIDE	ug/l	0.5U	2.5U	0.5U	0.5U	2.5U
XYLENES, TOTAL	ug/l	0.5U	2.5U	0.5U	0.5U	2.5U

Table G-5
Summary of Analytical Results for Seasonal Standing Water
Quanta Resources Site
Edgewater, New Jersey

Parameter Name	Field Sample ID	30916SW-A-111705	30916SW-B-111705	30916SW-C-111705	DUP-111705	30916SW-D-111705
	Location	SW-A	SW-B	SW-C	SW-C	SW-D
	Sample Date	11/17/2005	11/17/2005	11/17/2005	11/17/2005	11/17/2005
	Units					
			SVOCs			
1,1'-BIPHENYL	mg/l	0.005U	0.005U	0.005U	0.005U	0.005U
2,2'-OXYBIS(1-CHLOROPROPANE	ug/l	5U	5U	5U	5U	5U
2,4,5-TRICHLOROPHENOL	ug/l	5U	5U	5U	5U	5U
2,4,6-TRICHLOROPHENOL	ug/l	5U	5U	5U	5U	5U
2,4-DICHLOROPHENOL	ug/l	5U	5U	5U	5U	5U
2,4-DIMETHYLPHENOL	ug/l	10U	10U	9U	10U	10U
2,4-DINITROPHENOL	ug/l	57U	57U	57U	58U	57U
2,4-DINITROTOLUENE	ug/l	5U	5U	5U	5U	5U
2,6-DINITROTOLUENE	ug/l	5U	5U	5U	5U	5U
2-CHLORONAPHTHALENE	ug/l	5U	5U	5U	5U	5U
2-CHLOROPHENOL	ug/l	5U	5U	5U	5U	5U
2-METHYLNAPHTHALENE	ug/l	5U	5U	5U	5U	1J
2-METHYLPHENOL	ug/l	5U	5U	5U	5U	5U
2-NITROANILINE	ug/l	5U	5U	5U	5U	5U
2-NITROPHENOL	ug/l	5U	5U	5U	5U	5U
3,3'-DICHLOROBENZIDINE	ug/l	5U	5U	5U	5U	5U
3-NITROANILINE	ug/l	5U	5U	5U	5U	5U
4,6-DINITRO-2-METHYLPHENOL	ug/l	14U	14U	14U	14U	14U
4-BROMOPHENYL PHENYL ETHE	ug/l	5U	5U	5U	5U	5U
4-CHLORO-3-METHYLPHENOL	ug/l	5U	5U	5U	5U	5U
4-CHLOROANILINE	ug/l	5U	5U	5U	5U	5U
4-CHLOROPHENYL PHENYL ETHI	ug/l	5U	5U	5U	5U	5U
4-METHYLPHENOL	ug/l	5U	5U	5U	5U	5U
4-NITROANILINE	ug/l	5U	5U	5U	5U	5U
4-NITROPHENOL	ug/l	29U	29U	28U	29U	29U
ACENAPHTHENE	ug/l	5U	5U	5U	5U	6
ACENAPHTHYLENE	ug/l	5U	5U	5U	5U	8
ACETOPHENONE	mg/l	0.005U	0.005U	0.005U	0.005U	0.005U
ANTHRACENE	ug/l	5U	5U	5U	5U	14
ATRAZINE	mg/l	0.005U	0.005U	0.005U	0.005U	0.005U
BENZALDEHYDE	mg/l	0.005U	0.005U	0.005U	0.005U	0.005U
BENZO(A)ANTHRACENE	ug/l	5U	1J	5U	5U	50
BENZO(A)PYRENE	ug/l	1J	1J	5U	5U	62
BENZO(B)FLUORANTHENE	ug/l	1J	2J	5U	5U	94
BENZO(G,H,I)PERYLENE	ug/l	1J	1J	5U	5U	46
BENZO(K)FLUORANTHENE	ug/l	1J	5U	5U	5U	36
BIS(2-CHLOROETHOXY)METHAN	ug/l	5U	5U	5U	5U	5U
BIS(2-CHLOROETHYL)ETHER	ug/l	5U	5U	5U	5U	5U
BIS(2-ETHYLHEXYL)PHTHALATE	ug/l	5U	5U	5U	5U	2J
BUTYLBENZYL PHTHALATE	ug/l	5U	5U	5U	5U	5U
CAPROLACTAM	mg/l	0.014U	0.014U	0.014U	0.014U	0.014U
CARBAZOLE	ug/l	5U	5U	5U	5U	8
CHRYSENE	ug/l	1J	1J	5U	5U	68
DI-N-BUTYL PHTHALATE	ug/l	5U	5U	5U	5U	5U
DI-N-OCTYL PHTHALATE	ug/l	5U	5U	5U	5U	5U
DIBENZO(A,H)ANTHRACENE	ug/l	5U	5U	5U	5U	12
DIBENZOFURAN	ug/l	5U	5U	5U	5U	3J
DIETHYL PHTHALATE	ug/l	5U	5U	5U	5U	5U
DIMETHYL PHTHALATE	ug/l	5U	5U	5U	5U	5U
FLUORANTHENE	ug/l	1J	2J	5U	5U	110
FLUORENE	ug/l	5U	5U	5U	5U	5
HEXACHLOROBENZENE	ug/l	5U	5U	5U	5U	5U
HEXACHLOROBUTADIENE	ug/l	5U	5U	5U	5U	5U
HEXACHLOROCYCLOPENTADIEN	ug/l	14U	14U	14U	14U	14U
HEXACHLOROETHANE	ug/l	5U	5U	5U	5U	5U
INDENO(1,2,3-CD)PYRENE	ug/l	5U	1J	5U	5U	41
ISOPHORONE	ug/l	5U	5U	5U	5U	5U

Table G-5
Summary of Analytical Results for Seasonal Standing Water
Quanta Resources Site
Edgewater, New Jersey

Parameter Name	Field Sample ID	30916SW-A-111705	30916SW-B-111705	30916SW-C-111705	DUP-111705	30916SW-D-111705
	Location	SW-A	SW-B	SW-C	SW-C	SW-D
	Sample Date	11/17/2005	11/17/2005	11/17/2005	11/17/2005	11/17/2005
	Units					
N-NITROSO-DI-N-PROPYLAMINE	ug/l	5U	5U	5U	5U	5U
N-NITROSODIPHENYLAMINE	ug/l	5U	5U	5U	5U	5U
NAPHTHALENE	ug/l	5U	5U	5U	5U	3J
NITROBENZENE	ug/l	5U	5U	5U	5U	5U
PENTACHLOROPHENOL	ug/l	14U	14U	14U	14U	14U
PHENANTHRENE	ug/l	5U	5U	5U	5U	56
PHENOL	ug/l	5U	5U	5U	5U	5U
PYRENE	ug/l	1J	2J	5U	5U	100
Pesticides						
4,4'-DDD	ug/l	0.019U	0.019U	0.019U	0.019U	0.19U
4,4'-DDE	ug/l	0.019U	0.019U	0.019U	0.019U	0.13J
4,4'-DDT	ug/l	0.019UJ	0.019UJ	0.019UJ	0.019UJ	0.46J
ALDRIN	ug/l	0.019U	0.019U	0.019U	0.019U	0.19U
ALPHA-BHC	ug/l	0.0059J	0.0046J	0.0096U	0.0096U	0.096U
alpha-CHLORDANE	ug/l	0.0096U	0.0096U	0.0096U	0.0096U	0.096U
beta-BHC	ug/l	0.038U	0.038U	0.039U	0.038U	0.39U
beta-chlordane	mg/l	9.6e-005U	9.6e-005U	9.6e-005U	9.6e-005U	0.00096U
delta-BHC	ug/l	0.008J	0.0078J	0.0096U	0.0096U	0.096U
DIELDRIN	ug/l	0.029U	0.029U	0.029U	0.029U	0.29U
ENDOSULFAN I	ug/l	0.0096U	0.0096U	0.0096U	0.0096U	0.096U
ENDOSULFAN II	ug/l	0.019U	0.019U	0.019U	0.019U	0.19U
ENDOSULFAN SULFATE	ug/l	0.019U	0.019U	0.019U	0.019U	0.19U
ENDRIN	ug/l	0.019U	0.019U	0.019U	0.019U	0.19U
ENDRIN ALDEHYDE	mg/l	9.6e-005U	9.6e-005U	9.6e-005U	9.6e-005U	0.00096U
ENDRIN KETONE	ug/l	0.019U	0.019U	0.019U	0.019U	0.19U
gamma-BHC (LINDANE)	ug/l	0.0024J	0.0068J	0.002J	0.0031J	0.096U
HEPTACHLOR	ug/l	0.0096U	0.0096U	0.0096U	0.0096U	0.096U
HEPTACHLOR EPOXIDE	ug/l	0.0096U	0.0096U	0.0096U	0.0096U	0.096U
METHOXYCHLOR	ug/l	0.096U	0.096U	0.096U	0.096U	0.96U
TOXAPHENE	ug/l	0.96U	0.96U	0.96U	0.96U	9.6U
PCBs						
AROCLOR-1016	ug/l	0.48U	0.48U	0.48U	0.48U	4.8U
AROCLOR-1221	ug/l	0.48U	0.48U	0.48U	0.48U	4.8U
AROCLOR-1232	ug/l	0.48U	0.48U	0.48U	0.48U	4.8U
AROCLOR-1242	ug/l	0.48U	0.48U	0.48U	0.48U	4.8U
AROCLOR-1248	ug/l	0.48U	0.48U	0.48U	0.48U	4.8U
AROCLOR-1254	ug/l	0.48U	0.48U	0.48U	0.48U	4.8U
AROCLOR-1260	ug/l	0.48U	0.48U	0.48U	0.48U	4.8U
Other Parameters						
AMMONIA	mg/l	0.38J	0.29J	0.50U	0.34J	0.50U

Notes:
mg/l - milligrams per liter [parts per million (PPM)]
ug/l - micrograms per liter [parts per billion (PPB)]
Volatile organic compounds (VOCs) analyzed using method SW8260.
Semi-volatile organic compounds (SVOCs) analyzed using method SW8270.
Pesticides analyzed using method SW8081.
Polychlorinated biphenyls (PCBs) analyzed using method SW8082.
Ammonia analyzed using method E350.2.

Appendix H

Appendix H
Summary of Laboratory Analytical Data for NAPL

Table H-1
NAPL Analytical Results
Detected SVOCs (Method 8270 Modified)
Quanta Resources Site
Edgewater, New Jersey

Parameter	Method	Units	MW-105			MW-116B			MW102A			MW-112B			MW-107		
			12/5/05			12/5/05			12/5/05			12/5/05			12/12/05		
				RL	MDL		RL	MDL		RL	MDL		RL	MDL		RL	MDL
Benzene	EPA 8270M	mg/kg	U	175	87.5	298	156	78.0	1370	155	77.5	426	200	100	1410	174	87.0
C1-Benzene	EPA 8270M	mg/kg	148 J	175	87.5	945	156	78.0	1890	155	77.5	834	200	100	3640	174	87.0
C2-Benzenes	EPA 8270M	mg/kg	770	175	87.5	2910	156	78.0	2930	155	77.5	4400	200	100	6310	174	87.0
C3-Benzenes	EPA 8270M	mg/kg	2960	175	87.5	3270	156	78.0	2890	155	77.5	3380	200	100	5740	174	87.0
C4-Benzenes	EPA 8270M	mg/kg	916	175	87.5	1810	156	78.0	1460	155	77.5	1510	200	100	2960	174	87.0
C5-Benzenes	EPA 8270M	mg/kg	167 J	175	87.5	512	156	78.0	429	155	77.5	350	200	100	809	174	87.0
Toluene	EPA 8270M	mg/kg	228	175	87.5	1440	156	78.0	2810	155	77.5	1170	200	100	4980	174	87.0
Ethylbenzene	EPA 8270M	mg/kg	516	175	87.5	1720	156	78.0	1220	155	77.5	2210	200	100	2480	174	87.0
m/p-Xylenes	EPA 8270M	mg/kg	736	175	87.5	2920	156	78.0	3280	155	77.5	4380	200	100	6810	174	87.0
Styrene	EPA 8270M	mg/kg	U	175	87.5	254	156	78.0	1100	155	77.5	343	200	100	561	174	87.0
o-Xylene	EPA 8270M	mg/kg	399	175	87.5	1390	156	78.0	1490	155	77.5	2160	200	100	3070	174	87.0
Isopropylbenzene	EPA 8270M	mg/kg	189	175	87.5	266	156	78.0	142 J	155	77.5	167 J	200	100	458	174	87.0
Propylbenzene	EPA 8270M	mg/kg	U	175	87.5	158	156	78.0	142 J	155	77.5	181 J	200	100	302	174	87.0
1,3,5-Trimethylbenzene	EPA 8270M	mg/kg	1140	175	87.5	965	156	78.0	992	155	77.5	1150	200	100	1900	174	87.0
tert-Butylbenzene	EPA 8270M	mg/kg	380	175	87.5	359	156	78.0	353	155	77.5	426	200	100	602	174	87.0
1,2,4-Trimethylbenzene	EPA 8270M	mg/kg	2920	175	87.5	2500	156	78.0	2360	155	77.5	2820	200	100	4260	174	87.0
Phenol	EPA 8270M	mg/kg	U	175	87.5	U	156	78.0	90.6 J	155	77.5	U	200	100	U	174	87.0
p-Isopropyltoluene	EPA 8270M	mg/kg	187	175	87.5	282	156	78.0	216	155	77.5	463	200	100	585	174	87.0
2-Methylphenol (m-cresol)	EPA 8270M	mg/kg	U	175	87.5	145 J	156	78.0	202	155	77.5	U	200	100	U	174	87.0
n-Butylbenzene	EPA 8270M	mg/kg	98.9 J	175	87.5	202	156	78.0	169	155	77.5	148 J	200	100	345	174	87.0
Hexachloroethane	EPA 8270M	mg/kg	222	175	87.5	U	156	78.0	U	155	77.5	U	200	100	U	174	87.0
2,4-Dimethylphenol	EPA 8270M	mg/kg	106 J	175	87.5	U	156	78.0	U	155	77.5	U	200	100	U	174	87.0
Naphthalene	EPA 8270M	mg/kg	69000 D	175	87.5	102000 D	156	78.0	93900 D	155	77.5	72800 D	200	100	128000 D	174	87.0
C1-Naphthalenes	EPA 8270M	mg/kg	15400	175	87.5	42100 D	156	78.0	18300	155	77.5	17900	200	100	60500 D	174	87.0
C2-Naphthalenes	EPA 8270M	mg/kg	9570	175	87.5	16300	156	78.0	11600	155	77.5	13700	200	100	25200	174	87.0
C3-Naphthalenes	EPA 8270M	mg/kg	3260	175	87.5	6470	156	78.0	4270	155	77.5	5480	200	100	10700	174	87.0
C4-Naphthalenes	EPA 8270M	mg/kg	928	175	87.5	1870	156	78.0	1290	155	77.5	1530	200	100	3300	174	87.0
2-Methylnaphthalene	EPA 8270M	mg/kg	13200	175	87.5	37000 D	156	78.0	15800 D	155	77.5	14800	200	100	53500 D	174	87.0
1-Methylnaphthalene	EPA 8270M	mg/kg	8570	175	87.5	22400 D	156	78.0	10200 D	155	77.5	10700	200	100	32200 D	174	87.0
Acenaphthylene	EPA 8270M	mg/kg	1220	175	87.5	2150	156	78.0	3510	155	77.5	4760	200	100	1650	174	87.0
Acenaphthene	EPA 8270M	mg/kg	9740	175	87.5	9220	156	78.0	6280	155	77.5	4670	200	100	13800	174	87.0
Dibenzofuran	EPA 8270M	mg/kg	8640	175	87.5	7100	156	78.0	6270	155	77.5	4540	200	100	11400	174	87.0
Fluorene	EPA 8270M	mg/kg	11100	175	87.5	9320	156	78.0	7700	155	77.5	6660	200	100	13200	174	87.0
C1-Fluorenes	EPA 8270M	mg/kg	2790	175	87.5	3460	156	78.0	2580	155	77.5	3750	200	100	4680	174	87.0
C2-Fluorenes	EPA 8270M	mg/kg	1140	175	87.5	1680	156	78.0	1290	155	77.5	2220	200	100	2040	174	87.0
C3-Fluorenes	EPA 8270M	mg/kg	675	175	87.5	878	156	78.0	731	155	77.5	975	200	100	1080	174	87.0
Phenanthrene	EPA 8270M	mg/kg	44600 D	175	87.5	36900 D	156	78.0	13500	155	77.5	12400	200	100	48900 D	174	87.0
Anthracene	EPA 8270M	mg/kg	6300	175	87.5	5680	156	78.0	5180	155	77.5	4690	200	100	7050	174	87.0
C1-Phenanthrenes/Anthracenes	EPA 8270M	mg/kg	8820	175	87.5	9480	156	78.0	7520	155	77.5	11100	200	100	11900	174	87.0
C2-Phenanthrenes/Anthracenes	EPA 8270M	mg/kg	3700	175	87.5	4190	156	78.0	3470	155	77.5	5700	200	100	4750	174	87.0
C3-Phenanthrenes/Anthracenes	EPA 8270M	mg/kg	1350	175	87.5	1390	156	78.0	1280	155	77.5	1900	200	100	1360	174	87.0
C4-Phenanthrenes/Anthracenes	EPA 8270M	mg/kg	281	175	87.5	276	156	78.0	246	155	77.5	310	200	100	254	174	87.0
Dibenzothiophenes	EPA 8270M	mg/kg	2500	175	87.5	2170	156	78.0	1670	155	77.5	1770	200	100	2960	174	87.0
C1-Dibenzothiophenes	EPA 8270M	mg/kg	1430	175	87.5	1430	156	78.0	922	155	77.5	1760	200	100	1650	174	87.0
C2-Dibenzothiophenes	EPA 8270M	mg/kg	937	175	87.5	842	156	78.0	588	155	77.5	1300	200	100	799	174	87.0
C3-Dibenzothiophenes	EPA 8270M	mg/kg	379	175	87.5	314	156	78.0	226	155	77.5	494	200	100	274	174	87.0

Table H-1
NAPL Analytical Results
Detected SVOCs (Method 8270 Modified)
Quanta Resources Site
Edgewater, New Jersey

Parameter	Method	Units	MW-105			MW-116B			MW102A			MW-112B			MW-107		
			12/5/05			12/5/05			12/5/05			12/5/05			12/12/05		
				RL	MDL		RL	MDL		RL	MDL		RL	MDL		RL	MDL
C4-Dibenzothiophenes	EPA 8270M	mg/kg	136 J	175	87.5	88.3 J	156	78.0	101 J	155	77.5	U	200	100	U	174	87.0
Carbazole	EPA 8270M	mg/kg	4080	175	87.5	2930	156	78.0	2880	155	77.5	1390	200	100	2180	174	87.0
Fluoranthene	EPA 8270M	mg/kg	14400	175	87.5	10200	156	78.0	9170	155	77.5	7090	200	100	10000	174	87.0
Pyrene	EPA 8270M	mg/kg	11200	175	87.5	8390	156	78.0	7660	155	77.5	6720	200	100	7470	174	87.0
Benzo(b/c)fluorenes	EPA 8270M	mg/kg	2470	175	87.5	1750	156	78.0	1450	155	77.5	1530	200	100	1080	174	87.0
2-Methylfluorene	EPA 8270M	mg/kg	930	175	87.5	828	156	78.0	713	155	77.5	965	200	100	561	174	87.0
4-Methylfluorene	EPA 8270M	mg/kg	696	175	87.5	740	156	78.0	583	155	77.5	872	200	100	390	174	87.0
1-Methylfluorene	EPA 8270M	mg/kg	762	175	87.5	818	156	78.0	602	155	77.5	970	200	100	397	174	87.0
C1-Fluoranthenes/Pyrenes	EPA 8270M	mg/kg	9120	175	87.5	6180	156	78.0	6300	155	77.5	8140	200	100	5050	174	87.0
C2-Fluoranthenes/Pyrenes	EPA 8270M	mg/kg	2770	175	87.5	2720	156	78.0	2240	155	77.5	3090	200	100	1370	174	87.0
C3-Fluoranthenes/Pyrenes	EPA 8270M	mg/kg	945	175	87.5	893	156	78.0	815	155	77.5	1090	200	100	494	174	87.0
Benz[a]anthracene	EPA 8270M	mg/kg	6830	175	87.5	4620	156	78.0	3970	155	77.5	3580	200	100	2400	174	87.0
Chrysene	EPA 8270M	mg/kg	5940	175	87.5	4580	156	78.0	3690	155	77.5	3290	200	100	2280	174	87.0
C1-Benz[a]anthracenes/Chrysenes	EPA 8270M	mg/kg	2590	175	87.5	2420	156	78.0	1840	155	77.5	2530	200	100	874	174	87.0
C2-Benz[a]anthracenes/Chrysenes	EPA 8270M	mg/kg	1040	175	87.5	942	156	78.0	716	155	77.5	1130	200	100	347	174	87.0
C3-Benz[a]anthracenes/Chrysenes	EPA 8270M	mg/kg	603	175	87.5	532	156	78.0	450	155	77.5	456	200	100	U	174	87.0
Benzo[b]fluoranthene	EPA 8270M	mg/kg	4720	175	87.5	3240	156	78.0	2380	155	77.5	1690	200	100	978	174	87.0
Benzo[k]fluoranthene	EPA 8270M	mg/kg	4840	175	87.5	3040	156	78.0	2550	155	77.5	1750	200	100	1370	174	87.0
Benzo[a]pyrene	EPA 8270M	mg/kg	5820	175	87.5	3630	156	78.0	3110	155	77.5	2370	200	100	1280	174	87.0
Benzo[e]pyrene	EPA 8270M	mg/kg	3480	175	87.5	2390	156	78.0	1940	155	77.5	1460	200	100	690	174	87.0
Perylene	EPA 8270M	mg/kg	1570	175	87.5	929	156	78.0	848	155	77.5	520	200	100	250	174	87.0
Indeno[1,2,3-cd]pyrene	EPA 8270M	mg/kg	3350	175	87.5	2000	156	78.0	1700	155	77.5	1110	200	100	524	174	87.0
Dibenz[a,h]anthracene	EPA 8270M	mg/kg	1120	175	87.5	710	156	78.0	546	155	77.5	385	200	100	164 J	174	87.0
Benzo[g,h,i]perylene	EPA 8270M	mg/kg	3150	175	87.5	1900	156	78.0	1690	155	77.5	969	200	100	466	174	87.0

RL - Reporting Limit
MDL - Method Detection Limit
J - estimated, value falls between RL and MDL
U - undetected, value falls below the MDL

Table H-2
NAPL Analytical Results
Detected Metals (Method 3050B)
Quanta Resources Site
Edgewater, New Jersey

Parameter	Method	Units	MW-105 12/5/05		MDL	MW-116B 12/5/05		MDL	MW102A 12/5/05		MDL	MW-112B 12/5/05		MDL	MW-107 12/12/05		MDL
Lead	SW846 3050B	mg/kg	1.5		0.17	2.0		0.16	0.52		0.15	13.0		0.16	0.45	U	0.17
Nickel	SW846 3050B	mg/kg	3.6	U	0.059	3.3	U	0.054	3.1	U	0.051	3.4	U	0.055	3.6	U	0.058
Silver	SW846 3050B	mg/kg	0.45	U	0.048	0.41	U	0.044	0.39	U	0.041	2.5		0.045	0.45	U	0.047
Thallium	SW846 3050B	mg/kg	0.90	U	0.26	0.83	U	0.24	0.78	U	0.23	1.7	U	0.49	1.8*	U	0.52
Antimony	SW846 3050B	mg/kg	0.54	U	0.14	0.50	U	0.13	0.47	U	0.13	1.3		0.14	0.54	U	0.14
Arsenic	SW846 3050B	mg/kg	1.7		0.21	4.1		0.19	2.5		0.18	376		0.19	35.0		0.21
Beryllium	SW846 3050B	mg/kg	0.36	U	0.016	0.33	U	0.015	0.31	U	0.014	0.34	U	0.015	0.36	U	0.016
Cadmium	SW846 3050B	mg/kg	0.36	U	0.028	0.33	U	0.026	0.31	U	0.024	0.34	U	0.026	0.36	U	0.028
Chromium	SW846 3050B	mg/kg	2.1		0.048	0.83	U	0.044	1.5		0.041	0.85	U	0.045	3.9		0.047
Copper	SW846 3050B	mg/kg	2.3	U	0.25	2.1	U	0.23	2.0	U	0.22	1010		0.24	2.2	U	0.25
Zinc	SW846 3050B	mg/kg	1.8	U	0.11	1.9		0.099	1.6	U	0.094	8.2		0.10	2.7		0.11
Selenium	SW846 3050B	mg/kg	0.90	U	0.24	1.1		0.22	0.83		0.21	18.3		0.23	1.8		0.24
Mercury	SW846 7471A	mg/kg	0.024	U	0.0080	0.029	U	0.0097	0.027	U	0.0092	0.67		0.010	0.018	U	0.0060

MDL - Method Detection Limit
U - undetected, value falls below the MDL
* - Data is from a second analysis

H-3

NAPL Analytical Results

Polychlorinated Biphenyls (Method 8082 Modified)

Quanta Resources Site

Edgewater, New Jersey

Parameter	Method	Units	MW-105			MW-116B			MW102A			MW-112B			MW-107		
			12/5/05			12/5/05			12/5/05			12/5/05			12/12/05		
				RL	MDL		RL	MDL		RL	MDL		RL	MDL		RL	MDL
Aroclor 1016	EPA 8082M	mg/kg	U	9.52	4.76	U	9.17	4.58	U	9.52	4.76	U	9.01	4.5	U	9.43	4.72
Aroclor 1221	EPA 8082M	mg/kg	U	9.52	4.76	U	9.17	4.58	U	9.52	4.76	U	9.01	4.5	U	9.43	4.72
Aroclor 1232	EPA 8082M	mg/kg	U	9.52	4.76	U	9.17	4.58	U	9.52	4.76	U	9.01	4.5	U	9.43	4.72
Aroclor 1242	EPA 8082M	mg/kg	U	9.52	4.76	U	9.17	4.58	U	9.52	4.76	U	9.01	4.5	U	9.43	4.72
Aroclor 1248	EPA 8082M	mg/kg	U	9.52	4.76	U	9.17	4.58	U	9.52	4.76	U	9.01	4.5	U	9.43	4.72
Aroclor 1254	EPA 8082M	mg/kg	U	9.52	4.76	U	9.17	4.58	U	9.52	4.76	U	9.01	4.5	U	9.43	4.72
Aroclor 1260	EPA 8082M	mg/kg	U	9.52	4.76	U	9.17	4.58	U	9.52	4.76	U	9.01	4.5	U	9.43	4.72
Aroclor 1262	EPA 8082M	mg/kg	U	9.52	4.76	U	9.17	4.58	U	9.52	4.76	U	9.01	4.5	U	9.43	4.72
Aroclor 1268	EPA 8082M	mg/kg	U	9.52	4.76	U	9.17	4.58	U	9.52	4.76	U	9.01	4.5	U	9.43	4.72
Tetrachloro-m-xylene	EPA 8082M	% Rec.	68			66			69			73			77		
Decachlorobiphenyl	EPA 8082M	% Rec.	68			71			71			73			85		

RL - Reporting Limit
MDL - Method Detection Limit
U - undetected, value falls below the MDL

Table H-4
NAPL Analytical Results
Biomarkers (Method 8720 Modified)
Quanta Resources Site
Edgewater, New Jersey

Parameter	Method	Units	MW-105			MW-116B			MW102A			MW-112B			MW-107		
			12/5/05			12/5/05			12/5/05			12/5/05			12/12/05		
				RL	MDL		RL	MDL		RL	MDL		RL	MDL		RL	MDL
C19 Tricyclic terpane	EPA 8270M	mg/kg	314	1.9	0.95	468	1.83	0.915	305	1.9	0.950	393	1.8	0.9	676	1.9	0.95
C20 Tricyclic terpane	EPA 8270M	mg/kg	1200	1.9	0.95	1060	1.83	0.915	886	1.9	0.950	1830 E	1.8	0.9	198	1.9	0.95
C21 Tricyclic terpane	EPA 8270M	mg/kg	8.06	1.9	0.95	7.78	1.83	0.915	7.58	1.9	0.950	13.7	1.8	0.9	9.85	1.9	0.95
C22 Tricyclic terpane	EPA 8270M	mg/kg	U	1.9	0.95	U	1.83	0.915	U	1.9	0.950	14.3	1.8	0.9	7.11	1.9	0.95
C23 Tricyclic terpane	EPA 8270M	mg/kg	4.39	1.9	0.95	U	1.83	0.915	1.26 J	1.9	0.950	2.1	1.8	0.9	U	1.9	0.95
C24 Tricyclic terpane	EPA 8270M	mg/kg	U	1.9	0.95	U	1.83	0.915	U	1.9	0.950	2.17	1.8	0.9	U	1.9	0.95
C25 Tricyclic terpane-22S	EPA 8270M	mg/kg	U	1.9	0.95	U	1.83	0.915	U	1.9	0.950	U	1.8	0.9	U	1.9	0.95
C25 Tricyclic terpane-22R	EPA 8270M	mg/kg	U	1.9	0.95	U	1.83	0.915	U	1.9	0.950	U	1.8	0.9	U	1.9	0.95
C26 Tricyclic terpane-22S	EPA 8270M	mg/kg	U	1.9	0.95	U	1.83	0.915	U	1.9	0.950	U	1.8	0.9	U	1.9	0.95
C26 Tricyclic terpane-22R	EPA 8270M	mg/kg	U	1.9	0.95	U	1.83	0.915	U	1.9	0.950	U	1.8	0.9	U	1.9	0.95
C24 Tetracyclic terpane	EPA 8270M	mg/kg	71.6	1.9	0.95	42.8	1.83	0.915	22.3	1.9	0.950	8.46	1.8	0.9	U	1.9	0.95
C28 Tricyclic terpane-22S	EPA 8270M	mg/kg	U	1.9	0.95	U	1.83	0.915	U	1.9	0.950	U	1.8	0.9	U	1.9	0.95
C28 Tricyclic terpane-22R	EPA 8270M	mg/kg	U	1.9	0.95	U	1.83	0.915	U	1.9	0.950	U	1.8	0.9	U	1.9	0.95
C29 Tricyclic terpane-22S	EPA 8270M	mg/kg	U	1.9	0.95	U	1.83	0.915	U	1.9	0.950	U	1.8	0.9	U	1.9	0.95
C29 Tricyclic terpane-22R	EPA 8270M	mg/kg	U	1.9	0.95	U	1.83	0.915	U	1.9	0.950	U	1.8	0.9	U	1.9	0.95
18a(H)-22,29,30-Trisnorneohopane - Ts	EPA 8270M	mg/kg	2.13	1.9	0.95	U	1.83	0.915	U	1.9	0.950	U	1.8	0.9	U	1.9	0.95
C30 Tricyclic terpane-22S	EPA 8270M	mg/kg	U	1.9	0.95	U	1.83	0.915	U	1.9	0.950	U	1.8	0.9	U	1.9	0.95
C30 Tricyclic terpane-22R	EPA 8270M	mg/kg	4.76	1.9	0.95	1.6 J	1.83	0.915	2.27	1.9	0.950	U	1.8	0.9	U	1.9	0.95
17a(H)-22,29,30-Trisnorhopane - Tm	EPA 8270M	mg/kg	U	1.9	0.95	U	1.83	0.915	2.27	1.9	0.950	U	1.8	0.9	U	1.9	0.95
17b(H)-22,29,30-Trisnorhopane	EPA 8270M	mg/kg	U	1.9	0.95	U	1.83	0.915	U	1.9	0.950	U	1.8	0.9	U	1.9	0.95
17a(H)-29,30-Bisnorhopane	EPA 8270M	mg/kg	U	1.9	0.95	U	1.83	0.915	U	1.9	0.950	U	1.8	0.9	U	1.9	0.95
17b(H),21b(H)-28,30-Bisnorhopane	EPA 8270M	mg/kg	U	1.9	0.95	U	1.83	0.915	U	1.9	0.950	U	1.8	0.9	U	1.9	0.95
17b(H),21a(H)-28,30-Bisnorhopane	EPA 8270M	mg/kg	U	1.9	0.95	U	1.83	0.915	U	1.9	0.950	U	1.8	0.9	U	1.9	0.95
17a(H),21b(H)-28,30-Bisnorhopane	EPA 8270M	mg/kg	U	1.9	0.95	U	1.83	0.915	U	1.9	0.950	U	1.8	0.9	U	1.9	0.95
17a(H),21b(H)-25-Norhopane	EPA 8270M	mg/kg	U	1.9	0.95	U	1.83	0.915	U	1.9	0.950	U	1.8	0.9	U	1.9	0.95
30-Norhopane	EPA 8270M	mg/kg	6.08	1.9	0.95	2.25	1.83	0.915	2.82	1.9	0.950	1.12 J	1.8	0.9	1.18 J	1.9	0.95
18a(H)-30-Norneohopane - C29Ts	EPA 8270M	mg/kg	1 J	1.9	0.95	U	1.83	0.915	U	1.9	0.950	U	1.8	0.9	U	1.9	0.95
15a-methyl-17a(H)-27-Norhopane	EPA 8270M	mg/kg	1.2 J	1.9	0.95	U	1.83	0.915	U	1.9	0.950	U	1.8	0.9	U	1.9	0.95
30-Normortane	EPA 8270M	mg/kg	1.48 J	1.9	0.95	U	1.83	0.915	U	1.9	0.950	U	1.8	0.9	U	1.9	0.95
Oleananes	EPA 8270M	mg/kg	U	1.9	0.95	U	1.83	0.915	U	1.9	0.950	U	1.8	0.9	U	1.9	0.95
Hopane	EPA 8270M	mg/kg	7.99	1.9	0.95	2.01	1.83	0.915	3.08	1.9	0.950	2.17	1.8	0.9	1.12 J	1.9	0.95
Moretane	EPA 8270M	mg/kg	4.51	1.9	0.95	1.32 J	1.83	0.915	1.36 J	1.9	0.950	U	1.8	0.9	1.36 JB	1.9	0.95
17a(H),21b(H)-30-Homohopane-22S	EPA 8270M	mg/kg	2.55	1.9	0.95	U	1.83	0.915	U	1.9	0.950	U	1.8	0.9	U	1.9	0.95
17a(H),21b(H)-30-Homohopane-22R	EPA 8270M	mg/kg	3.21	1.9	0.95	U	1.83	0.915	U	1.9	0.950	U	1.8	0.9	U	1.9	0.95
Gammacerane	EPA 8270M	mg/kg	U	1.9	0.95	U	1.83	0.915	U	1.9	0.950	U	1.8	0.9	U	1.9	0.95
17b(H),21b(H)-Hopane	EPA 8270M	mg/kg	U	1.9	0.95	U	1.83	0.915	U	1.9	0.950	U	1.8	0.9	U	1.9	0.95
30-Homomoretane-22R	EPA 8270M	mg/kg	U	1.9	0.95	U	1.83	0.915	U	1.9	0.950	U	1.8	0.9	U	1.9	0.95
Hop-22(29)-ene	EPA 8270M	mg/kg	U	1.9	0.95	U	1.83	0.915	U	1.9	0.950	U	1.8	0.9	U	1.9	0.95
30,31-Bishomohopane-22S	EPA 8270M	mg/kg	U	1.9	0.95	U	1.83	0.915	U	1.9	0.950	U	1.8	0.9	U	1.9	0.95
30,31-Bishomohopane-22R	EPA 8270M	mg/kg	U	1.9	0.95	U	1.83	0.915	U	1.9	0.950	U	1.8	0.9	U	1.9	0.95
30,31-Bishomomoretane-22R	EPA 8270M	mg/kg	U	1.9	0.95	U	1.83	0.915	U	1.9	0.950	U	1.8	0.9	U	1.9	0.95
17b(H),21b(H)-Homohopane-22R	EPA 8270M	mg/kg	U	1.9	0.95	U	1.83	0.915	U	1.9	0.950	U	1.8	0.9	U	1.9	0.95
30,31,32-Trishomohopane-22S	EPA 8270M	mg/kg	U	1.9	0.95	U	1.83	0.915	U	1.9	0.950	U	1.8	0.9	U	1.9	0.95
30,31,32-Trishomohopane-22R	EPA 8270M	mg/kg	U	1.9	0.95	U	1.83	0.915	U	1.9	0.950	U	1.8	0.9	U	1.9	0.95
30,31,32,33-Tetrakishomohopane-22S	EPA 8270M	mg/kg	U	1.9	0.95	U	1.83	0.915	U	1.9	0.950	U	1.8	0.9	U	1.9	0.95
30,31,32,33-Tetrakishomohopane-22R	EPA 8270M	mg/kg	U	1.9	0.95	U	1.83	0.915	U	1.9	0.950	U	1.8	0.9	U	1.9	0.95
30,31,32,33,34-Pentakishomohopane-22S	EPA 8270M	mg/kg	U	1.9	0.95	U	1.83	0.915	U	1.9	0.950	U	1.8	0.9	U	1.9	0.95
30,31,32,33,34-Pentakishomohopane-22R	EPA 8270M	mg/kg	U	1.9	0.95	U	1.83	0.915	U	1.9	0.950	U	1.8	0.9	U	1.9	0.95

Table H-4
NAPL Analytical Results
Biomarkers (Method 8720 Modified)
Quanta Resources Site
Edgewater, New Jersey

Parameter	Method	Units	MW-105 12/5/05			MW-116B 12/5/05			MW102A 12/5/05			MW-112B 12/5/05			MW-107 12/12/05		
				RL	MDL		RL	MDL		RL	MDL		RL	MDL		RL	MDL
C20 14a(H),17a(H)-Sterane	EPA 8270M	mg/kg	25.7	1.9	0.950	58.1	1.83	0.915	45.2	1.9	0.950	61.9	1.8	0.9	44.3	1.9	0.95
C21 14b(H),17b(H)-Sterane	EPA 8270M	mg/kg	2,830 E	1.9	0.950	2510 E	1.83	0.915	1,510	1.9	0.950	2200 E	1.8	0.9	1630	1.9	0.95
C22 14b(H),17b(H)-Sterane	EPA 8270M	mg/kg	55.3	1.9	0.950	64.4	1.83	0.915	36.5	1.9	0.950	56.7	1.8	0.9	32.1	1.9	0.95
C27 13b(H),17a(H)-20S-Diasterane	EPA 8270M	mg/kg	U	1.9	0.950	U	1.83	0.915	U	1.9	0.950	U	1.8	0.9	U	1.9	0.95
C27 13b(H),17a(H)-20R-Diasterane	EPA 8270M	mg/kg	U	1.9	0.950	U	1.83	0.915	U	1.9	0.950	U	1.8	0.9	U	1.9	0.95
C27 13a(H),17b(H)-20S-Diasterane	EPA 8270M	mg/kg	U	1.9	0.950	U	1.83	0.915	U	1.9	0.950	U	1.8	0.9	U	1.9	0.95
C27 13a(H),17b(H)-20R-Diasterane	EPA 8270M	mg/kg	U	1.9	0.950	U	1.83	0.915	U	1.9	0.950	U	1.8	0.9	U	1.9	0.95
C28 13b(H),17a(H)-20S-Diasterane	EPA 8270M	mg/kg	U	1.9	0.950	U	1.83	0.915	U	1.9	0.950	U	1.8	0.9	U	1.9	0.95
C28 13a(H),17b(H)-20S-Diasterane	EPA 8270M	mg/kg	U	1.9	0.950	U	1.83	0.915	U	1.9	0.950	U	1.8	0.9	U	1.9	0.95
C28 13a(H),17b(H)-20R-Diasterane	EPA 8270M	mg/kg	U	1.9	0.950	U	1.83	0.915	U	1.9	0.950	U	1.8	0.9	U	1.9	0.95
C27 14a(H),17a(H)-20S-Cholestane	EPA 8270M	mg/kg	U	1.9	0.950	U	1.83	0.915	U	1.9	0.950	U	1.8	0.9	U	1.9	0.95
C27 14b(H),17b(H)-20R-Cholestane	EPA 8270M	mg/kg	U	1.9	0.950	U	1.83	0.915	U	1.9	0.950	U	1.8	0.9	U	1.9	0.95
C27 14b(H),17b(H)-20S-Cholestane	EPA 8270M	mg/kg	U	1.9	0.950	U	1.83	0.915	U	1.9	0.950	U	1.8	0.9	U	1.9	0.95
C27 14a(H),17a(H)-20R-Cholestane	EPA 8270M	mg/kg	U	1.9	0.950	U	1.83	0.915	U	1.9	0.950	U	1.8	0.9	U	1.9	0.95
C29 13b(H),17a(H)-20S-Diasterane	EPA 8270M	mg/kg	U	1.9	0.950	U	1.83	0.915	U	1.9	0.950	U	1.8	0.9	U	1.9	0.95
C29 13b(H),17a(H)-20R-Diasterane	EPA 8270M	mg/kg	U	1.9	0.950	U	1.83	0.915	U	1.9	0.950	U	1.8	0.9	U	1.9	0.95
C28 14a(H),17a(H)-20S-Methylcholestane	EPA 8270M	mg/kg	U	1.9	0.950	U	1.83	0.915	U	1.9	0.950	U	1.8	0.9	U	1.9	0.95
C28 14b(H),17b(H)-20R-Methylcholestane	EPA 8270M	mg/kg	U	1.9	0.950	U	1.83	0.915	U	1.9	0.950	U	1.8	0.9	U	1.9	0.95
C28 14b(H),17b(H)-20S-Methylcholestane	EPA 8270M	mg/kg	U	1.9	0.950	U	1.83	0.915	U	1.9	0.950	U	1.8	0.9	U	1.9	0.95
C28 14a(H),17a(H)-20R-Methylcholestane	EPA 8270M	mg/kg	U	1.9	0.950	U	1.83	0.915	U	1.9	0.950	U	1.8	0.9	U	1.9	0.95
C29 14a(H),17a(H)-20S-Ethylcholestane	EPA 8270M	mg/kg	13.4	1.9	0.950	U	1.83	0.915	U	1.9	0.950	U	1.8	0.9	U	1.9	0.95
C29 14b(H),17b(H)-20R-Ethylcholestane	EPA 8270M	mg/kg	U	1.9	0.950	U	1.83	0.915	U	1.9	0.950	U	1.8	0.9	U	1.9	0.95
C29 14b(H),17b(H)-20S-Ethylcholestane	EPA 8270M	mg/kg	U	1.9	0.950	U	1.83	0.915	U	1.9	0.950	U	1.8	0.9	U	1.9	0.95
C29 14a(H),17a(H)-20R-Ethylcholestane	EPA 8270M	mg/kg	U	1.9	0.950	U	1.83	0.915	U	1.9	0.950	U	1.8	0.9	U	1.9	0.95
Phenanthrene-d10	EPA 8270M	% Rec.	87			84			82			82			96		
Perylene-d12	EPA 8270M	% Rec.	119			108			99			101			91		

RL - Reporting Limit
MDL - Method Detection Limit
J - estimated, value falls between RL and MDL
U - undetected, value falls below the MDL
B - detected in associated blank
E - estimate, value detected above calibration range

Table H-5
NAPL ANALYTICAL RESULTS
VOCs (Method 8260 Modified)
Quanta Resources Site
Edgewater, New Jersey

Parameter	Method	Units	MW-105			MW-116B			MW102A			MW-112B			MW-107		
			12/5/05			12/5/05			12/5/05			12/5/05			12/12/05		
Ethylbenzene	EPA 8260M	ug/kg	U	390000	43000	U	370000	41000	U	1600000	180000	U	2000000	220000	2760000	40000	4400
Styrene	EPA 8260M	ug/kg	U	980000	61000	U	940000	59000	U	4000000	250000	U	4900000	310000	453000	100000	6300
n-Propylbenzene	EPA 8260M	ug/kg	U	980000	54000	U	940000	52000	U	4000000	220000	U	4900000	270000	257000	100000	5500
1,3,5-Trimethylbenzene	EPA 8260M	ug/kg	U	980000	61000	U	940000	59000	U	4000000	250000	U	4900000	310000	1730000	100000	6300
Toluene	EPA 8260M	ug/kg	U	390000	62000	U	370000	59000	2740000	1600000	250000	2380000	2000000	310000	7050000	40000	6400
Xylene (total)	EPA 8260M	ug/kg	511000	390000	140000	673000	370000	130000	4120000	1600000	560000	10500000	2000000	690000	11200000	40000	14000
Benzene	EPA 8260M	ug/kg	U	98000	72000	U	94000	69000	1960000	400000	290000	1540000	490000	360000	3250000	10000	7400
Naphthalene	EPA 8260M	ug/kg	30500000	980000	95000	25300000	940000	91000	52400000	4000000	390000	103000000	4900000	480000	116000000[a]	10000000	980000
1,2,4-Trimethylbenzene	EPA 8260M	ug/kg	1500000	980000	54000	U	940000	52000	U	4000000	220000	U	4900000	270000	4370000	100000	5500
Isopropylbenzene	EPA 8260M	ug/kg	U	980000	46000	U	940000	44000	U	4000000	190000	U	4900000	230000	401000	100000	4800
p-Isopropyltoluene	EPA 8260M	ug/kg	U	980000	61000	U	940000	58000	U	4000000	250000	U	4900000	310000	394000	100000	6300

U - undetected, value falls below the Method Detection Limit
* - Data is from a second analysis

Sample Delivery Group Narrative

Project:	Honeywell Quanta
Client:	Parsons 100 Summer Street, 8th Floor Boston, Massachussetts 02110
Report Contact:	Mr. Paul Feshbach-Meriney
Date of Receipt:	11/21/03

Sample Summary:

The samples received for this project are summarized in the attached sample login forms.

META Project Number:	P06010-60

Chain of Custody

Samples were received in good condition. The internal temperatures of the shipment containers were as follows:

Sample received 11/21/2003 6.0°C

Internal chain of custody procedures were followed after sample receipt. Samples were stored in a locked refrigerator. A sample custody logbook contains the record of sample removal from the secure sample storage area to the sample preparation laboratory. The custody record for the sample extracts is present on the sample extraction logbook page.

The disposal of samples and extracts will be authorized 1 month after the release of this data report. Sample disposal will be documented.

Methods

The NAPL samples were prepared by waste dilution (EPA 3580) using dichloromethane (DCM). The extracts were spiked with internal standard and analyzed by GC/FID (EPA 8100 mod.) and GC/MS (EPA 8270 mod.).

Results

Sample results were presented in summary forms (CLP Form 1 equivalent) which follow this narrative.

Quality Control

Analyte Flags

The detection limits were determined as the sample equivalent of the lowest linear initial calibration standard. Analytes measured between 50% and 100% of the lowest standard were reported as "estimated" and flagged with the letter "J." No value was reported above the calibration range. Undetected analytes were flagged with the letter, "U." Analytes marked with a "B" were detected in the associated blank and should be reviewed for a possible positive bias. No deviations were thought significant enough to compromise the integrity of the reported values.

Holding Times

All samples were extracted within holding times. All samples and extracts were stored at 4°C ± 2°C prior to extraction and analysis. All extracts were analyzed within 40 days of sample preparation.

Blanks

No target analytes were present above the detection limits in the blank

Internal Standards

Internal standards were recovered within acceptable QC limits (50%-200%) relative to the continuing calibration standards.

Interpretation

Sample MW-104-D

This sample contained a pyrogenic substance (see definitions). The pattern of PAHs, especially the ratios of fluoranthene to pyrene and dibenzofuran to fluorene indicate that this sample contains coal tar. The presence of MAHs and the high concentration of naphthalene relative to heavier PAHs indicate that this material is relatively unweathered.

Sample SEEP-1

This sample contained low concentration of a pyrogenic substance. The patterns and ratios of PAHs indicate that this sample contains coal tar. The lack of MAHs and the reduced concentration of naphthalene relative to heavier PAHs indicate that this sample has been subject to mild to moderate weathering.

Sample SEEP-2

This sample contained a pyrogenic substance consistent with coal tar which has been subject to mild weathering.

Sample MW-105-D

This sample contained a pyrogenic substance consistent with unweathered coal tar.

Sample MW-102-D

This sample contained a pyrogenic substance consistent with unweathered coal tar.

Sample MW-103-D

This sample contained a pyrogenic substance consistent with unweathered coal tar.

Discussion

All the samples contained pyrogenic substances consistent with coal tar. The diagnostic ratios (Table 1 & Figure 1) and ion fingerprints (Appendix E) show some similarities and some substantial differences. Samples MW-102-D and MW-104-D have Fl/Py ratios close to 1, indicating a relatively low temperature process such as coal carbonization while the other four samples have substantially higher Fl/Py ratios indicative of higher temperature processes such as coke ovens. The samples appear to be from three separate sources, however the statistical significance of the ratio differences could not be assessed with this small sample set.

Definitions

Pyrogenic substances are complex mixtures of primarily hydrocarbons produced from organic matter subjected to high temperatures but with insufficient oxygen for complete combustion. Pyrogenic materials are produced by fires, internal combustion engines, and furnaces. They also are formed when coke or gas are produced from coal or oil. Coal-tar based products, such as roofing, pavement sealers, waterproofing, pesticides, and some shampoos contain pyrogenic materials.

Petrogenic substances include crude oil and crude oil derivatives such as gasoline, heating oil, and asphalt.

Pitch is the semi-solid or solid material consisting of high molecular weight hydrocarbons that remain following coal tar distillation.

References

1 "Chemical Source Attribution at Former MGP Sites," EPRI Report 1000728, December 2000.

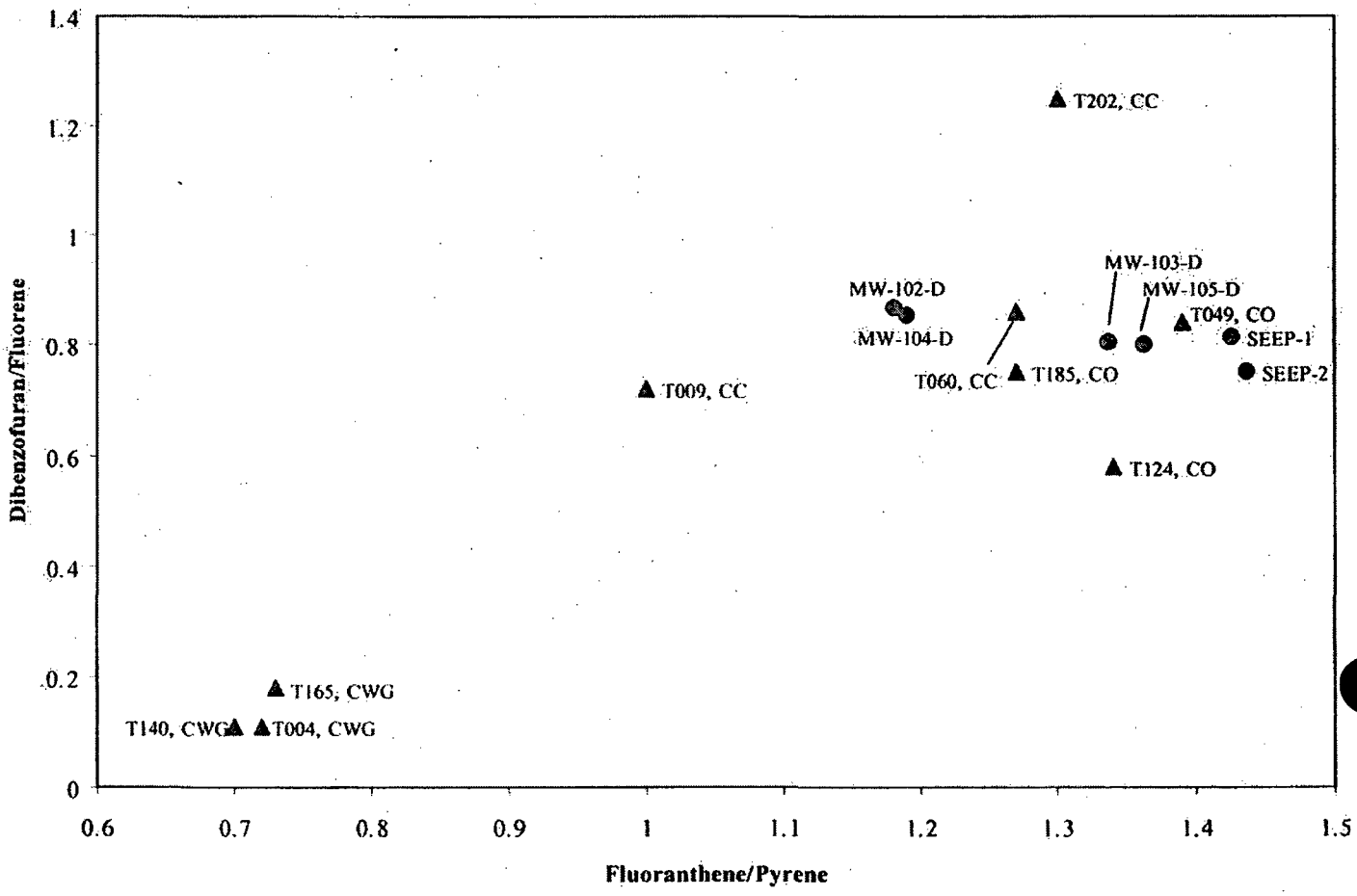
Table 1
Source and Weathering Ratios

Sample	Fl/Py	D/F	C17/Pris	C18/Phy	Pris/Phy	C3D/C3PA	C2D/C2PA
MW-104-D	1.19	0.85	1.44	3.90	2.94	0.31	0.15
SEEP-1	1.42	0.81	ND	ND	ND	ND	ND
SEEP-2	1.44	0.75	0.97	0.41	0.47	0.46	0.27
MW-105-D	1.36	0.80	0.50	0.30	0.69	0.64	0.32
MW-102-D	1.18	0.87	2.92	4.44	1.64	0.44	0.20
MW-103-D	1.34	0.80	1.85	3.09	1.91	0.50	0.25

Ratios:

Fl/Py	fluoranthene/pyrene
D/F	dibenzofuran/fluorene
C17/Pris	septadecane/pristane
C18/Phy	octadecane/phytane
Pris/Phy	pristane/phytane
C3D/C3PA	trialkyldibenzothiophenes/trialkylphenanthrenes/anthracenes
C2D/C2PA	dialkyldibenzothiophenes/dialkylphenanthrenes/anthracenes

Figure 1
Selected Source Ratios



TXXX	Tar Sample from META's in house source library
CC	Coal Carbonization Tar
CO	Coke Oven Tar
CWG	Carburetted Water Gas Tar
●	Site Sample

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: **SEEP-1**

Client:	Parsons	Preparation Method:	EPA3580
Project:	Quanta	Cleanup Method(s):	
Lab ID:	PA031121-02	Analysis Method:	GC/MS (EPA 8270 Mod.)
File ID:	11DEC21.D	Matrix:	napl
		Preservation:	None
		Decanted:	None
Date Sampled:	11/20/2003	Sample Size:	0.0186 g
Date Received:	11/21/2003	%Solid:	100%
Date Prepared:	11/28/2003	Extract Volume:	2 mL
Date Cleanup:		Prep DF:	1
Date Analyzed:	12 Dec 2003 2:39 pm	Analysis DF:	1
Instrument:	GC2-MS_59	Injection Volume:	0.001 mL
Operator:	EC	Batch QC:	ML031128-MB

Analyte:	Concentration mg/kg	Q	RL mg/kg	EDL mg/kg	Comments
PAH COMPOUNDS:					
Benzene		U	10.8	5.38	
Toluene		U	10.8	5.38	
Ethylbenzene		U	10.8	5.38	
m/p-Xylenes		U	10.8	5.38	
Styrene		U	10.8	5.38	
o-Xylene		U	10.8	5.38	
1,2,4-Trimethylbenzene		U	10.8	5.38	
Naphthalene	215		10.8	5.38	
2-Methylnaphthalene	66.5		10.8	5.38	
1-Methylnaphthalene	33.0		10.8	5.38	
Acenaphthylene		U	10.8	5.38	
Acenaphthene	44.8		10.8	5.38	
Dibenzofuran	36.3		10.8	5.38	
Fluorene	44.6		10.8	5.38	
Phenanthrene	154		10.8	5.38	
Anthracene	22.8		10.8	5.38	
Fluoranthene	113		10.8	5.38	
Pyrene	79.3		10.8	5.38	
Benz[a]anthracene	33.9		10.8	5.38	
Chrysene	26.3		10.8	5.38	
Benzo[b]fluoranthene	21.3		10.8	5.38	
Benzo[k]fluoranthene	22.8		10.8	5.38	
Benzo(e)pyrene	16.6		10.8	5.38	
Benzo[a]pyrene	23.5		10.8	5.38	
Perylene	5.39	J	10.8	5.38	
Indeno[1,2,3-cd]pyrene	9.10	J	10.8	5.38	
Dibenz[a,h]anthracene		U	10.8	5.38	
Benzo[g,h,i]perylene	9.14	J	10.8	5.38	
ALKYLATED PAHs:					
C0 - Benzene		U	10.8	5.38	
C1 - Benzene		U	10.8	5.38	
C2 - Benzene		U	10.8	5.38	
C3 - Benzene	5.87	J	10.8	5.38	
C4 - Benzene		U	10.8	5.38	
C5 - Benzene		U	10.8	5.38	
C0 - Naphthalene	215		10.8	5.38	
C1 - Naphthalene	58.5		10.8	5.38	
C2 - Naphthalene	17.8		10.8	5.38	
C3- Naphthalene		U	10.8	5.38	
C4- Naphthalene		U	10.8	5.38	

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

		Preparation Method:	EPA3580	
Field ID:	**SEEP-1**	Cleanup Method(s):		
Client:	Parsons	Analysis Method:	GC/MS (EPA 8270 Mod.)	
Project:	Quanta	Matrix:	napl	
		Preservation:	None	
Lab ID:	PA031121-02	Decanted:	None	
File ID:	11DEC21.D			
		Sample Size:	0.0186	g
Date Sampled:	11/20/2003	%Solid:	100%	
Date Received:	11/21/2003	Extract Volume:	2	mL
Date Prepared:	11/28/2003	Prep DF:	1	
Date Cleanup:		Analysis DF:	1	
Date Analyzed:	12 Dec 2003 2:39 pm	Injection Volume:	0.001	mL
Instrument:	GC2-MS_59			
Operator:	EC	Batch QC:	ML031128-MB	

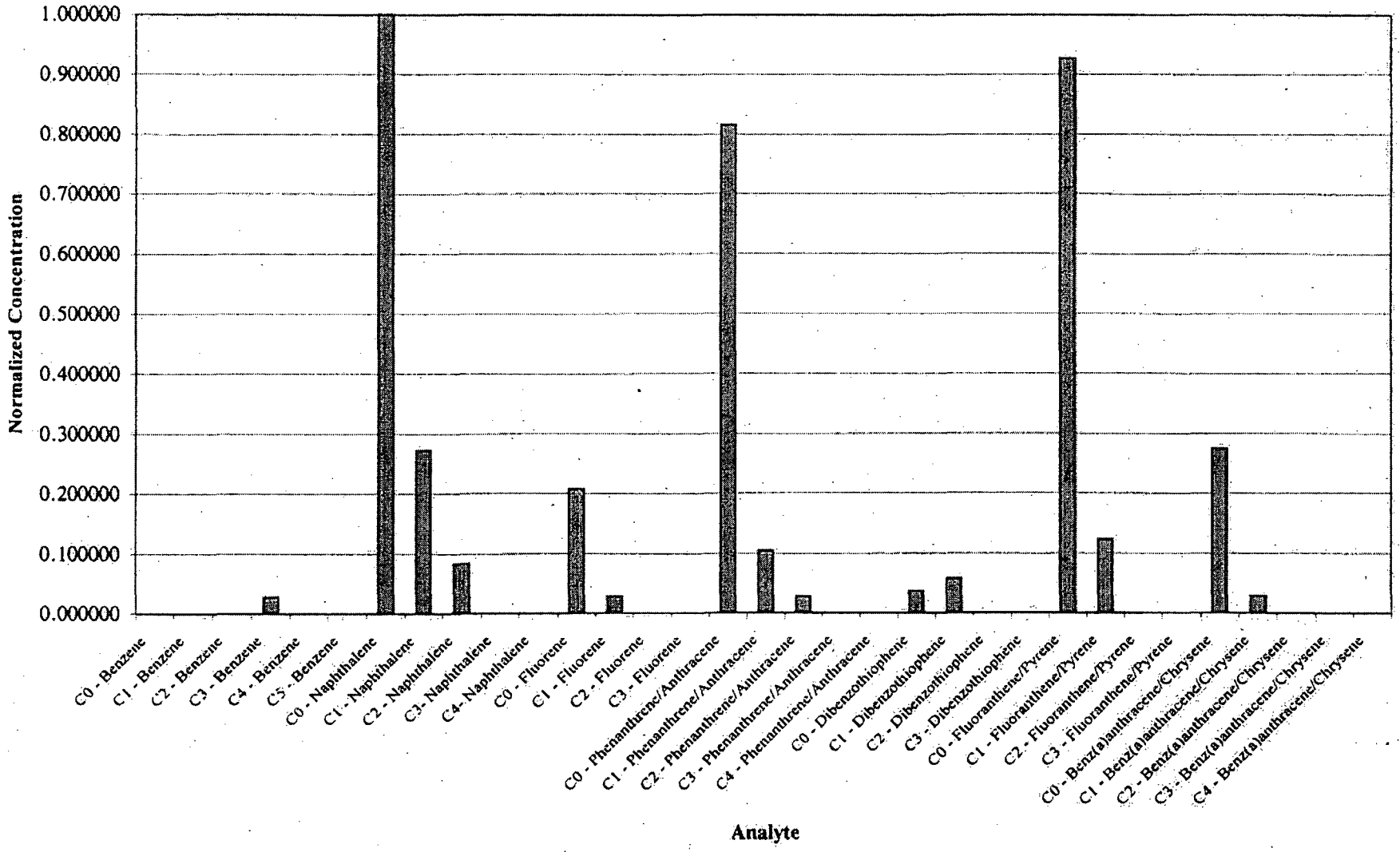
Analyte:	Concentration mg/kg	Q	RL mg/kg	EDL mg/kg	Comments
C0 - Fluorene	44.6		10.8	5.38	
C1 - Fluorene	6.09	J	10.8	5.38	
C2 - Fluorene		U	10.8	5.38	
C3 - Fluorene		U	10.8	5.38	
C0 - Phenanthrene/Anthracene	175		10.8	5.38	
C1 - Phenanthrene/Anthracene	22.6		10.8	5.38	
C2 - Phenanthrene/Anthracene	5.92	J	10.8	5.38	
C3 - Phenanthrene/Anthracene		U	10.8	5.38	
C4 - Phenanthrene/Anthracene		U	10.8	5.38	
C0 - Dibenzothiophene	7.87	J	10.8	5.38	
C1 - Dibenzothiophene	12.5		10.8	5.38	
C2 - Dibenzothiophene		U	10.8	5.38	
C3 - Dibenzothiophene		U	10.8	5.38	
C0 - Fluoranthene/Pyrene	199		10.8	5.38	
C1 - Fluoranthene/Pyrene	26.5		10.8	5.38	
C2 - Fluoranthene/Pyrene		U	10.8	5.38	
C3 - Fluoranthene/Pyrene		U	10.8	5.38	
C0 - Benz(a)anthracene/Chrysene	59.1		10.8	5.38	
C1 - Benz(a)anthracene/Chrysene	6.05	J	10.8	5.38	
C2 - Benz(a)anthracene/Chrysene		U	10.8	5.38	
C3 - Benz(a)anthracene/Chrysene		U	10.8	5.38	
C4 - Benz(a)anthracene/Chrysene		U	10.8	5.38	

EXTRACTION SURROGATE COMPOUNDS:	%R	Min	Max
Fluorobenzene	Not Spiked	50%	150%
2-Fluorobiphenyl	Not Spiked	50%	120%
5a-Androstane	Not Spiked	50%	120%
Benzo(a)pyrene-d12	Not Spiked	50%	120%

Qualifiers:

B	Analyte detected in the blank
D	Analyte reported from a diluted extract
U	Undetected above the detection limit
J	Estimated value detected between the reporting and detection limits
E	Estimated value detected above calibration range
RL	Reporting limit is the sample equivalent of the lowest linear calibration concentration
EDL	Estimated detection limit is 50% of the RL

SEEP-1


Normalized Concentration
1.000000
0.900000
0.800000
0.700000
0.600000
0.500000
0.400000
0.300000
0.200000
0.100000
0.000000
C0 - Benzene
C1 - Benzene
C2 - Benzene
C3 - Benzene
C4 - Benzene
C5 - Benzene
C0 - Naphthalene
C1 - Naphthalene
C2 - Naphthalene
C3 - Naphthalene
C4 - Naphthalene
C0 - Fluorene
C1 - Fluorene
C2 - Fluorene
C3 - Fluorene
C0 - Phenanthrene/Anthracene
C1 - Phenanthrene/Anthracene
C2 - Phenanthrene/Anthracene
C3 - Phenanthrene/Anthracene
C4 - Phenanthrene/Anthracene
C0 - Dibenzothiophene
C1 - Dibenzothiophene
C2 - Dibenzothiophene
C3 - Dibenzothiophene
C0 - Fluoranthene/Pyrene
C1 - Fluoranthene/Pyrene
C2 - Fluoranthene/Pyrene
C3 - Fluoranthene/Pyrene
C0 - Benz(a)anthracene/Chrysene
C1 - Benz(a)anthracene/Chrysene
C2 - Benz(a)anthracene/Chrysene
C3 - Benz(a)anthracene/Chrysene
C4 - Benz(a)anthracene/Chrysene
Analyte

META

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: **SEEP-2**

Client:	Parson	Preparation Method:	EPA3580
Project:	Quanta	Cleanup Method(s):	
		Analysis Method:	GC/MS (EPA 8270 Mod.)
		Matrix:	NAPL
Lab ID:	PA031121-03 1:10	Preservation:	None
File ID:	15DEC03.D	Decanted:	No
		Sample Size:	0.0107 g
Date Sampled:	11/20/2003	%Solid:	100%
Date Received:	11/21/2003	Extract Volume:	2 mL
Date Prepared:	11/28/2003	Prep DF:	10
Date Cleanup:		Analysis DF:	1
Date Analyzed:	15 Dec 2003 5:00 pm	Injection Volume:	0.001 mL
Instrument:	GC2-MS_59		
Operator:	EC	Batch QC:	ML031128-MB

Analyte:	Concentration mg/kg	Q	RL mg/kg	EDL mg/kg	Comments
PAH COMPOUNDS:					
Benzene		U	187	93.5	
Toluene		U	187	93.5	
Ethylbenzene	99.9	J	187	93.5	
m/p-Xylenes	155	J	187	93.5	
Styrene	304		187	93.5	
o-Xylene		U	187	93.5	
1,2,4-Trimethylbenzene		U	187	93.5	
Naphthalene	28,200		187	93.5	
2-Methylnaphthalene	12,800		187	93.5	
1-Methylnaphthalene	6,190		187	93.5	
Acenaphthylene	728		187	93.5	
Acenaphthene	9,230		187	93.5	
Dibenzofuran	7,190		187	93.5	
Fluorene	9,580		187	93.5	
Phenanthrene	29,300		187	93.5	
Anthracene	4,900		187	93.5	
Fluoranthene	19,100		187	93.5	
Pyrene	13,300		187	93.5	
Benz[a]anthracene	5,990		187	93.5	
Chrysene	4,250		187	93.5	
Benzo[b]fluoranthene	3,080		187	93.5	
Benzo[k]fluoranthene	3,550		187	93.5	
Benzo(e)pyrene	2,300		187	93.5	
Benzo[a]pyrene	3,940		187	93.5	
Perylene	839		187	93.5	
Indeno[1,2,3-cd]pyrene	1,900		187	93.5	
Dibenz[a,h]anthracene	467		187	93.5	
Benzo[g,h,i]perylene	1,890		187	93.5	
ALKYLATED PAHs:					
C0 - Benzene		U	187	93.5	
C1 - Benzene		U	187	93.5	
C2 - Benzene	397		187	93.5	
C3 - Benzene	891		187	93.5	
C4 - Benzene	597		187	93.5	
C5 - Benzene	128	J	187	93.5	
C0 - Naphthalene	28,200		187	93.5	
C1 - Naphthalene	11,200		187	93.5	
C2 - Naphthalene	4,100		187	93.5	
C3- Naphthalene	925		187	93.5	
C4- Naphthalene	241		187	93.5	

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

		Preparation Method:	EPA3580	
Field ID:	**SEEP-2**	Cleanup Method(s):		
Client:	Parson	Analysis Method:	GC/MS (EPA 8270 Mod.)	
Project:	Quanta	Matrix:	NAPL	
		Preservation:	None	
Lab ID:	PA031121-03 1:10	Decanted:	No	
File ID:	15DEC03.D			
		Sample Size:	0.0107	g
Date Sampled:	11/20/2003	%Solid:	100%	
Date Received:	11/21/2003	Extract Volume:	2	mL
Date Prepared:	11/28/2003	Prep DF:	10	
Date Cleanup:		Analysis DF:	1	
Date Analyzed:	15 Dec 2003 5:00 pm	Injection Volume:	0.001	mL
Instrument:	GC2-MS_59			
Operator:	EC	Batch QC:	ML031128-MB	

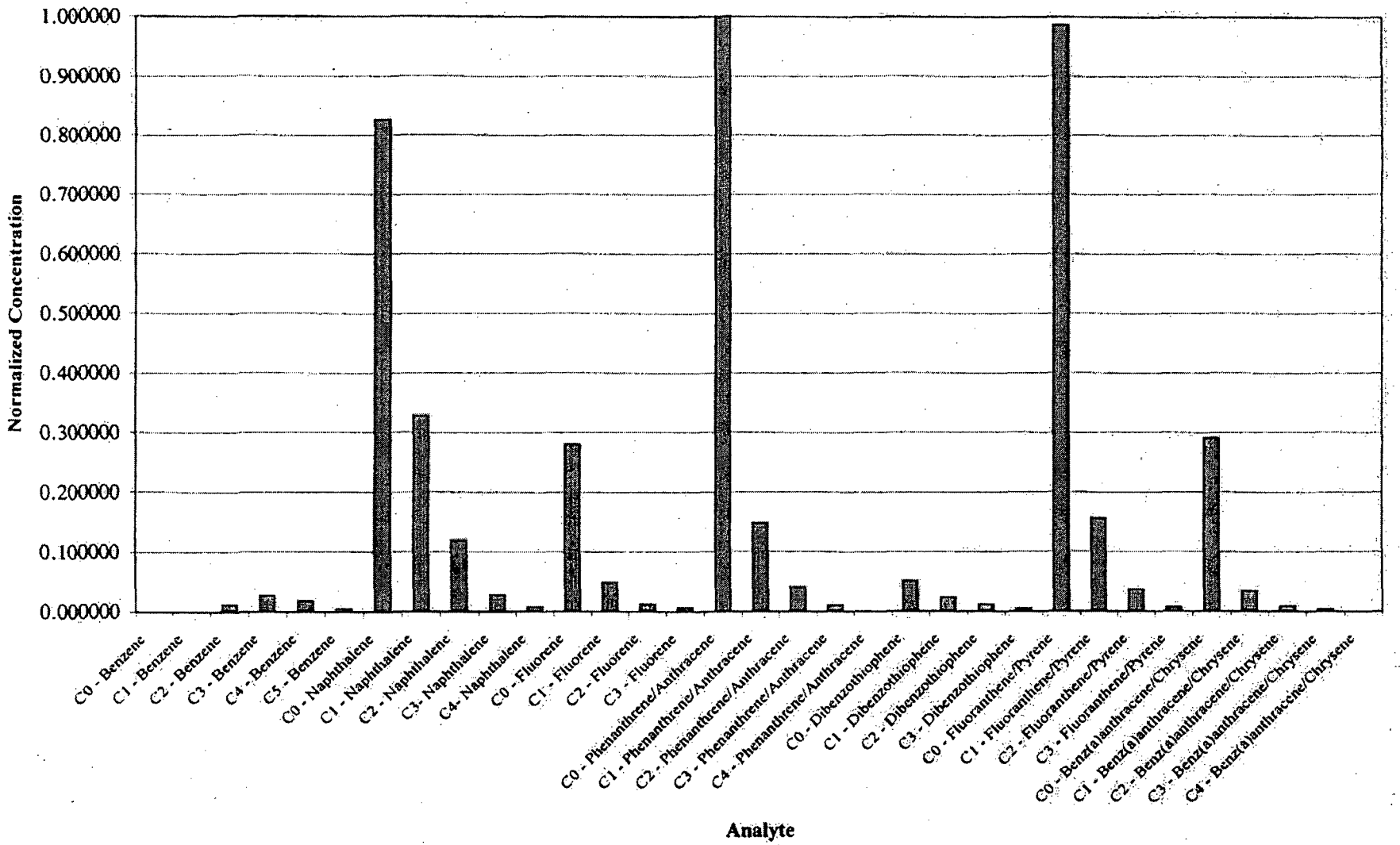
Analyte:	Concentration mg/kg	Q	RL mg/kg	EDL mg/kg	Comments
C0 - Fluorene	9,580		187	93.5	
C1 - Fluorene	1,650		187	93.5	
C2 - Fluorene	392		187	93.5	
C3 - Fluorene	222		187	93.5	
C0 - Phenanthrene/Anthracene	34,200		187	93.5	
C1 - Phenanthrene/Anthracene	5,090		187	93.5	
C2 - Phenanthrene/Anthracene	1,390		187	93.5	
C3 - Phenanthrene/Anthracene	353		187	93.5	
C4 - Phenanthrene/Anthracene		U	187	93.5	
C0 - Dibenzothiophene	1,740		187	93.5	
C1 - Dibenzothiophene	780		187	93.5	
C2 - Dibenzothiophene	375		187	93.5	
C3 - Dibenzothiophene	162	J	187	93.5	
C0 - Fluoranthene/Pyrene	33,700		187	93.5	
C1 - Fluoranthene/Pyrene	5,340		187	93.5	
C2 - Fluoranthene/Pyrene	1,260		187	93.5	
C3 - Fluoranthene/Pyrene	229		187	93.5	
C0 - Benz(a)anthracene/Chrysene	9,940		187	93.5	
C1 - Benz(a)anthracene/Chrysene	1,140		187	93.5	
C2 - Benz(a)anthracene/Chrysene	285		187	93.5	
C3 - Benz(a)anthracene/Chrysene	113	J	187	93.5	
C4 - Benz(a)anthracene/Chrysene		U	187	93.5	

EXTRACTION SURROGATE COMPOUNDS:	%R	Min	Max
Fluorobenzene	Not Spiked	50%	150%
2-Fluorobiphenyl	Not Spiked	50%	120%
5a-Androstane	Not Spiked	50%	120%
Benzo(a)pyrene-d12	Not Spiked	50%	120%

Qualifiers:

B	Analyte detected in the blank
D	Analyte reported from a diluted extract
U	Undetected above the detection limit
J	Estimated value detected between the reporting and detection limits
E	Estimated value detected above calibration range
RL	Reporting limit is the sample equivalent of the lowest linear calibration concentration
EDL	Estimated detection limit is 50% of the RL

SEEP-2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0.000000
C0 - Benzene
C1 - Benzene
C2 - Benzene
C3 - Benzene
C4 - Benzene
C5 - Benzene
C0 - Naphthalene
C1 - Naphthalene
C2 - Naphthalene
C3- Naphthalene
C4- Naphthalene
C0 - Fluorene
C1 - Fluorene
C2 - Fluorene
C3 - Fluorene
C0 - Phenanthrene/Anthracene
C1 - Phenanthrene/Anthracene
C2 - Phenanthrene/Anthracene
C3 - Phenanthrene/Anthracene
C4 - Phenanthrene/Anthracene
C0 - Dibenzothiophene
C1 - Dibenzothiophene
C2 - Dibenzothiophene
C3 - Dibenzothiophene
C0 - Fluoranthene/Pyrene
C1 - Fluoranthene/Pyrene
C2 - Fluoranthene/Pyrene
C3 - Fluoranthene/Pyrene
C0 - Benz(a)anthracene/Chrysene
C1 - Benz(a)anthracene/Chrysene
C2 - Benz(a)anthracene/Chrysene
C3 - Benz(a)anthracene/Chrysene
C4 - Benz(a)anthracene/Chrysene
Analyte

META

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: **MW-102-D**

Client:	Parson	Preparation Method:	EPA3580
Project:	Quanta	Cleanup Method(s):	
Lab ID:	PA031121-05 1:10	Analysis Method:	GC/MS (EPA 8270 Mod.)
File ID:	15DEC05.D	Matrix:	NAPL
		Preservation:	None
		Decanted:	No
		Sample Size:	0.0128 g
Date Sampled:	11/20/2003	%Solid:	100%
Date Received:	11/21/2003	Extract Volume:	2 mL
Date Prepared:	11/28/2003	Prep DF:	10
Date Cleanup:		Analysis DF:	1
Date Analyzed:	15 Dec 2003 7:20 pm	Injection Volume:	0.001 mL
Instrument:	GC2-MS_59		
Operator:	EC	Batch QC:	ML031128-MB

Analyte:	Concentration mg/kg	Q	RL mg/kg	EDL mg/kg	Comments
PAH COMPOUNDS:					
Benzene	1,480		156	78.1	
Toluene	3,330		156	78.1	
Ethylbenzene	1,840		156	78.1	
m/p-Xylenes	4,190		156	78.1	
Styrene	1,230		156	78.1	
o-Xylene	1,920		156	78.1	
1,2,4-Trimethylbenzene	174		156	78.1	
Naphthalene	115,000		156	78.1	
2-Methylnaphthalene	38,000		156	78.1	
1-Methylnaphthalene	20,400		156	78.1	
Acenaphthylene	5,360		156	78.1	
Acenaphthene	11,200		156	78.1	
Dibenzofuran	11,100		156	78.1	
Fluorene	12,800		156	78.1	
Phenanthrene	35,900		156	78.1	
Anthracene	8,810		156	78.1	
Fluoranthene	16,400		156	78.1	
Pyrene	13,900		156	78.1	
Benz[a]anthracene	4,410		156	78.1	
Chrysene	3,870		156	78.1	
Benzo[b]fluoranthene	2,170		156	78.1	
Benzo[k]fluoranthene	2,290		156	78.1	
Benzo(e)pyrene	1,910		156	78.1	
Benzo[a]pyrene	3,110		156	78.1	
Perylene	721		156	78.1	
Indeno[1,2,3-cd]pyrene	1,640		156	78.1	
Dibenz[a,h]anthracene	375		156	78.1	
Benzo[g,h,i]perylene	1,800		156	78.1	
ALKYLATED PAHs:					
C0 - Benzene	1,480		156	78.1	
C1 - Benzene	3,590		156	78.1	
C2 - Benzene	8,590		156	78.1	
C3 - Benzene	9,990		156	78.1	
C4 - Benzene	4,930		156	78.1	
C5 - Benzene	1,200		156	78.1	
C0 - Naphthalene	115,000		156	78.1	
C1 - Naphthalene	34,100		156	78.1	
C2 - Naphthalene	12,800		156	78.1	
C3- Naphthalene	2,660		156	78.1	
C4- Naphthalene	689		156	78.1	

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

		Preparation Method:	EPA3580
Field ID:	**MW-102-D**	Cleanup Method(s):	
Client:	Parson	Analysis Method:	GC/MS (EPA 8270 Mod.)
Project:	Quanta	Matrix:	NAPL
		Preservation:	None
Lab ID:	PA031121-05 1:10	Decanted:	No
File ID:	15DEC05.D		
		Sample Size:	0.0128 g
Date Sampled:	11/20/2003	%Solid:	100%
Date Received:	11/21/2003	Extract Volume:	2 mL
Date Prepared:	11/28/2003	Prep DF:	10
Date Cleanup:		Analysis DF:	1
Date Analyzed:	15 Dec 2003 7:20 pm	Injection Volume:	0.001 mL
Instrument:	GC2-MS_59		
Operator:	EC	Batch QC:	ML031128-MB

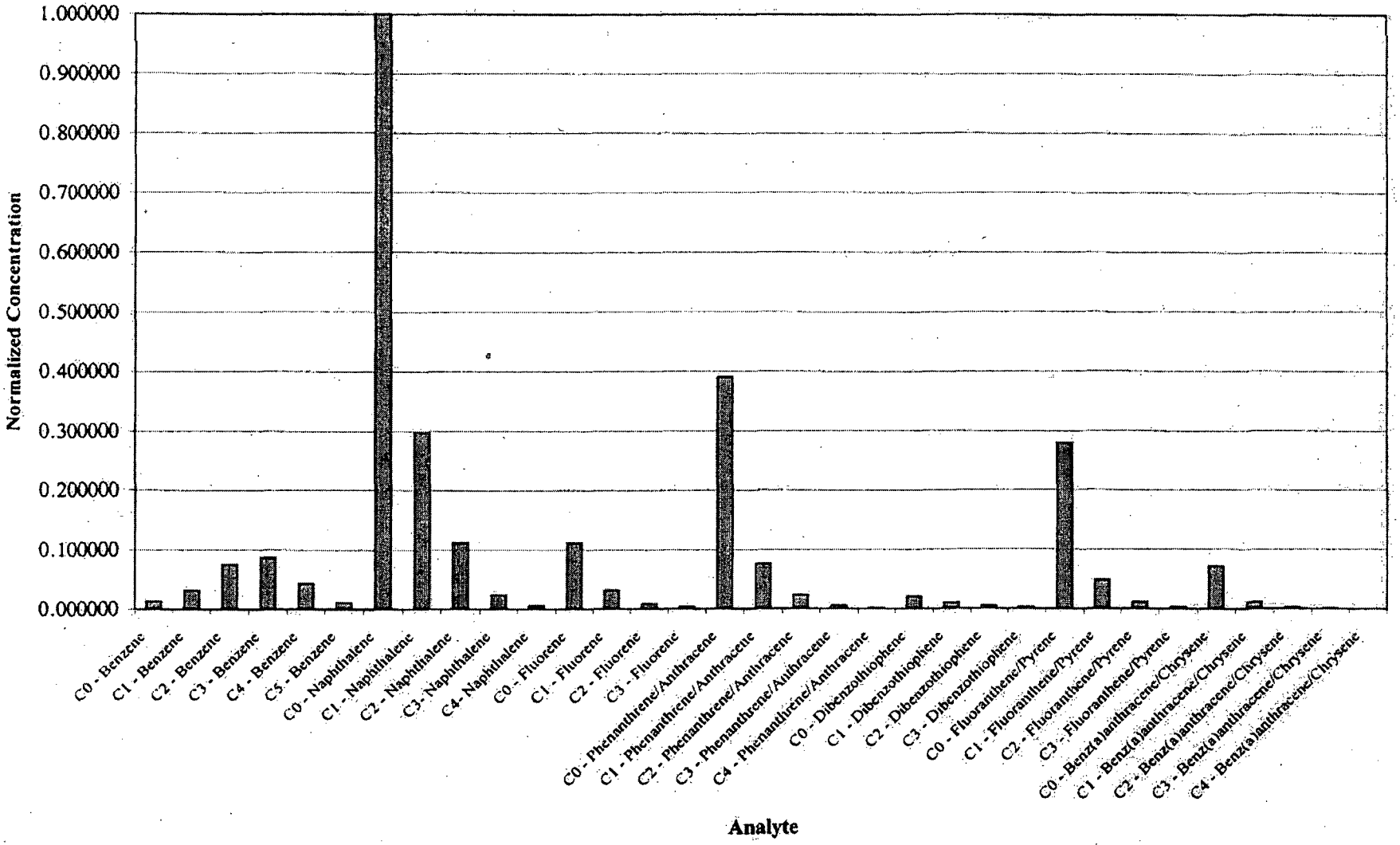
Analyte:	Concentration mg/kg	Q	RL mg/kg	EDL mg/kg	Comments
C0 - Fluorene	12,800		156	78.1	
C1 - Fluorene	3,570		156	78.1	
C2 - Fluorene	936		156	78.1	
C3 - Fluorene	366		156	78.1	
C0 - Phenanthrene/Anthracene	44,700		156	78.1	
C1 - Phenanthrene/Anthracene	8,650		156	78.1	
C2 - Phenanthrene/Anthracene	2,620		156	78.1	
C3 - Phenanthrene/Anthracene	600		156	78.1	
C4 - Phenanthrene/Anthracene	133	J	156	78.1	
C0 - Dibenzothiophene	2,300		156	78.1	
C1 - Dibenzothiophene	1,080		156	78.1	
C2 - Dibenzothiophene	526		156	78.1	
C3 - Dibenzothiophene	262		156	78.1	
C0 - Fluoranthene/Pyrene	31,900		156	78.1	
C1 - Fluoranthene/Pyrene	5,440		156	78.1	
C2 - Fluoranthene/Pyrene	1,220		156	78.1	
C3 - Fluoranthene/Pyrene	271		156	78.1	
C0 - Benz(a)anthracene/Chrysene	8,120		156	78.1	
C1 - Benz(a)anthracene/Chrysene	1,210		156	78.1	
C2 - Benz(a)anthracene/Chrysene	292		156	78.1	
C3 - Benz(a)anthracene/Chrysene	105	J	156	78.1	
C4 - Benz(a)anthracene/Chrysene		U	156	78.1	

EXTRACTION SURROGATE COMPOUNDS:	%R	Min	Max
Fluorobenzene	Not Spiked	50%	150%
2-Fluorobiphenyl	Not Spiked	50%	120%
5a-Androstane	Not Spiked	50%	120%
Benzo(a)pyrene-d12	Not Spiked	50%	120%

Qualifiers:

B	Analyte detected in the blank
D	Analyte reported from a diluted extract
U	Undetected above the detection limit
J	Estimated value detected between the reporting and detection limits
E	Estimated value detected above calibration range
RL	Reporting limit is the sample equivalent of the lowest linear calibration concentration
EDL	Estimated detection limit is 50% of the RL

MW-102-D


Normalized Concentration
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0.900000
0.800000
0.700000
0.600000
0.500000
0.400000
0.300000
0.200000
0.100000
0.000000
C0 - Benzene
C1 - Benzene
C2 - Benzene
C3 - Benzene
C4 - Benzene
C5 - Benzene
C0 - Naphthalene
C1 - Naphthalene
C2 - Naphthalene
C3 - Naphthalene
C4 - Naphthalene
C0 - Fluorene
C1 - Fluorene
C2 - Fluorene
C3 - Fluorene
C0 - Phenanthrene/Anthracene
C1 - Phenanthrene/Anthracene
C2 - Phenanthrene/Anthracene
C3 - Phenanthrene/Anthracene
C4 - Phenanthrene/Anthracene
C0 - Dibenzothiophene
C1 - Dibenzothiophene
C2 - Dibenzothiophene
C3 - Dibenzothiophene
C0 - Fluoranthene/Pyrene
C1 - Fluoranthene/Pyrene
C2 - Fluoranthene/Pyrene
C3 - Fluoranthene/Pyrene
C0 - Benz(a)anthracene/Chrysene
C1 - Benz(a)anthracene/Chrysene
C2 - Benz(a)anthracene/Chrysene
C3 - Benz(a)anthracene/Chrysene
C4 - Benz(a)anthracene/Chrysene
Analyte

META

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: **MW-103-D**

Client:	Parson	Preparation Method:	EPA3580
Project:	Quanta	Cleanup Method(s):	
Lab ID:	PA031121-06 1:10	Analysis Method:	GC/MS (EPA 8270 Mod.)
File ID:	15DEC06.D	Matrix:	NAPL
		Preservation:	None
Date Sampled:	11/20/2003	Decanted:	No
Date Received:	11/21/2003	Sample Size:	0.0139 g
Date Prepared:	11/28/2003	%Solid:	100%
Date Cleanup:		Extract Volume:	2 mL
Date Analyzed:	15 Dec 2003 8:30 pm	Prep DF:	10
Instrument:	GC2-MS_59	Analysis DF:	1
Operator:	EC	Injection Volume:	0.001 mL
		Batch QC:	ML031128-MB

Analyte:	Concentration mg/kg	Q	RL mg/kg	EDL mg/kg	Comments
PAH COMPOUNDS:					
Benzene	234		144	71.9	
Toluene	1,960		144	71.9	
Ethylbenzene	1,870		144	71.9	
m/p-Xylenes	4,690		144	71.9	
Styrene	954		144	71.9	
o-Xylene	2,110		144	71.9	
1,2,4-Trimethylbenzene	516		144	71.9	
Naphthalene	83,200		144	71.9	
2-Methylnaphthalene	30,300		144	71.9	
1-Methylnaphthalene	16,800		144	71.9	
Acenaphthylene	1,460		144	71.9	
Acenaphthene	12,700		144	71.9	
Dibenzofuran	9,570		144	71.9	
Fluorene	11,900		144	71.9	
Phenanthrene	32,100		144	71.9	
Anthracene	7,070		144	71.9	
Fluoranthene	14,300		144	71.9	
Pyrene	10,700		144	71.9	
Benz[a]anthracene	3,580		144	71.9	
Chrysene	3,400		144	71.9	
Benzo[b]fluoranthene	1,730		144	71.9	
Benzo[k]fluoranthene	1,710		144	71.9	
Benzo(e)pyrene	1,270		144	71.9	
Benzo[a]pyrene	1,970		144	71.9	
Perylene	427		144	71.9	
Indeno[1,2,3-cd]pyrene	922		144	71.9	
Dibenz[a,h]anthracene	230		144	71.9	
Benzo[g,h,i]perylene	893		144	71.9	
ALKYLATED PAHs:					
C0 - Benzene	234		144	71.9	
C1 - Benzene	2,110		144	71.9	
C2 - Benzene	9,210		144	71.9	
C3 - Benzene	7,800		144	71.9	
C4 - Benzene	3,490		144	71.9	
C5 - Benzene	667		144	71.9	
C0 - Naphthalene	83,200		144	71.9	
C1 - Naphthalene	27,700		144	71.9	
C2 - Naphthalene	11,200		144	71.9	
C3- Naphthalene	2,270		144	71.9	
C4- Naphthalene	546		144	71.9	

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID:	**MW-103-D**	Preparation Method:	EPA3580
		Cleanup Method(s):	
Client:	Parson	Analysis Method:	GC/MS (EPA 8270 Mod.)
Project:	Quanta	Matrix:	NAPL
		Preservation:	None
Lab ID:	PA031121-06 1:10	Decanted:	No
File ID:	15DEC06.D		
		Sample Size:	0.0139 g
Date Sampled:	11/20/2003	%Solid:	100%
Date Received:	11/21/2003	Extract Volume:	2 mL
Date Prepared:	11/28/2003	Prep DF:	10
Date Cleanup:		Analysis DF:	1
Date Analyzed:	15 Dec 2003 8:30 pm	Injection Volume:	0.001 mL
Instrument:	GC2-MS_59		
Operator:	EC	Batch QC:	ML031128-MB

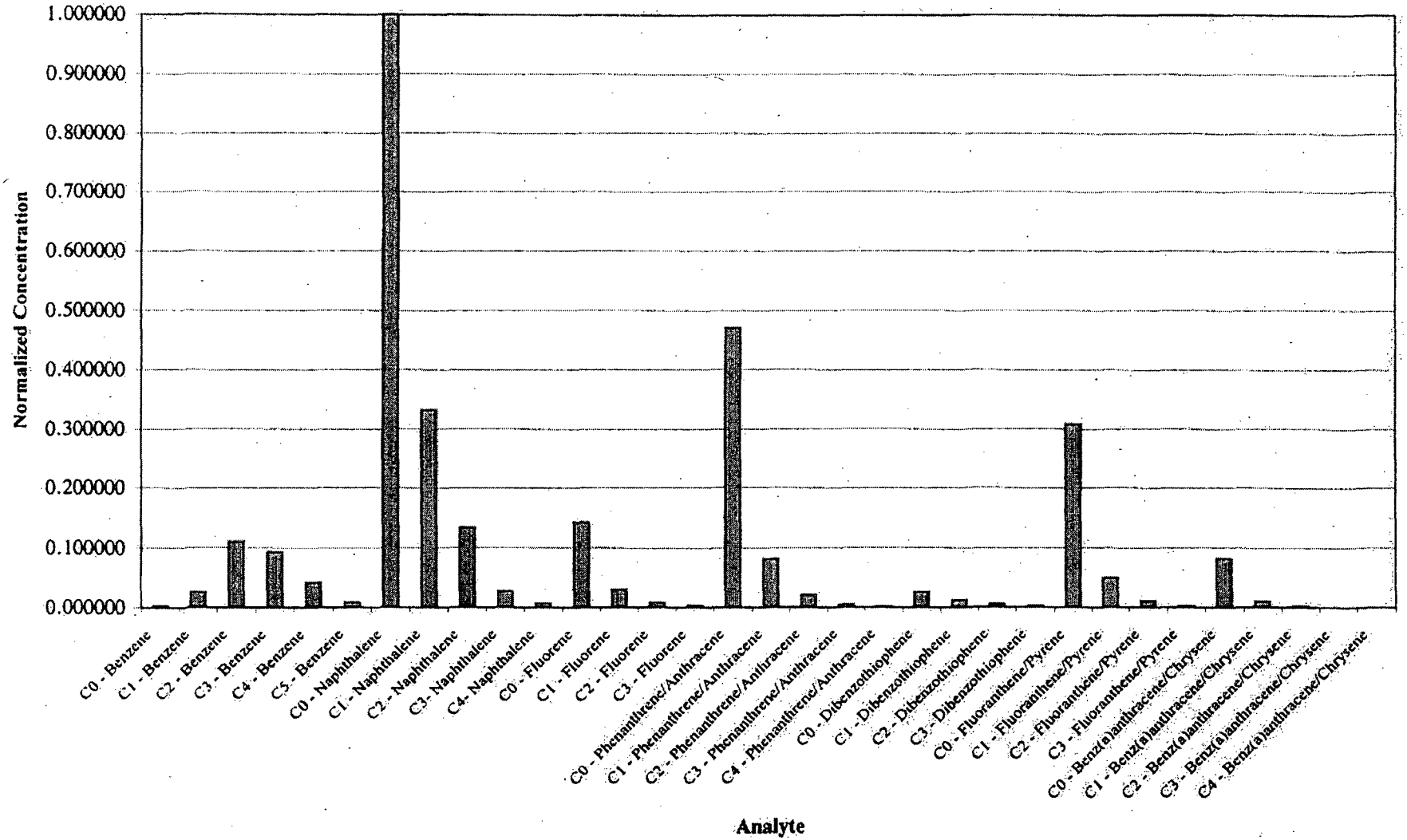
Analyte:	Concentration mg/kg	Q	RL mg/kg	EDL mg/kg	Comments
C0 - Fluorene	11,900		144	71.9	
C1 - Fluorene	2,500		144	71.9	
C2 - Fluorene	639		144	71.9	
C3 - Fluorene	250		144	71.9	
C0 - Phenanthrene/Anthracene	39,200		144	71.9	
C1 - Phenanthrene/Anthracene	6,800		144	71.9	
C2 - Phenanthrene/Anthracene	1,710		144	71.9	
C3 - Phenanthrene/Anthracene	358		144	71.9	
C4 - Phenanthrene/Anthracene	90.2	J	144	71.9	
C0 - Dibenzothiophene	2,110		144	71.9	
C1 - Dibenzothiophene	997		144	71.9	
C2 - Dibenzothiophene	430		144	71.9	
C3 - Dibenzothiophene	178		144	71.9	
C0 - Fluoranthene/Pyrene	25,700		144	71.9	
C1 - Fluoranthene/Pyrene	4,130		144	71.9	
C2 - Fluoranthene/Pyrene	791		144	71.9	
C3 - Fluoranthene/Pyrene	173		144	71.9	
C0 - Benz(a)anthracene/Chrysene	6,800		144	71.9	
C1 - Benz(a)anthracene/Chrysene	790		144	71.9	
C2 - Benz(a)anthracene/Chrysene	182		144	71.9	
C3 - Benz(a)anthracene/Chrysene		U	144	71.9	
C4 - Benz(a)anthracene/Chrysene		U	144	71.9	

EXTRACTION SURROGATE COMPOUNDS:	%R	Min	Max
Fluorobenzene	Not Spiked	50%	150%
2-Fluorobiphenyl	Not Spiked	50%	120%
5a-Androstane	Not Spiked	50%	120%
Benzo(a)pyrene-d12	Not Spiked	50%	120%

Qualifiers:

B	Analyte detected in the blank
D	Analyte reported from a diluted extract
U	Undetected above the detection limit
J	Estimated value detected between the reporting and detection limits
E.	Estimated value detected above calibration range
RL	Reporting limit is the sample equivalent of the lowest linear calibration concentration
EDL	Estimated detection limit is 50% of the RL

MW-103-D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0.800000
0.700000
0.600000
0.500000
0.400000
0.300000
0.200000
0.100000
0.000000
Normalized Concentration
C0 - Benzene
C1 - Benzene
C2 - Benzene
C3 - Benzene
C4 - Benzene
C5 - Benzene
C0 - Naphthalene
C1 - Naphthalene
C2 - Naphthalene
C3 - Naphthalene
C4 - Naphthalene
C0 - Fluorene
C1 - Fluorene
C2 - Fluorene
C3 - Fluorene
C0 - Phenanthrene/Anthracene
C1 - Phenanthrene/Anthracene
C2 - Phenanthrene/Anthracene
C3 - Phenanthrene/Anthracene
C4 - Phenanthrene/Anthracene
C0 - Dibenzothiophene
C1 - Dibenzothiophene
C2 - Dibenzothiophene
C3 - Dibenzothiophene
C0 - Fluoranthene/Pyrene
C1 - Fluoranthene/Pyrene
C2 - Fluoranthene/Pyrene
C3 - Fluoranthene/Pyrene
C0 - Benz(a)anthracene/Chrysene
C1 - Benz(a)anthracene/Chrysene
C2 - Benz(a)anthracene/Chrysene
C3 - Benz(a)anthracene/Chrysene
C4 - Benz(a)anthracene/Chrysene
Analyte

META

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: **MW-104-D**

Client:	Parsons	Preparation Method:	EPA3580
Project:	Quanta	Cleanup Method(s):	
Lab ID:	PA031121-01 1:10	Analysis Method:	GC/MS (EPA 8270 Mod.)
File ID:	11DEC22.D	Matrix:	napl
		Preservation:	None
Date Sampled:	11/20/2003	Decanted:	None
Date Received:	11/21/2003	Sample Size:	0.0181 g
Date Prepared:	11/28/2003	%Solid:	100%
Date Cleanup:		Extract Volume:	2 mL
Date Analyzed:	12 Dec 2003 4:21 pm	Prep DF:	10
Instrument:	GC2-MS_59	Analysis DF:	1
Operator:	EC	Injection Volume:	0.001 mL
		Batch QC:	ML031128-MB

Analyte:	Concentration mg/kg	Q	RL mg/kg	EDL mg/kg	Comments
PAH COMPOUNDS:					
Benzene	2,010		110	55.2	
Toluene	4,550		110	55.2	
Ethylbenzene	1,240		110	55.2	
m/p-Xylenes	5,180		110	55.2	
Styrene	1,510		110	55.2	
o-Xylene	2,050		110	55.2	
1,2,4-Trimethylbenzene	145		110	55.2	
Naphthalene	87,200		110	55.2	
2-Methylnaphthalene	16,500		110	55.2	
1-Methylnaphthalene	8,960		110	55.2	
Acenaphthylene	2,560		110	55.2	
Acenaphthene	6,780		110	55.2	
Dibenzofuran	6,930		110	55.2	
Fluorene	8,120		110	55.2	
Phenanthrene	30,200		110	55.2	
Anthracene	6,640		110	55.2	
Fluoranthene	20,100		110	55.2	
Pyrene	16,900		110	55.2	
Benz[a]anthracene	9,130		110	55.2	
Chrysene	7,730		110	55.2	
Benzo[b]fluoranthene	6,800		110	55.2	
Benzo[k]fluoranthene	7,230		110	55.2	
Benzo(e)pyrene	5,430		110	55.2	
Benzo[a]pyrene	8,860		110	55.2	
Perylene	2,060		110	55.2	
Indeno[1,2,3-cd]pyrene	3,510		110	55.2	
Dibenz[a,h]anthracene	773		110	55.2	
Benzo[g,h,i]perylene	3,370		110	55.2	
ALKYLATED PAHs:					
C0 - Benzene	2,010		110	55.2	
C1 - Benzene	4,910		110	55.2	
C2 - Benzene	8,850		110	55.2	
C3 - Benzene	7,180		110	55.2	
C4 - Benzene	2,620		110	55.2	
C5 - Benzene	555		110	55.2	
C0 - Naphthalene	87,200		110	55.2	
C1 - Naphthalene	14,800		110	55.2	
C2 - Naphthalene	6,290		110	55.2	
C3- Naphthalene	1,530		110	55.2	
C4- Naphthalene	413		110	55.2	

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID:	**MW-104-D**	Preparation Method:	EPA3580
		Cleanup Method(s):	
Client:	Parsons	Analysis Method:	GC/MS (EPA 8270 Mod.)
Project:	Quanta	Matrix:	napl
		Preservation:	None
Lab ID:	PA031121-01 1:10	Decanted:	None
File ID:	11DEC22.D		
		Sample Size:	0.0181 g
Date Sampled:	11/20/2003	%Solid:	100%
Date Received:	11/21/2003	Extract Volume:	2 mL
Date Prepared:	11/28/2003	Prep DF:	10
Date Cleanup:		Analysis DF:	1
Date Analyzed:	12 Dec 2003 4:21 pm	Injection Volume:	0.001 mL
Instrument:	GC2-MS_59		
Operator:	EC	Batch QC:	ML031128-MB

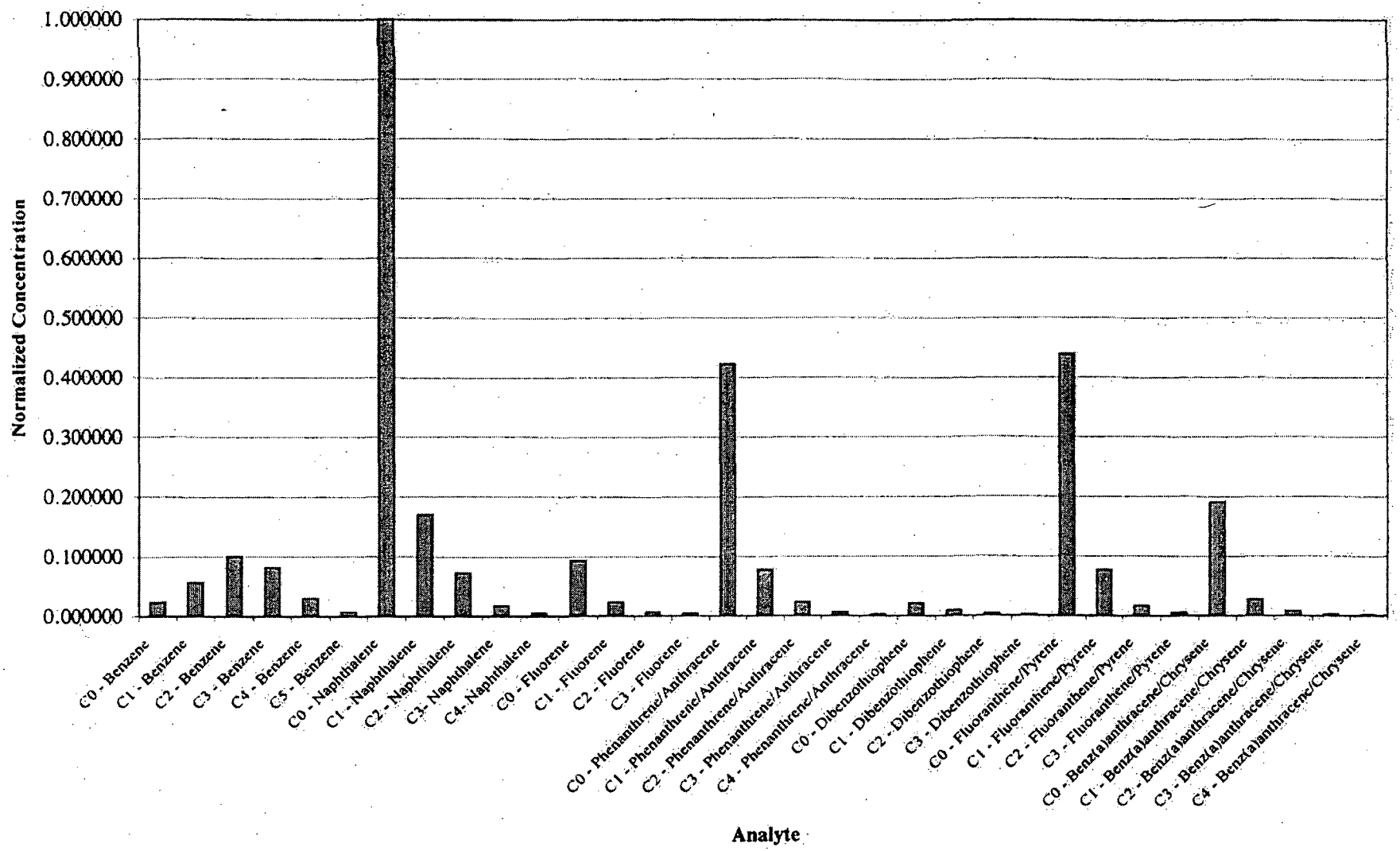
Analyte:	Concentration mg/kg	Q	RL mg/kg	EDL mg/kg	Comments
C0 - Fluorene	8,120		110	55.2	
C1 - Fluorene	2,020		110	55.2	
C2 - Fluorene	548		110	55.2	
C3 - Fluorene	341		110	55.2	
C0 - Phenanthrene/Anthracene	36,900		110	55.2	
C1 - Phenanthrene/Anthracene	6,750		110	55.2	
C2 - Phenanthrene/Anthracene	2,010		110	55.2	
C3 - Phenanthrene/Anthracene	495		110	55.2	
C4 - Phenanthrene/Anthracene	140		110	55.2	
C0 - Dibenzothiophene	1,830		110	55.2	
C1 - Dibenzothiophene	764		110	55.2	
C2 - Dibenzothiophene	306		110	55.2	
C3 - Dibenzothiophene	153		110	55.2	
C0 - Fluoranthene/Pyrene	38,300		110	55.2	
C1 - Fluoranthene/Pyrene	6,660		110	55.2	
C2 - Fluoranthene/Pyrene	1,460		110	55.2	
C3 - Fluoranthene/Pyrene	428		110	55.2	
C0 - Benz(a)anthracene/Chrysene	16,600		110	55.2	
C1 - Benz(a)anthracene/Chrysene	2,340		110	55.2	
C2 - Benz(a)anthracene/Chrysene	653		110	55.2	
C3 - Benz(a)anthracene/Chrysene	184		110	55.2	
C4 - Benz(a)anthracene/Chrysene	76.0	J	110	55.2	

EXTRACTION SURROGATE COMPOUNDS:	%R	Min	Max
Fluorobenzene	Not Spiked	50%	150%
2-Fluorobiphenyl	Not Spiked	50%	120%
5a-Androstane	Not Spiked	50%	120%
Benzo(a)pyrene-d12	Not Spiked	50%	120%

Qualifiers:

B	Analyte detected in the blank
D	Analyte reported from a diluted extract
U	Undetected above the detection limit
J	Estimated value detected between the reporting and detection limits
E	Estimated value detected above calibration range
RL	Reporting limit is the sample equivalent of the lowest linear calibration concentration
EDL	Estimated detection limit is 50% of the RL

MW-104-D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Normalized Concentration
C0 - Benzene
C1 - Benzene
C2 - Benzene
C3 - Benzene
C4 - Benzene
C5 - Benzene
C0 - Naphthalene
C1 - Naphthalene
C2 - Naphthalene
C3- Naphthalene
C4- Naphthalene
C0 - Fluorene
C1 - Fluorene
C2 - Fluorene
C3 - Fluorene
C0 - Phenanthrene/Anthracene
C1 - Phenanthrene/Anthracene
C2 - Phenanthrene/Anthracene
C3 - Phenanthrene/Anthracene
C4 - Phenanthrene/Anthracene
C0 - Dibenzothiophene
C1 - Dibenzothiophene
C2 - Dibenzothiophene
C3 - Dibenzothiophene
C0 - Fluoranthene/Pyrene
C1 - Fluoranthene/Pyrene
C2 - Fluoranthene/Pyrene
C3 - Fluoranthene/Pyrene
C0 - Benz(a)anthracene/Chrysene
C1 - Benz(a)anthracene/Chrysene
C2 - Benz(a)anthracene/Chrysene
C3 - Benz(a)anthracene/Chrysene
C4 - Benz(a)anthracene/Chrysene
Analyte

META

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: **MW-105-D**

Client:	Parson	Preparation Method:	EPA3580
Project:	Quanta	Cleanup Method(s):	
Lab ID:	PA031121-04 1:10	Analysis Method:	GC/MS (EPA 8270 Mod.)
File ID:	15DEC04.D	Matrix:	NAPL
		Preservation:	None
		Decanted:	No
		Sample Size:	0.0172 g
Date Sampled:	11/20/2003	%Solid:	100%
Date Received:	11/21/2003	Extract Volume:	2 mL
Date Prepared:	11/28/2003	Prep DF:	10
Date Cleanup:		Analysis DF:	1
Date Analyzed:	15 Dec 2003 6:10 pm	Injection Volume:	0.001 mL
Instrument:	GC2-MS_59		
Operator:	EC	Batch QC:	ML031128-MB

Analyte:	Concentration mg/kg	Q	RL mg/kg	EDL mg/kg	Comments
PAH COMPOUNDS:					
Benzene	75.4	J	116	58.1	
Toluene	165		116	58.1	
Ethylbenzene	446		116	58.1	
m/p-Xylenes	547		116	58.1	
Styrene	135		116	58.1	
o-Xylene	343		116	58.1	
1,2,4-Trimethylbenzene	187		116	58.1	
Naphthalene	55,800		116	58.1	
2-Methylnaphthalene	20,900		116	58.1	
1-Methylnaphthalene	11,300		116	58.1	
Acenaphthylene	1,260		116	58.1	
Acenaphthene	13,800		116	58.1	
Dibenzofuran	11,600		116	58.1	
Fluorene	14,500		116	58.1	
Phenanthrene	38,400		116	58.1	
Anthracene	7,570		116	58.1	
Fluoranthene	20,700		116	58.1	
Pyrene	15,200		116	58.1	
Benz[a]anthracene	6,030		116	58.1	
Chrysene	4,770		116	58.1	
Benzo[b]fluoranthene	3,560		116	58.1	
Benzo[k]fluoranthene	3,500		116	58.1	
Benzo(e)pyrene	2,630		116	58.1	
Benzo[a]pyrene	4,540		116	58.1	
Perylene	1,090		116	58.1	
Indeno[1,2,3-cd]pyrene	2,640		116	58.1	
Dibenz[a,h]anthracene	656		116	58.1	
Benzo[g,h,i]perylene	2,580		116	58.1	
ALKYLATED PAHs:					
C0 - Benzene	75.4	J	116	58.1	
C1 - Benzene	178		116	58.1	
C2 - Benzene	1,490		116	58.1	
C3 - Benzene	7,910		116	58.1	
C4 - Benzene	2,860		116	58.1	
C5 - Benzene	271		116	58.1	
C0 - Naphthalene	55,800		116	58.1	
C1 - Naphthalene	19,000		116	58.1	
C2 - Naphthalene	7,820		116	58.1	
C3- Naphthalene	1,620		116	58.1	
C4- Naphthalene	377		116	58.1	

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: **MW-105-D**

		Preparation Method:	EPA3580	
		Cleanup Method(s):		
Client:	Parson	Analysis Method:	GC/MS (EPA 8270 Mod.)	
Project:	Quanta	Matrix:	NAPL	
		Preservation:	None	
Lab ID:	PA031121-04 1:10	Decanted:	No	
File ID:	15DEC04.D			
		Sample Size:	0.0172	g
Date Sampled:	11/20/2003	%Solid:	100%	
Date Received:	11/21/2003	Extract Volume:	2	mL
Date Prepared:	11/28/2003	Prep DF:	10	
Date Cleanup:		Analysis DF:	1	
Date Analyzed:	15 Dec 2003 6:10 pm	Injection Volume:	0.001	mL
Instrument:	GC2-MS_59			
Operator:	EC	Batch QC:	ML031128-MB	

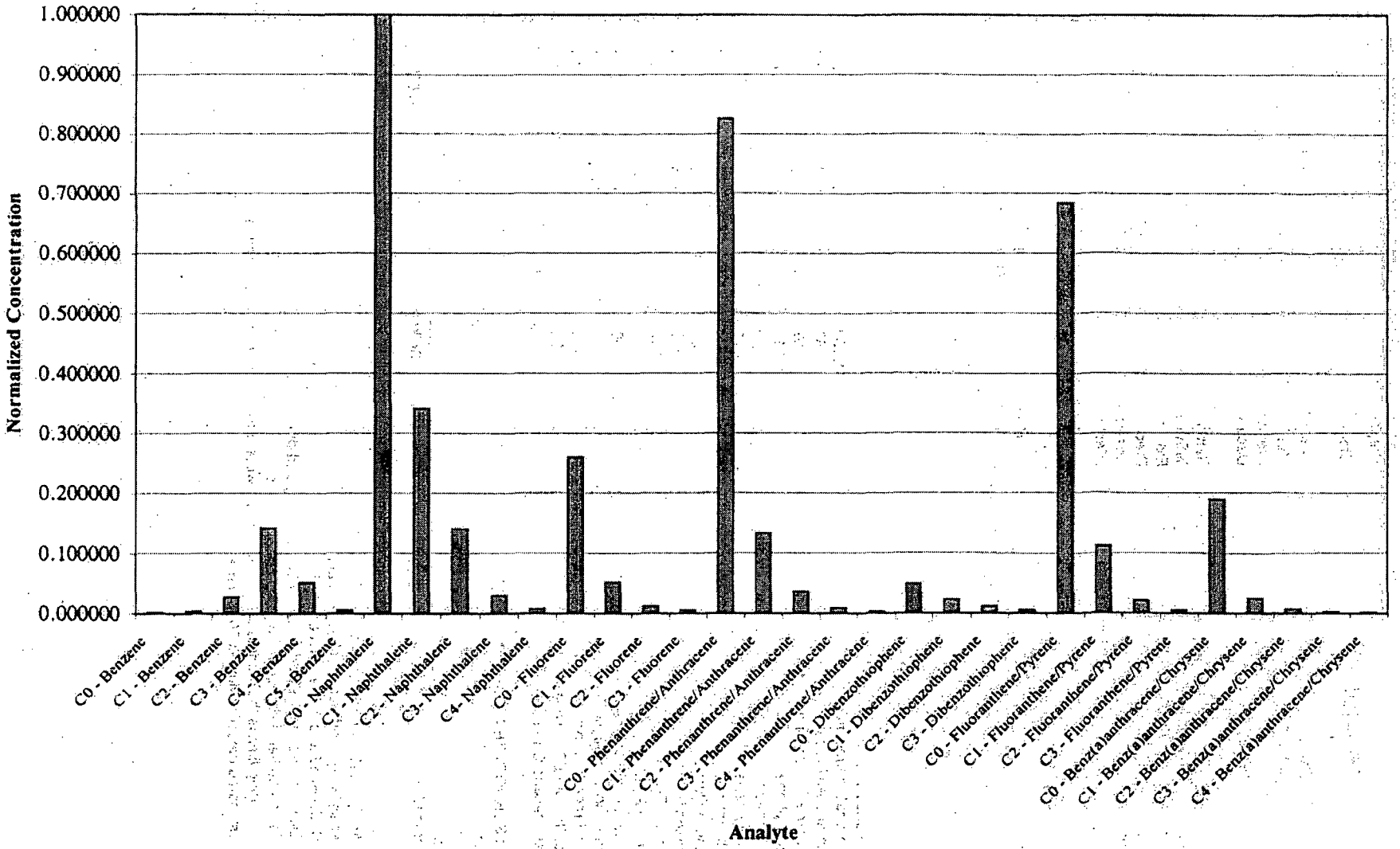
Analyte:	Concentration mg/kg	Q	RL mg/kg	EDL mg/kg	Comments
C0 - Fluorene	14,500		116	58.1	
C1 - Fluorene	2,880		116	58.1	
C2 - Fluorene	616		116	58.1	
C3 - Fluorene	255		116	58.1	
C0 - Phenanthrene/Anthracene	46,000		116	58.1	
C1 - Phenanthrene/Anthracene	7,430		116	58.1	
C2 - Phenanthrene/Anthracene	1,950		116	58.1	
C3 - Phenanthrene/Anthracene	453		116	58.1	
C4 - Phenanthrene/Anthracene	107	J	116	58.1	
C0 - Dibenzothiophene	2,710		116	58.1	
C1 - Dibenzothiophene	1,220		116	58.1	
C2 - Dibenzothiophene	623		116	58.1	
C3 - Dibenzothiophene	290		116	58.1	
C0 - Fluoranthene/Pyrene	38,200		116	58.1	
C1 - Fluoranthene/Pyrene	6,260		116	58.1	
C2 - Fluoranthene/Pyrene	1,160		116	58.1	
C3 - Fluoranthene/Pyrene	261		116	58.1	
C0 - Benz(a)anthracene/Chrysene	10,500		116	58.1	
C1 - Benz(a)anthracene/Chrysene	1,340		116	58.1	
C2 - Benz(a)anthracene/Chrysene	350		116	58.1	
C3 - Benz(a)anthracene/Chrysene	108	J	116	58.1	
C4 - Benz(a)anthracene/Chrysene	59.4	J	116	58.1	

EXTRACTION SURROGATE COMPOUNDS:	%R	Min	Max
Fluorobenzene	Not Spiked	50%	150%
2-Fluorobiphenyl	Not Spiked	50%	120%
5a-Androstane	Not Spiked	50%	120%
Benzo(a)pyrene-d12	Not Spiked	50%	120%

Qualifiers:

B	Analyte detected in the blank
D	Analyte reported from a diluted extract
U	Undetected above the detection limit
J	Estimated value detected between the reporting and detection limits
E	Estimated value detected above calibration range
RL	Reporting limit is the sample equivalent of the lowest linear calibration concentration
EDL	Estimated detection limit is 50% of the RL

MW-105-D


Normalized Concentration
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0.900000
0.800000
0.700000
0.600000
0.500000
0.400000
0.300000
0.200000
0.100000
0.000000
C0 - Benzene
C1 - Benzene
C2 - Benzene
C3 - Benzene
C4 - Benzene
C5 - Benzene
C0 - Naphthalene
C1 - Naphthalene
C2 - Naphthalene
C3 - Naphthalene
C4 - Naphthalene
C0 - Fluorene
C1 - Fluorene
C2 - Fluorene
C3 - Fluorene
C0 - Phenanthrene/Anthracene
C1 - Phenanthrene/Anthracene
C2 - Phenanthrene/Anthracene
C3 - Phenanthrene/Anthracene
C4 - Phenanthrene/Anthracene
C0 - Dibenzothiophene
C1 - Dibenzothiophene
C2 - Dibenzothiophene
C3 - Dibenzothiophene
C0 - Fluoranthene/Pyrene
C1 - Fluoranthene/Pyrene
C2 - Fluoranthene/Pyrene
C3 - Fluoranthene/Pyrene
C0 - Benz(a)anthracene/Chrysene
C1 - Benz(a)anthracene/Chrysene
C2 - Benz(a)anthracene/Chrysene
C3 - Benz(a)anthracene/Chrysene
C4 - Benz(a)anthracene/Chrysene
Analyte

META

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: **METHOD BLANK**

Client:	Various	Preparation Method:	EPA3580
Project:	Various	Cleanup Method(s):	
Lab ID:	ML031128-MB	Analysis Method:	GC/MS (EPA 8270 Mod.)
File ID:	08DEC18.D	Matrix:	NAPL
		Preservation:	None
		Decanted:	No
Date Sampled:		Sample Size:	0.01 g
Date Received:		%Solid:	100%
Date Prepared:	11/28/2003	Extract Volume:	2 mL
Date Cleanup:		Prep DF:	1
Date Analyzed:	9 Dec 2003 6:54 am	Analysis DF:	1
Instrument:	GC2-MS_59	Injection Volume:	0.001 mL
Operator:	EC	Batch QC:	ML031128-MB

Analyte:	Concentration mg/kg	Q	RL mg/kg	EDL mg/kg	Comments
PAH COMPOUNDS:					
Benzene		U	20.0	10.0	
Toluene		U	20.0	10.0	
Ethylbenzene		U	20.0	10.0	
m/p-Xylenes		U	20.0	10.0	
Styrene		U	20.0	10.0	
o-Xylene		U	20.0	10.0	
1,2,4-Trimethylbenzene		U	20.0	10.0	
Naphthalene		U	20.0	10.0	
2-Methylnaphthalene		U	20.0	10.0	
1-Methylnaphthalene		U	20.0	10.0	
Acenaphthylene		U	20.0	10.0	
Acenaphthene		U	20.0	10.0	
Dibenzofuran		U	20.0	10.0	
Fluorene		U	20.0	10.0	
Phenanthrene		U	20.0	10.0	
Anthracene		U	20.0	10.0	
Fluoranthene		U	20.0	10.0	
Pyrene		U	20.0	10.0	
Benz[a]anthracene		U	20.0	10.0	
Chrysene		U	20.0	10.0	
Benzo[b]fluoranthene		U	20.0	10.0	
Benzo[k]fluoranthene		U	20.0	10.0	
Benzo(e)pyrene		U	20.0	10.0	
Benzo[a]pyrene		U	20.0	10.0	
Perylene		U	20.0	10.0	
Indeno[1,2,3-cd]pyrene		U	20.0	10.0	
Dibenz[a,h]anthracene		U	20.0	10.0	
Benzo[g,h,i]perylene		U	20.0	10.0	
ALKYLATED PAHs:					
C0 - Benzene		U	20.0	10.0	
C1 - Benzene		U	20.0	10.0	
C2 - Benzene		U	20.0	10.0	
C3 - Benzene		U	20.0	10.0	
C4 - Benzene		U	20.0	10.0	
C5 - Benzene		U	20.0	10.0	
C0 - Naphthalene		U	20.0	10.0	
C1 - Naphthalene		U	20.0	10.0	
C2 - Naphthalene		U	20.0	10.0	
C3- Naphthalene		U	20.0	10.0	
C4- Naphthalene		U	20.0	10.0	

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: **METHOD BLANK**

Client:	Various	Preparation Method:	EPA3580
Project:	Various	Cleanup Method(s):	
		Analysis Method:	GC/MS (EPA 8270 Mod.)
Lab ID:	ML031128-MB	Matrix:	NAPL
File ID:	08DEC18.D	Preservation:	None
		Decanted:	No
		Sample Size:	0.01 g
Date Sampled:		%Solid:	100%
Date Received:		Extract Volume:	2 mL
Date Prepared:	11/28/2003	Prep DF:	1
Date Cleanup:		Analysis DF:	1
Date Analyzed:	9 Dec 2003 6:54 am	Injection Volume:	0.001 mL
Instrument:	GC2-MS_59		
Operator:	EC	Batch QC:	ML031128-MB

Analyte:	Concentration mg/kg	Q	RL mg/kg	EDL mg/kg	Comments
C0 - Fluorene		U	20.0	10.0	
C1 - Fluorene		U	20.0	10.0	
C2 - Fluorene		U	20.0	10.0	
C3 - Fluorene		U	20.0	10.0	
C0 - Phenanthrene/Anthracene		U	20.0	10.0	
C1 - Phenanthrene/Anthracene		U	20.0	10.0	
C2 - Phenanthrene/Anthracene		U	20.0	10.0	
C3 - Phenanthrene/Anthracene		U	20.0	10.0	
C4 - Phenanthrene/Anthracene		U	20.0	10.0	
C0 - Dibenzothiophene		U	20.0	10.0	
C1 - Dibenzothiophene		U	20.0	10.0	
C2 - Dibenzothiophene		U	20.0	10.0	
C3 - Dibenzothiophene		U	20.0	10.0	
C0 - Fluoranthene/Pyrene		U	20.0	10.0	
C1 - Fluoranthene/Pyrene		U	20.0	10.0	
C2 - Fluoranthene/Pyrene		U	20.0	10.0	
C3 - Fluoranthene/Pyrene		U	20.0	10.0	
C0 - Benz(a)anthracene/Chrysene		U	20.0	10.0	
C1 - Benz(a)anthracene/Chrysene		U	20.0	10.0	
C2 - Benz(a)anthracene/Chrysene		U	20.0	10.0	
C3 - Benz(a)anthracene/Chrysene		U	20.0	10.0	
C4 - Benz(a)anthracene/Chrysene		U	20.0	10.0	

EXTRACTION SURROGATE COMPOUNDS:	%R	Min	Max
Fluorobenzene	Not Spiked	50%	120%
2-Fluorobiphenyl	Not Spiked	50%	120%
5a-Androstane	Not Spiked	50%	120%
Benzo(a)pyrene-d12	Not Spiked	50%	120%

Qualifiers:

B	Analyte detected in the blank
D	Analyte reported from a diluted extract
U	Undetected above the detection limit
J	Estimated value detected between the reporting and detection limits
E	Estimated value detected above calibration range
RL	Reporting limit is the sample equivalent of the lowest linear calibration concentration
EDL	Estimated detection limit is 50% of the RL