Area A Pre-Design Investigation Data Summary Report

Central Hudson Gas & Electric Corporation
Newburgh, New York

July 2006

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1. Introduction

1.1 Purpose

This Pre-Design Investigation (PDI) Data Summary Report (Report) has been prepared by BBL, an ARCADIS Company (BBL) on behalf of Central Hudson Gas & Electric Corporation (CHGE) and presents the results of pre-design investigation activities performed within Area A of CHGE's former manufactured gas plant (MGP) located in Newburgh, New York. Figure 1 presents a Site Location Map.

The PDI activities were completed in accordance with an Order on Consent (Order) between the New York State Department of Environmental Conservation (NYSDEC) and CHGE (Index #D3-0001-95-06) dated October 1995, and the NYSDEC Record of Decision (ROD) for the Central Hudson Newburgh Site (Site Number 3-36-042), dated December 2005. Under the Order, CHGE is required to investigate and, if necessary, remediate hazardous substances located at the site of CHGE's Newburgh former MGP or in other areas where constituents from the Newburgh former MGP may have migrated (the Site).

As detailed in Section 1.3, numerous previous soil and groundwater investigations have been completed at the Site, including within Area A. This report is not intended to reiterate the results of those previous investigations. Rather, this Report is intended to summarize the data collected by CHGE in Area A in 2006 in support of pending remedial design and construction activities. The data presented herein supplements the data previously collected at the Site.

1.2 Site Location and Physical Setting

During the remedial investigation (RI) and feasibility study (FS) activities conducted at the Site from 1996 to 2003, the project area was divided into three distinct areas (Area A, Area B, and Area C) primarily due to the varied land uses and physical characteristics of each of the three areas. Area A, the subject of this Report, is the former MGP itself. Area B is the area between the former MGP and the Hudson River, currently occupied by the City of Newburgh sewage treatment plant (STP); and Area C is within the Hudson River (off-shore from the former MGP). Investigation and remediation activities in Areas B and C are being addressed by CHGE separately from Area A.

Area A occupies 1.8 acres and is bordered on the north by South William Street, on the east by South Water Street, on the south by Renwick Street, and on the west by South Colden Street. Area A is securely fenced and has been covered with crushed stone and fill materials. Currently Area A has active operations which include a natural gas regulator station and propane peaking plant, both owned and operated by CHGE; features associated with these operations include a control building, five regulator stations and associated natural gas lines, a vaporizer, six 60,000-gallon underground propane storage tanks, and roads/paved access areas. Figure 2 presents a Site Plan.

1.3 Area A Investigation Background

This section provides a brief summary of previous Area A investigations. Additional details regarding historical investigations within Area A are presented within the Remedial Investigation Report (RI Report) (BBL, 1999) and Feasibility Study Report (FS Report) (BBL, 2003).

A Phase I Investigation was conducted at the former MGP (Area A) by EA Science and Technology in 1987. The Phase I Investigation provided a historical overview of the former MGP site as well as some general information on the physical setting of the site. The results of the Phase I Investigation were presented in the Phase I Investigation, Newburgh Coal Gasification Plant Site (EA Science and Technology, 1987). Following the Phase I Investigation, A Phase II Investigation was conducted at the former MGP by Blasland & Bouck Engineers, P.C. in 1988. The Phase II Investigation included the installation of soil borings and monitoring wells and subsequent sampling and analysis of subsurface soil samples, surface soil samples, and groundwater samples. The results of the Phase II Investigation are presented in the Phase II Investigation Report for the Former Coal Gasification Plant Site (Blasland & Bouck Engineers, P.C., 1989).

Based upon the results of the Phase I and Phase II investigations, a comprehensive remedial investigation (RI) was conducted. Initial RI activities were completed in 1996 with supplemental RI activities being performed in 1997, 1998, and 1999. RI activities included a project area survey, source investigation, geologic investigation, hydrogeologic investigation, drain investigation, Hudson River investigation, air quality investigation, and ecological investigation. The RI Report contains an extensive summary of the investigation activities conducted at the Newburgh Site and presents the investigation results.

Following the completion of the RI, a feasibility study (FS) was prepared to identify and evaluate remedial alternatives appropriate for the Site (including Areas A, B, and C) that are both protective of human health and the environment, and consistent with applicable laws, regulations, and guidance documents. The remedial alternative for Area A that was recommended in the FS included a combination of institutional controls, soil excavation/disposal at the southeast corner of the former MGP (the Tar Tank Area), excavation/disposal at the former relief holder area, and overburden/bedrock NAPL removal. A more detailed description of the recommended remedial alternative for Area A is presented in the FS Report.

1.4 Area A Description of Selected Remedy

As stipulated in the ROD, the elements of the selected remedy for Area A include the following:

1. Performance of a remedial design program to provide the details necessary to implement the selected remedial alternative, including additional pre-design investigation to further delineate the excavation areas;

2. Excavation of the NAPL-impacted soils in the southeast corner of the MGP property (the former tar tank area);

3. Relocation/management of the existing gas regulator station and excavation of NAPL-impacted soils in the former relief holder and surrounding area;

4. Installation of overburden/bedrock NAPL collection wells along Water Street;

5. Development of a Site Management Plan (SMP). The SMP will identify the institutional controls and engineering controls to: (a) address residually impacted soils; (b) evaluate the potential for vapor intrusion for any buildings developed on the site; (c) provide for the operation and maintenance of the components of the remedy; (d) monitor the groundwater quality; and (e) identify any use restrictions;

6. Establishment of an institutional control in the form of an environmental easement that will limit the use of the property to commercial or industrial uses and restrict use of groundwater; and

7. Performance of an Institutional Control/Engineering Control (IC/EC) certification on a periodic basis.

1.5 Overview of Area A Pre-Design Investigation Activities

To provide additional information for use in developing the remedial design for Area A (as prescribed in Item 1 above), a pre-design investigation program was performed within Area A from May to June, 2006. The objectives of the Pre-Design Investigation activities in Area A were to provide the following design-related information:

- Horizontal and vertical delineation of the limits of excavation in the former relief holder area and in the former tar tank area;

- Geotechnical data in the former tar tank and former relief holder remediation areas for use in designing excavation shoring;

- Groundwater hydraulic characterization to estimate the potential infiltration rate of groundwater during excavation;

- Waste disposal characterization; and

- Characterization of shallow subsurface conditions in the proposed utility relocation corridor to assess worker safety during utility relocation activities.

The following field activities were performed to address the aforementioned design-related data needs:

- Soil test pit excavation;

- Soil boring advancement;

- Monitoring well installation and development;

- Soil sampling and analysis for geotechnical characterization;

- Soil and groundwater sampling and laboratory analyses for waste disposal characterization; and

- Hydraulic conductivity testing.

The This Report is organized pre-design investigation activities and results are discussed in further detail in Section 2.

1.6 Report Organization

This Report has been organized into the following sections:

Section	Purpose
Section 1 – Introduction	Provides an overview of: the previous Area A investigations, the selected remedy for Area A, Area A PDI activities, and the organization of the Report.
Section 2 – Area A PDI Activities and Results	Describes the scope of the Area A PDI activities and the results.
Section 3 – References	Presents a list of references cited in this Report.
Tables	Presents the data tables that is referenced throughout this Report.
Figures	Presents the figures that are referenced throughout this Report.
Appendices	Appendix A presents select photographs from the PDI activities. Appendix B presents test pit and soil boring logs. Appendix C presents Monitoring Well Logs/Construction Records. Appendix D presents laboratory data sheets for geotechnical analyses. Appendix E presents laboratory data sheets for soil and groundwater waste characterization samples.

2. PDI Activities and Results

This section describes the PDI activities performed in Area A in 2006 and presents the results. Raw data (test pit and boring logs, photographs, lab data, etc.) are presented in the Report appendices as noted throughout this section.

The PDI activities were conducted by BBL from May 15, 2006 to June 27, 2006 in accordance with the NYSDEC-reviewed PDI Work Plan dated April 25, 2006. The NYSDEC provided regulatory oversight during the completion of the Area A PDI activities. The results of the investigation activities were reviewed with NYSDEC as the work progressed (on-site discussions and teleconferences conducted on May 24 and June 8, 2006) so that the need for additional investigation, as well as the proposed limits of soil excavation, could be proactively identified and agreed upon. Representative photographs from the PDI activities are presented in Appendix A.

2.1 Evaluation of Shallow Subsurface Conditions in Utility Relocation Corridor

Currently, CHGE maintains a series of natural gas lines in the immediate vicinity of the relief holder. These lines will be re-located along the eastern side of Area A prior to performance of the Area A remediation activities. The utility relocation work is currently scheduled to be performed by CHGE in August 2006. As part of the PDI activities, two test pits (PDI-TP-1 and PDI-TP-2) and one soil boring (PDI-SB-18) were completed along the proposed utility relocation corridor on the eastern side of Area A (refer to Figure 3). The primary purpose of the test pits and soil boring was to evaluate shallow subsurface conditions in the utility relocation corridor to assess the potential impacts, if any, to site construction workers during the gas line relocation activities.

The test pits were excavated using a track-mounted excavator. Excavated soil was staged on plastic sheeting and used for backfill following completion of the test pit activities. Field staff photographed and documented relevant observations from each test pit, including the presence and/or absence of NAPL-impacted soils, sheens, staining and odors. Once the test pits were documented, they were backfilled with the stockpiled material. The results of the test pit activities are summarized in Table 1. The results for soil boring PDI-SB-18 are presented in Table 2. Test pit logs and the boring log for PDI-SB-18 are presented in Appendix B. As indicated in Table 1, no evidence of NAPL was observed in either of the two test pits. As indicated in Table 2, no evidence of NAPL was observed in the shallow subsurface at PDI-SB-18. Odors and a thin layer (approximately 2 inches) of NAPL blebs were observed at depths of 14-16 feet below ground surface (bgs).

The results of the PDI activities in the utility relocation corridor indicate that the former MGP operations have not impacted the shallow subsurface soils along the relocation corridor.

2.2 Delineation of Soil Excavation Limits

2.2.1 Former Relief Holder Area

The specific objectives of the investigation activities in the former relief holder area were to:

- define the soil excavation limits in the former relief holder area by visually delineating the horizontal and vertical extent of NAPL-impacted soils;

- determine the relationship between the relief holder bottom and the top of bedrock;

- assess (to the extent possible) the condition of the relief holder wall; and

- obtain geotechnical data for use in the evaluation and design of excavation support systems (discussed separately in Section 2.3).

To achieve these objectives, 3 soil test pits and 12 soil borings were advanced. The soil boring near the center of the relief holder was completed as a new monitoring well (PDI-MW-1).

Two test pits were excavated on the outside edges of the relief holder, one on the east side (PDI-TP-3) and one on the northwest side (PDI-TP-4). These two test pits were oriented such that they were approximately tangent to the outside edge of the relief holder. The purpose of these two test pits was to obtain information on the presence or absence of NAPL-impacted soils outside of the relief holder and, to the extent possible, to assess the structural integrity of the relief holder wall. A third test pit was excavated inside the relief holder (PDI-TP-5) to collect additional information to further assess the structural integrity of the relief holder wall, as well as to evaluate whether there are any depth changes in the relief holder (some older holders were known to have an elevated hump in the center of the holder).

The test pit locations were surveyed in the field and are illustrated on Figure 3. Excavated soil was staged on plastic sheeting for subsequent use as backfill. Field staff photographed and documented observations from each test pit, including the presence and/or absence of NAPL-impacted soils, sheens, staining, and odors. The results of the test pit activities, including observations of NAPL, are presented in Table 1 and on Figure 3. Test pit logs are presented in Appendix B. As indicated in Table 1, test pits PDI-TP-3 and PDI-TP-4 were advanced to bedrock. At PDI-TP-3, little to trace NAPL was observed from 6 to 19 feet, and bedrock was encountered at 19 feet bgs. At PDI-TP-4, NAPL was observed entering the test pit at depths below 10 feet, and bedrock was encountered at 17 feet bgs. Test pit PDI-TP-5, located inside the relief holder, was advanced to depths ranging from 11.5 - 12.5 feet bgs, at which the concrete bottom of the relief holder was encountered (note that the concrete bottom was not removed to prevent downward migration of NAPL). Heavy sheens and NAPL were encountered in PDI-TP-5 at depths below 2 feet. The walls of the relief holder were determined to be in fair condition, and the inside wall of the relief holder was lined with steel. The depth to concrete in the bottom of the relief holder was determined to range from 11.5 feet on the south side to 12.5 feet on the north side.

A total of twelve soil borings were installed in and around the relief holder area using a combination of direct push technology (PDI-SB-1, PDI-SB-2, PDI-SB-3, PDI-SB-6, and PDI-SB-7) and conventional hollow-stem-auger techniques (PDI-SB-4, PDI-SB-5, PDI-SB-18, PDI-SB-19, PDI-SB-23, PDI-SB-24, and PDI-SB-25). The boring near the center of the relief holder was completed as a new monitoring well, PDI-MW-1. The purpose of the soil borings was to supplement the test pit information and aid in determining the horizontal and vertical extent of NAPL-impacted soil excavation in the former relief holder area, and, as detailed in Section 2.3, to allow for collection of geotechnical information to support the remedial design. Boring PDI-SB-19 was added following review of the preliminary investigation data with NYSDEC on May 24, 2006 to further delineate the extent of NAPL-impacted soil in the southeast corner of the relief holder. Borings PDI-SB-23, PDI-SB-24, and PDI-SB-25 were added following review of the preliminary investigation data with NYSDEC on June 8, 2006 to further delineate the extent of NAPL-impacted soils in the northwest corner of the relief holder.

For the direct-push borings, soil samples were collected continuously in 4-foot increments using a Macro-core device with disposable acetate liners; for the borings installed with hollow stem auger techniques, soil samples were collected continuously in two-foot intervals from the split spoon sampler. Field staff recorded soil classification, depth to refusal or bedrock, and the presence and/or absence of NAPL, sheens, staining and odors. The locations of the soil borings are illustrated on Figure 3, and the results are summarized in Table 2. Soil boring logs are presented in Appendix B. The Monitoring Well Construction record for PDI-MW-1 is presented in Appendix C.

2.2.2 Former Tar Tank Area

The objective of the investigation activities in the former tar tank area was to collect the additional data necessary to define the excavation limits by visually delineating the horizontal and vertical extent of NAPL-impacted soil. In addition, because the excavation area will likely require shoring, geotechnical data were also collected during the PDI (discussed separately in Section 2.3).

Thirteen soil borings were installed in and around the former tar tank area using a combination of direct push technology (PDI-SB-12, PDI-SB-13, PDI-SB-14, PDI-SB-15, and PDI-SB-16) and conventional hollow-stem-auger techniques (PDI-SB-8, PDI-SB-9, PDI-SB-10, PDI-SB-11, PDI-SB-17, PDI-SB-20, PDI-SB-21, and PDI-SB-22). One additional soil boring in the former tar tank area was completed as a new monitoring well, PDI-MW-2. The purpose of the soil borings was to aid in determining the horizontal and vertical extent of NAPL-impacted soil excavation in the former tar tank area, and, as detailed in Section 2.3, to allow for collection of geotechnical information to support the remedial design. Several of the boring locations (PDI –SB-20, PDI-SB-21, and PDI-SB-22) were added following review of the preliminary investigation data with NYSDEC during a teleconference call on May 24, 2006 to further delineate the extent of NAPL-impacted soil on the western side of the former tar tank area.

For the direct-push borings, soil samples were collected continuously in 4-foot increments using a Macro-core device with disposable acetate liners; for the borings installed with hollow stem auger techniques, soil samples were collected continuously in two-foot intervals from the split spoon sampler. Field staff recorded soil classification, depth to refusal or bedrock, and the presence and/or absence of NAPL, sheens, staining and odors. The locations of the soil borings in the former tar tank area are illustrated on Figure 4, and the results are summarized in Table 2. Soil boring logs are presented in Appendix B. Monitoring Well Construction records for PDI-MW-2 are presented in Appendix C.

2.3 Geotechnical Evaluation

Due to the presence of utilities and facilities within Area A that must be protected, the anticipated depth of excavation required, and space constraints, excavation support systems (e.g., sheet piling) will be required during remedial activities in the former tar tank and former relief holder areas. Therefore, one of the objectives of the PDI activities was to obtain geotechnical data in these areas for use in the evaluation and design of such excavation support systems.

The required geotechnical data was obtained from two soil borings installed in the relief holder area (PDI-SB-4 and PDI-SB-5) and two borings installed in the former tar tank area (PDI-SB-11 and PDI-SB-17). The location of these soil borings are illustrated on Figures 3 and 4. Each of these soil borings was advanced between 10 and 15 feet into bedrock. Continuous standard penetration testing (SPT) of the overburden was performed using 2-inch outside diameter (OD) split-spoon samplers in accordance with ASTM D1586. The bedrock was cored

with NX-size core samplers in accordance with ASTM D2113. The bedrock core samples from each boring were collected and submitted to PW Laboratories, Inc. for laboratory testing of unconfined compressive strength in accordance with ASTM D2938. Observations regarding the presence or absence of NAPL in these borings are presented in Table 2. A summary of soil geotechnical data is presented in Table 3. A summary of bedrock unconfined compressive strength data is presented in Table 4. The laboratory data sheets for the geotechnical analyses are presented in Appendix D.

2.4 Monitoring Well Installation and Hydraulic Characterization

As part of the PDI activities in the former tar tank and former relief holder areas, two new monitoring wells were installed, developed, and sampled, and a groundwater hydraulic characterization was performed. The objective of the hydraulic characterization task was to collect the additional data for use in the design phase to determine the anticipated dewatering rates for the proposed excavations in the former tar tank and former relief holder areas. Groundwater samples were collected and analyzed for waste characterization parameters to determine treatment/disposal requirements for groundwater removed from the excavation areas during remedial construction activities.

A new site monitoring well (PDI-MW-1) was installed in the former relief holder area in the location shown on Figure 3. The monitoring well was installed with 0.020-inch slotted (as requested by NYSDEC), 2-inch diameter, schedule 40 polyvinyl chloride (PVC) well screen and 2-inch diameter, schedule 40 PVC casing. An outer casing was installed to a depth of 11.5 feet bgs (six inches into the relief holder bottom) and grouted in-place; the concrete bottom was drilled through on the following day to install the well screen at 16 feet bgs on top of bedrock.

In the former tar tank area, the PDI Work Plan called for the redevelopment of existing monitoring well NW-3. However, upon mobilization to the field it was determined that NW-3 had been damaged and was therefore unsuitable for use in site hydraulic characterization activities. Therefore, a new monitoring well (PDI-MW-2) was installed in the former tar tank area adjacent to existing well NW-3 (refer to Figure 4). The monitoring well was installed with 0.020-inch slotted, 2-inch diameter, schedule 40 polyvinyl chloride (PVC) well screen and 2-inch diameter, schedule 40 PVC casing. The screen was installed from 3.5 to 13.5 feet bgs to straddle the water table and capture groundwater just above bedrock.

The newly installed monitoring wells were developed in accordance with the procedures that were presented in the PDI Work Plan. The locations of the new monitoring wells were surveyed following installation, including ground surface and top-of-casing elevations. Following well development, samples were collected from each of the two wells for groundwater waste characterization purposes, as discussed in further detail in Section 2.5 below.

Specific capacity tests were performed on monitoring wells PDI-MW-1 and PDI-MW-2 using two methods. Initially a specific capacity test was conducted and water level drawdown data were collected in order to calculate a hydraulic conductivity (k) of the formation surrounding the monitoring wells based on the specific capacity (Walton, 1962). Following the specific capacity tests, additional water level measurements were obtained during the well recovery phase. These data were then used to calculate a second estimate of the hydraulic conductivity during well recovery using Aqtesolv for Windows Version 3.50 professional. The calculated hydraulic conductivity data are summarized below and the calculation parameters are provided in Table 5.

Summary of Hydraulic Conductivity Values

Monitoring Well ID	Hydraulic Conductivity (k) Calculated from Specific Capacity Test (ft/day)	Hydraulic Conductivity (k) Calculated from Well Recovery Phase (ft/day)
PDI-MW-1	0.83	0.52
PDI-MW-2	0.08	0.15

2.5 Waste Disposal Characterization

As part of the PDI activities, two soil samples were collected for waste characterization purposes. One composite soil sample was collected from each the former tar tank and former relief holder remediation areas. The objective of waste disposal characterization sampling was to provide information required to support the selection of a treatment and/or disposal facility for soil removed during the Area A remediation activities. Each composite sample was comprised of aliquots collected from the soil cuttings during the advancement of the borings in each area. The composite soil sample for the former relief holder area was collected with aliquots from borings PDI-SB-1, PDI-SB-2, PDI-SB-3, PDI-SB-6, and PDI-SB-7. The composite soil sample for the former tar tank area was collected with aliquots from borings PDI-SB-12, PDI-SB-13, PDI-SB-14, PDI-SB-15, and PDI-SB-16.

Two groundwater samples were also collected for waste disposal characterization purposes. The purpose of the groundwater samples was to support the determination of treatment/disposal requirements for groundwater removed from excavation areas during the Area A remediation activities. One sample was collected from the former tar tank area (PDI-MW-2) and one sample was collected from the former relief holder area (PDI-MW-1). The groundwater samples were collected on June 8, 2006.

The laboratory analytical data for the soil and groundwater waste characterization samples are presented in Tables 6 and 7, respectively.

3. Limits of Soil Excavation

This section presents the limits of excavation for the former relief holder area and the former tar tank area. The limits of excavation were developed based upon review of the data collected during the PDI activities and during previous site investigations, discussions with NYSDEC as the PDI activities progressed, and the locations of existing utilities and facilities that are to remain and be protected.

3.1 Former Relief Holder Area

The results of the test pit and soil boring activities in the relief holder area are qualitatively presented on Figure 3. The results of the test pit and soil boring activities were discussed with NYSDEC during conference calls on May 24, 2006 and June 8, 2006. The proposed horizontal limits of excavation in the former relief holder are illustrated on Figure 3. The extent of NAPL-impacted soil excavation at the southern end of the relief holder is limited by the presence of active natural gas utility lines that are to remain in place and must not be compromised.

The contents of the relief holder will be excavated in their entirety, including breaking and removing the concrete bottom of the holder and removal of NAPL-impacted soils beneath the holder (e.g., above the till layer observed in the soil boring for PDI-MW-1). NAPL-impacted soils will be removed around the perimeter of the former relief holder from the location of soil boring PDI-SB-4 counterclockwise approximately 180°. Soils outside the holder will be excavated to bedrock and a maximum horizontal distance of 10 feet from the outside edge of the holder or up to 3 feet from any existing gas utility lines (whichever occurs first). The limits of excavation in the former relief holder area are illustrated on Figure 3. The holder walls may remain in place.

3.2 Former Tar Tank Area

The results of the test pit and soil boring activities in the former tar tank area are qualitatively presented on Figure 3. The results of the test pit and soil boring activities were discussed with NYSDEC during conference calls on May 24, 2006 and June 8, 2006. The proposed horizontal limits of excavation in the former tar tank area are illustrated on Figure 4. The extent of NAPL-impacted soil excavation along the western side of the former tar tank area is limited by the presence of active propane storage facilities that are to remain in place and must not be compromised. The eastern limits of excavation in the former tar tank area will only extend to the edge of the CHGE property along Water Street. The vertical excavation limits will extend to bedrock.

4. References

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BBL, 2003. *Revised Feasibility Study Report.*

NYSDEC, 1995. *Consent Order between NYSDEC and CHGE, Index #D3-001-95-06*

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Tables

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Table 1
Summary of Test Pit Observations

Boring ID	Depth Interval	Description
PDI-TP-1	0' to 4.5' bgs	No Evidence of NAPL Observed.
PDI-TP-2	0' to 4.0' bgs	No Evidence of NAPL Observed.
PDI-TP-3	0' to 4.4' bgs	No Evidence of NAPL Observed.
	4.5' to 6' bgs	Black Staining, Odor.
	6' bgs	Little NAPL observed.
	6' to 16'	Odors and Staining, Little NAPL in Silt Seams and casts of Gravel.
PDI-TP-4	0' to 10' bgs	No Evidence of NAPL Observed.
	10' to 15' bgs	Water flowing into excavation contained NAPL blebs and free product.
	16' to 17' bgs	No Evidence of NAPL Observed.
PDI-TP-5	0' to 2' bgs	No Evidence of NAPL Observed.
	2' to 12.5' bgs	Heavy Sheen
	7' to 12.5' bgs	In the north end of the excavation, a block from the last third of the trench contained black NAPL.

Note: 1. bgs = feet below ground surface.

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Table 2
Summary of Soil Boring and Monitoring Well Data

Boring ID	Depth Interval	Description
PDI-SB-1	0' to 4'	Slight Odor.
	4' to 8'	Slight Odor, Refusal at 8'.
PDI-SB-2	0' to 4'	Slight Odor.
	4' to 8'	Slight Odor, Refusal at 8'.
PDI-SB-3	0' to 4'	Slight NAPL Staining.
	8' to 12'	Slight Odor, Sheen. Auger Refusal at 15'.
	12' to 14'	Slight Odor, Sheen, Refusal at 14'.
PDI-SB-4	0' to 2'	No Evidence of NAPL Observed.
	2' to 4'	Slight Odor.
	4' to 6'	Slight Odor.
	6' to 8'	No Evidence of NAPL Observed.
	8' to 10'	No Evidence of NAPL Observed.
	10' to 12'	Sheen, Odor.
	12' to 14'	Slight Odor, Sheen. Auger Refusal at 15'.
Begin coring into bedrock	15' to 17'	No Evidence of NAPL Observed. Spun roller bit to 18' bgs to seal.
	18' to 20'	No Evidence of NAPL Observed.
	20' to 25'	Slight odor in return water observed.
	25' to 30'	Slight odor and sheen in return water observed.
PDI-SB-5	0' to 2'	No Evidence of NAPL Observed.
	2' to 4'	No Evidence of NAPL Observed.
	4' to 6'	No Evidence of NAPL Observed.
	6' to 8'	No Evidence of NAPL Observed.
	8' to 10'	No Evidence of NAPL Observed.
	10' to 12'	No Evidence of NAPL Observed.
	12' to 14'	NAPL Blebs Below 13.5'.
	14' to 16'	Trace NAPL.
	16' to 18'	Slight Odor.
	18' to 20'	Slight Odor.
	20' to 22'	No Evidence of NAPL Observed.
	22' to 24'	No Evidence of NAPL Observed.
	24' to 24.6'	Trace NAPL Blebs. Auger Refusal at 24.6'.
Coring begins into bedrock	25' to 26.5'	Trace sheen and odor in return water.
	26.5' to 28.5'	Trace sheen and odor in return water.
	28.5' to 33'	NAPL pooled at ~30' bgs in return water.
	33' to 36.5'	NAPL pooled below ~30' bgs in return water.
	36.5' to 37.5'	NAPL pooled below ~30' bgs in return water.
PDI-SB-6	0' to 4'	No Evidence of NAPL Observed.
	4' to 8'	Odor, Sheen, Black Staining, NAPL Throughout.
	8' to 12'	NAPL Observed, Refusal at 12'.
PDI-SB-7	0' to 4'	Odor, Black Stain.
	4' to 8'	Strong Odor, NAPL Smearing.
	8' to 12'	Odor, NAPL Observed.
	12' to 12.5'	NAPL Observed in Sleeve, NAPL Blebs, Refusal at 12.5'.

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Table 2
Summary of Soil Boring and Monitoring Well Data

Boring ID	Depth Interval	Description
PDI-SB-8	0' to 4'	No Recovery.
	4' to 6'	Odor.
	6' to 8'	Odor.
	8' to 10'	Slight Odor.
	10' to 12'	Slight Odor, Sheen.
	12' to 12.8'	Odor, Refusal at 12.8'.
PDI-SB-9	0' to 3'	No Recovery.
	3' to 5'	Slight Odor.
	5' to 7'	Strong Odor, Sheen.
	7' to 9'	Slight Odor.
	9' to 11'	Slight Odor.
	11' to 13'	Odor.
	13' to 13.8'	Odor.
PDI-SB-10	0' to 2'	No Recovery.
	2' to 4'	No Evidence of NAPL Observed.
	4' to 6'	Strong Odor, Sheen.
	6' to 8'	Very Strong Odor, Heavy Sheen.
	8' to 10'	Strong Odor, NAPL Observed at Bottom of Spoon.
	10' to 12'	Odor, Heavy Sheen.
	12' to 14'	Heavy Sheen, NAPL Blebs Throughout.
	14' to 14.1'	Auger Refusal at 14.1'.
PDI-SB-11	0' to 2'	No Evidence of NAPL Observed.
	2' to 4'	No Evidence of NAPL Observed.
	4' to 6'	No Evidence of NAPL Observed.
	6' to 8'	Strong Odor.
	8' to 10'	Strong Odor.
	10' to 12'	Odor.
	12' to 14'	Odor.
	14' to 16'	Odor.
	16' to 18'	Auger Refusal at 17.5'.
Coring begins into bedrock	18' to 20'	No Evidence of NAPL Observed.
	20' to 21.5'	No Evidence of NAPL Observed.
	21.5' to 23'	No Evidence of NAPL Observed.
	23' to 26.5'	No Evidence of NAPL Observed.
	26.5' to 28'	No Evidence of NAPL Observed.
PDI-SB-12	0' to 4'	Odor.
	4' to 8'	No Evidence of NAPL Observed.
	8' to 11.5'	No Evidence of NAPL Observed, Refusal at 11.5'.
PDI-SB-13	0' to 4'	No Evidence of NAPL Observed.
	4' to 8'	Odor, NAPL Bleb from 6.2' to 6.8'
	8 to 12'	No Evidence of NAPL Observed, Refusal at 12'.
PDI-SB-14	0' to 4'	Sheen, Slight Odor.
	4' to 8'	Sheen, Slight Odor, Refusal at 8'.

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Table 2
Summary of Soil Boring and Monitoring Well Data

Boring ID	Depth Interval	Description
PDI-SB-15	0' to 4'	Odor, Black Stain From 2.1' to 2.2'.
	4' to 8'	No Recovery.
	8' to 12'	Odor, NAPL Smeared on Side of Liner.
	12' to 13'	Odor, NAPL Observed, Refusal at 13'.
PDI-SB-16	0' to 4'	No Evidence of NAPL Observed.
	4' to 8'	Odor.
	8' to 11'	Odor, Refusal at 11'.
PDI-SB-17	0' to 2'	No Evidence of NAPL Observed.
	2' to 4'	No Evidence of NAPL Observed.
	4' to 6'	No Evidence of NAPL Observed.
	6' to 8'	No Evidence of NAPL Observed.
	8' to 10'	Sheen, Odor.
	10' to 11.5'	Odor. Refusal at 11.5'.
	11.5' to 13.5'	Roller bit to 13.5' to get through weathered bedrock to competent rock that seals fluid.
Coring begins into bedrock	13.5' to 18.5'	No Evidence of NAPL Observed.
	18.5' to 22'	No Evidence of NAPL Observed.
	22' to 23.5'	NAPL appeared in core water ~23' bgs.
PDI-SB-18	0' to 2'	No Evidence of NAPL Observed.
	2' to 4'	No Evidence of NAPL Observed.
	4' to 6'	No Evidence of NAPL Observed.
	6' to 8'	No Evidence of NAPL Observed.
	8' to 10'	No Evidence of NAPL Observed.
	10' to 12'	No Evidence of NAPL Observed.
	12' to 14'	Slight Odor.
	14' to 16'	Thin (~2 inch) layer of NAPL blebs, strong odor.
	16' to 18'	No Evidence of NAPL Observed.
	18' to 20'	No Evidence of NAPL Observed.
	20' to 22'	No Evidence of NAPL Observed.
	22' to 24'	No Evidence of NAPL Observed.
	24' to 26'	No Evidence of NAPL Observed.
	26' to 27'	No Evidence of NAPL Observed. Auger Refusal at 27'.
PDI-SB-19	0' to 2'	No Evidence of NAPL Observed.
	2' to 4'	No Evidence of NAPL Observed.
	4' to 6'	No Evidence of NAPL Observed.
	6' to 8'	Slight Odor.
	8' to 10'	Moderate Odor, Trace NAPL.
	10' to 12'	Slight Odor.
	12' to 14'	Moderate Odor, NAPL Visible in Clay Seams.
	14' to 16'	No Evidence of NAPL Observed.
	16' to 17'	No Evidence of NAPL Observed. Auger Refusal at 17'.

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Table 2
Summary of Soil Boring and Monitoring Well Data

Boring ID	Depth Interval	Description
PDI-SB-20	0' to 2'	No Evidence of NAPL Observed.
	2' to 4'	Slight Odor.
	4' to 6'	No Recovery.
	6' to 8'	Strong Odor, NAPL Staining.
	8' to 10'	Strong Odor, NAPL Staining.
	10' to 12'	Odor, Trace NAPL.
	12' to 12.1'	Odor, Trace NAPL, Refusal at 12.1'.
PDI-SB-21	0' to 2'	No Evidence of NAPL Observed.
	2' to 4'	No Evidence of NAPL Observed.
	4' to 6'	No Evidence of NAPL Observed.
	6' to 8'	NAPL Blebs on Spoon.
	8' to 10'	Strong Odor, NAPL observed in spoon.
	10' to 10.5'	Strong Odor, NAPL Blebs on Spoon. Auger Refusal at 10.5'.
PDI-SB-22	0' to 2'	No Evidence of NAPL Observed.
	2' to 4'	No Evidence of NAPL Observed.
	4' to 6'	Moderate Odor, NAPL Observed.
	6' to 6.5'	Strong Odor, NAPL Observed. Refusal at 6.5'.
PDI-SB-23	0' to 2'	No Evidence of NAPL Observed.
	2' to 4'	No Evidence of NAPL Observed.
	4' to 6'	No Evidence of NAPL Observed.
	6' to 8'	No Evidence of NAPL Observed.
	8' to 10'	No Evidence of NAPL Observed.
	10' to 12'	No Evidence of NAPL Observed.
	12' to 14'	No Evidence of NAPL Observed.
	14' to 16'	No Evidence of NAPL Observed.
	16' to 18'	No Evidence of NAPL Observed. Refusal at 16.5' bgs
PDI-SB-24	0' to 2'	No Evidence of NAPL Observed.
	2' to 4'	No Evidence of NAPL Observed.
	4' to 6'	No Evidence of NAPL Observed.
	6' to 8'	No Evidence of NAPL Observed.
	8' to 10'	No Evidence of NAPL Observed.
	10' to 12'	No Evidence of NAPL Observed. Slight sheen, no odor.
	12' to 14'	No Evidence of NAPL Observed.
	14' to 16'	No Evidence of NAPL Observed.
	16' to 18'	No Evidence of NAPL Observed.
	18' to 20'	No Evidence of NAPL Observed. Refusal at 19.5' bgs
PDI-SB-25	0' to 2'	No Evidence of NAPL Observed.
	2' to 4'	No Evidence of NAPL Observed.
	4' to 6'	No Evidence of NAPL Observed.
	6' to 8'	No Evidence of NAPL Observed.
	8' to 10'	No Evidence of NAPL Observed.
	10' to 12'	No Evidence of NAPL Observed. Slight odor, sheen at bottom of interval.

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Area A Pre-Design Investigation Data Summary Report

Table 2
Summary of Soil Boring and Monitoring Well Data

Boring ID	Depth Interval	Description
PDI-SB-25	12' to 14'	No Evidence of NAPL Observed.
	14' to 16'	No Evidence of NAPL Observed.
	16' to 18'	No Evidence of NAPL Observed.
	18' to 20'	No Evidence of NAPL Observed. End of boring.
PDI-MW-1	0' to 11'	Samples not collected. See PDI-TP-5 for observations.
	11' to 12'	Concrete.
	12' to 14'	NAPL Present from 12' to 12.8' (above till). Sheen in Till.
	14' to 16'	Odor. Bedrock Refusal at 16'. No NAPL Present in Well.
PDI-MW-2		Soil Samples not Collected. NAPL Visible in Cuttings.

Note: 1. Depths listed in feet below ground surface.'

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Table 3
Summary of Soil Geotechnical Data

Location	Sample Depth (feet)	Sample Type	Description of Soil Specimen	Natural Moisture (%)	Atterberg Limits			Percent Passing #200 Sieve (%)
					LL[1]	PL[2]	PI[3]	
SB-4	7.0'-7.5'	SS[4]	Fine to Coarse CLAYEY SAND (SC).	17.8	31	20	11	45.1
SB-5	10.0'-11.5'	SS	SILTY CLAY (CL).	19.9	29	17	12	57.2
SB-5	12.0'-13.8'	SS	Fine to medium SILTY SAND (SM).	28.6	31	25	6	45.0

Notes:

1. LL = Liquid Limit
2. PL = Plastic Limit
3. PI = Plasticity Index
4. SS = Split Spoon
5. A gradation sheet presenting additional sieve analysis information is included in Appendix D.
6. Samples were analyzed by PW laboratories, Inc. using the following methods:
   - Natural Moisture Content (%) using American Society for Testing and Materials (ASTM) Method D2216.
   - Atterburg Limits using ASTM Method D4318.
   - Sieve Analysis using ASTM Methods D422 and D1140.

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Table 4
Summary of Bedrock Geotechnical Data

Location	Sample Depth (feet)	Sample Type	Date Sampled	Average Diameter of Specimen (inches)	Cross-Sectional Area ($inches^2$)	Total Load (pounds)	Compressive Strength (psi) [1]	Rate of Loading (lbs/min) [2]
SB-4	24.5'-25.0'	RC[3]	5/18/2006	1.93	2.93	69,590	23,750	6,190
SB-5	32.0'-32.5'	RC	5/17/2006	1.97	3.05	72,720	23,840	6,460
SB-5	32.5'-33.0'	RC	5/17/2006	1.94	2.96	44,960	15,190	6,660

Notes:

1. psi = pounds per square inch.
2. lbs/min = pounds per minute.
3. RC = Rock Core.
4. Samples were analyzed by PW laboratories, Inc. using American Society for Testing and Materials (ASTM) Method D2938.

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Table 5
Summary of Input Data for Calculation of Hydraulic Conductivity

Input Data	PDI-MW-1	PDI-MW-2
Formation Description	fine to medium sand, some silt (till)	fine sand and silt (till)
Assumed Storativity	0.01	0.01
Pumping Period (minute)	60	55
Water Removed (liters)	8.8	11
Initial Water level (ft) below measurement point	16.25	4.6
Final Water level (ft) below measurement point	18.1	6.45
Sand Pack Top (ft, bgs)	11.5	2
Sand Pack Bottom (ft, bgs)	16	13.5
Assumed Sand Pack Porosity	0.3	0.3
Total Well Depth (ft, bgs)	16	13.5
Well Casing Diameter (inch)	2	2
Well Borehole Diameter (inch)	3	8.25
Reference Point Elevation (ft, above ground surface)	2.5	0
Water Removed from Well Storage (gallons)	0.30	0.30
Water Removed from Sandpack (gallons)	0.11	1.45
Water Removed from Aquifer (gallons)	1.91	1.15
K (ft/day)	0.83	0.08

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Table 6
Summary of Waste Characterization Analytical Data for Soils

Sample ID: / Date Sampled:	Units	Relief Holder Area 05/16/06	Tar Tank Area 05/16/06
PCBs			
Aroclor 1016	ug/kg	3.5 U	3.3 U
Aroclor 1221	ug/kg	1.9 U	1.8 U
Aroclor 1232	ug/kg	2.3 U	2.2 U
Aroclor 1242	ug/kg	3.8 U	3.5 U
Aroclor 1248	ug/kg	3.4 U	3.2 U
Aroclor 1254	ug/kg	1.5 U	1.4 U
Aroclor 1260	ug/kg	52	4.7 U
Total PCBs	ug/kg	52	ND
Volatiles			
1 1 1-Trichloroethane	ug/kg	510 U	48 U
1 1 2 2-Tetrachloroethane	ug/kg	510 U	48 U
1 1 2-Trichloroethane	ug/kg	760 U	73 U
1 1-Dichloroethane	ug/kg	760 U	73 U
1 1-Dichloroethene	ug/kg	890 U	85 U
1 2-Dichloroethane	ug/kg	760 U	73 U
1 2-Dichloropropane	ug/kg	1,100 U	110 U
2-Butanone (MEK)	ug/kg	1,500 U	150 U
2-Hexanone	ug/kg	1,000 U	97 U
4-Methyl-2-pentanone (MIBK)	ug/kg	890 U	85 U
Acetone	ug/kg	1,800 UB	240 JB
Benzene	ug/kg	39,000	160 J
Bromodichloromethane	ug/kg	510 U	48 U
Bromoform	ug/kg	1,000 U	97 U
Bromomethane	ug/kg	1,500 U	150 U
Carbon disulfide	ug/kg	1,100 U	110 U
Carbon tetrachloride	ug/kg	1,300 U	120 U
Chlorobenzene	ug/kg	510 U	48 U
Chloroethane	ug/kg	1,000 U	97 U
Chloroform	ug/kg	890 U	85 U
Chloromethane	ug/kg	640 U	60 U
cis-1 2-Dichloroethene	ug/kg	760 U	73 U
cis-1 3-Dichloropropene	ug/kg	640 U	60 U
Dibromochloromethane	ug/kg	640 U	60 U
Ethylbenzene	ug/kg	110,000	14,000
Methylene chloride	ug/kg	510 U	91 J
Styrene	ug/kg	640 U	60 U
Tetrachloroethene	ug/kg	640 U	60 U
Toluene	ug/kg	25,000	210 J
trans-1 2-Dichloroethene	ug/kg	640 U	60 U
trans-1 3-Dichloropropene	ug/kg	380 U	36 U
Trichloroethene	ug/kg	890 U	85 U
Vinyl chloride	ug/kg	1,000 U	97 U
Xylenes (total)	ug/kg	120,000	15,000

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Table 6
Summary of Waste Characterization Analytical Data for Soils

Sample ID: Date Sampled:	Units	Relief Holder Area 05/16/06	Tar Tank Area 05/16/06
Volatiles - TCLP			
1 1-Dichloroethene	mg/L	0.0035 U	0.00070 U
1 2-Dichloroethane	mg/L	0.0030 U	0.00060 U
2-Butanone (MEK)	mg/L	0.020 J	0.0033 JH
Benzene	mg/L	0.80	0.0022 J
Carbon tetrachloride	mg/L	0.0050 U	0.0010 U
Chlorobenzene	mg/L	0.0020 U	0.00040 U
Chloroform	mg/L	0.0035 U	0.00070 U
Tetrachloroethene	mg/L	0.0025 U	0.00050 U
Trichloroethene	mg/L	0.0035 U	0.00070 U
Vinyl chloride	mg/L	0.0040 U	0.00080 U
Semivolatiles			
1 2 4-Trichlorobenzene	ug/kg	7,100 U	320 U
1 2-Dichlorobenzene	ug/kg	7,100 U	320 U
1 3-Dichlorobenzene	ug/kg	6,500 U	290 U
1 4-Dichlorobenzene	ug/kg	6,700 U	310 U
2 2-oxybis (1-chloropropane)	ug/kg	6,000 U	270 U
2 4 5-Trichlorophenol	ug/kg	15,000 U	700 U
2 4 6-Trichlorophenol	ug/kg	11,000 U	490 U
2 4-Dichlorophenol	ug/kg	14,000 U	630 U
2 4-Dimethylphenol	ug/kg	22,000 U	990 U
2 4-Dinitrophenol	ug/kg	15,000 U	660 U
2 4-Dinitrotoluene	ug/kg	7,600 U	350 U
2 6-Dinitrotoluene	ug/kg	7,800 U	350 U
2-Chloronaphthalene	ug/kg	6,200 U	280 U
2-Chlorophenol	ug/kg	11,000 U	500 U
2-Methylnaphthalene	ug/kg	360,000	9,700
2-Methylphenol	ug/kg	11,000 U	510 U
2-Nitroaniline	ug/kg	5,300 U	240 U
2-Nitrophenol	ug/kg	15,000 U	670 U
3 3-Dichlorobenzidine	ug/kg	11,000 U	510 U
3-Nitroaniline	ug/kg	8,800 U	400 U
4 6-Dinitro-2-methylphenol	ug/kg	30,000 U	1,400 U
4-Bromophenyl phenyl ether	ug/kg	6,500 U	290 U
4-Chloro-3-methylphenol	ug/kg	14,000 U	650 U
4-Chloroaniline	ug/kg	14,000 U	620 U
4-Chlorophenyl phenyl ether	ug/kg	5,900 U	270 U
4-Methylphenol	ug/kg	23,000 U	1,000 U
4-Nitroaniline	ug/kg	6,100 U	280 U
4-Nitrophenol	ug/kg	18,000 U	820 U
Acenaphthene	ug/kg	150,000	8,400
Acenaphthylene	ug/kg	24,000 J	3,400
Anthracene	ug/kg	64,000	6,100
Benzo(a)anthracene	ug/kg	33,000 JH	6,000

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Table 6
Summary of Waste Characterization Analytical Data for Soils

Sample ID: Date Sampled:	Units	Relief Holder Area 05/16/06	Tar Tank Area 05/16/06
Semivolatiles (continued)			
Benzo(b)fluoranthene	ug/kg	12,000 U	5,200 M
Benzo(ghi)perylene	ug/kg	25,000 J	7,100
Benzo(k)fluoranthene	ug/kg	11,000 JM	1,800 JM
Benzyl alcohol	ug/kg	8,000 U	360 U
Bis(2-chloroethoxy)methane	ug/kg	7,300 U	330 U
Bis(2-chloroethyl)ether	ug/kg	5,700 U	260 U
Bis(2-ethylhexyl)phthalate	ug/kg	5,600 U	520 J
Butyl benzyl phthalate	ug/kg	5,500 U	250 U
Carbazole	ug/kg	6,200 U	330 J
Chrysene	ug/kg	30,000 J	6,000
Dibenzo(a h)anthracene	ug/kg	4,700 U	210 U
Dibenzofuran	ug/kg	13,000 J	810 J
Diethyl phthalate	ug/kg	6,200 U	280 U
Dimethyl phthalate	ug/kg	6,500 U	290 U
Di-n-butyl phthalate	ug/kg	5,600 U	250 U
Di-n-octyl phthalate	ug/kg	4,500 U	200 U
Fluoranthene	ug/kg	44,000	7,100
Fluorene	ug/kg	80,000	4,900
Hexachlorobenzene	ug/kg	6,200 U	280 U
Hexachlorobutadiene	ug/kg	8,700 U	390 U
Hexachlorocyclopentadiene	ug/kg	32,000 U	1,400 U
Hexachloroethane	ug/kg	7,500 U	340 U
Indeno(1 2 3-cd)pyrene	ug/kg	12,000 J	4,500 H
Isophorone	ug/kg	7,600 U	350 U
Naphthalene	ug/kg	650,000	11,000
Nitrobenzene	ug/kg	5,100 U	230 U
n-Nitroso-di-n-propylamine	ug/kg	5,700 U	260 U
n-Nitrosodiphenylamine	ug/kg	6,400 U	290 U
Pentachlorophenol	ug/kg	37,000 U	1,700 U
Phenanthrene	ug/kg	210,000	17,000
Phenol	ug/kg	12,000 U	560 U
Pyrene	ug/kg	110,000	17,000
Semivolatiles - TCLP			
1 4-Dichlorobenzene	mg/L	0.00090 U	0.00090 U
2 4 5-Trichlorophenol	mg/L	0.0020 U	0.0020 U
2 4 6-Trichlorophenol	mg/L	0.0020 U	0.0020 U
2 4-Dinitrotoluene	mg/L	0.0020 U	0.0020 U
2-Methylphenol	mg/L	0.0020 J	0.0010 U
4-Methylphenol	mg/L	0.0050 J	0.00070 U
Hexachlorobenzene	mg/L	0.0020 U	0.0020 U
Hexachlorobutadiene	mg/L	0.0020 U	0.0020 U
Hexachloroethane	mg/L	0.0020 U	0.0020 U

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Table 6
Summary of Waste Characterization Analytical Data for Soils

Sample ID: / Date Sampled:	Units	Relief Holder Area 05/16/06	Tar Tank Area 05/16/06
Nitrobenzene	mg/L	0.0020 U	0.0020 U
Pentachlorophenol	mg/L	0.010 U	0.010 U
Pyridine-TCLP	mg/L	0.0050 U	0.0050 U
Inorganics			
Aluminum	mg/kg	5,320 *	6,440 *
Antimony	mg/kg	1.30 UN	1.50 UN
Arsenic	mg/kg	4.20 B	2.80 B
Barium	mg/kg	37.3	28.7
Beryllium	mg/kg	0.580 U	0.650 U
Cadmium	mg/kg	1.20 U	1.30 U
Calcium	mg/kg	17,000 *	5,740 *
Chromium	mg/kg	7.80	8.90
Cobalt	mg/kg	5.60	5.90
Copper	mg/kg	17.9	17.1
Cyanide Total	ug/kg	67.4 U	64.1 U
Iron	mg/kg	14,100	17,800
Lead	mg/kg	33.5 *	21.8 *
Magnesium	mg/kg	8,780	2,820
Manganese	mg/kg	547	346
Mercury	mg/kg	0.230 N	0.110 N
Nickel	mg/kg	12.4 *	12.4 *
Potassium	mg/kg	375 N	478 N
Selenium	mg/kg	1.90 U	2.10 U
Silver	mg/kg	0.370 U	0.420 U
Sodium	mg/kg	80.8 B*	42.6 B*
Sulfur (S)	mg/kg	244 B	1,140 B
Thallium	mg/kg	4.80 U	5.40 U
Total Sulfur	Percent	0.0310	0.0460
Vanadium	mg/kg	9.00	11.2
Zinc	mg/kg	77.1	54.9
Inorganics - TCLP			
Arsenic	mg/L	0.0195 U	0.0195 U
Barium	mg/L	0.585	0.473
Cadmium	mg/L	0.00550 U	0.00550 U
Chromium	mg/L	0.00650 U	0.00650 U
Lead	mg/L	0.0468 B	0.0186 B
Mercury	mg/L	0.000900 U	0.000900 U
Selenium	mg/L	0.0250 U	0.0250 U
Silver	mg/L	0.00570 B	0.00550 B
Pesticides - TCLP			
Chlordane-TCLP	mg/L	0.00012 U	0.00012 U
Endrin-TCLP	mg/L	0.00013 U	0.00013 U
gamma-BHC (Lindane)-TCLP	mg/L	0.000026 U	0.000026 U
Heptachlor epoxide-TCLP	mg/L	0.000028 U	0.000028 U

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Table 6
Summary of Waste Characterization Analytical Data for Soils

Sample ID: / Date Sampled:	Units	Relief Holder Area 05/16/06	Tar Tank Area 05/16/06
Heptachlor-TCLP	mg/L	0.000046 J	0.000039 U
Methoxychlor-TCLP	mg/L	0.00020 U	0.00020 U
Toxaphene-TCLP	mg/L	0.0011 U	0.0011 U
Herbicides - TCLP			
2,4-D	mg/L	0.011 U	0.011 U
Silvex (2,4,5-TP)	mg/L	0.0033 U	0.0033 U
Miscellaneous			
BTU	BTU/lb	NC	NC
Corrosivity (pH Solid)	Positive/Negative	no	no
Diesel Range Organics (DRO)	ug/kg	8,500,000 M	1,500,000
Halogens, Extractable Organic	mg/kg	10 U	10 U
Ignitability	Pos/Neg	Neg	Neg
pH	pH Units	7.89	7.68
Reactivity Cyanide	ug/kg	500 U	500 U
Reactivity Sulfide	mg/kg	12 U	12 U

Notes:

B = Compound was also present in an associated blank.
H = During chromatography, an alternate peak was selected to determine the compound concentration.
J = Compound was positively identified; however, the associated numerical value is an estimated concentration only.
M = Reported concentration for the specified compound was manually integrated.
N = The spike sample is out of range.
NC = Sample did not combust.
ND = Compound was non-detect.
U = Compound was not detected at the indicated concentration.
* = Batch QC/Duplicate sample is out of range.

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Table 7
Summary of Waste Characterization Analytical Data for Groundwater

Sample ID: / Date Collected:	Units	PDI-MW-1 06/08/06	PDI-MW-2 06/08/06
PCBs			
Aroclor 1016	ug/L	0.057 U	0.057 U
Aroclor 1221	ug/L	0.11 U	0.11 U
Aroclor 1232	ug/L	0.081 U	0.081 U
Aroclor 1242	ug/L	0.072 U	0.072 U
Aroclor 1248	ug/L	0.060 U	0.060 U
Aroclor 1254	ug/L	0.094 U	0.094 U
Aroclor 1260	ug/L	0.082 U	0.082 U
Volatiles			
1 1 1-Trichloroethane	ug/L	40 U	4.0 U
1 1 2 2-Tetrachloroethane	ug/L	40 U	4.0 U
1 1 2-Trichloroethane	ug/L	60 U	6.0 U
1 1-Dichloroethane	ug/L	60 U	6.0 U
1 1-Dichloroethene	ug/L	70 U	7.0 U
1 2-Dichloroethane	ug/L	60 U	6.0 U
1 2-Dichloropropane	ug/L	90 U	9.0 U
2-Butanone (MEK)	ug/L	120 U	12 U
2-Hexanone	ug/L	80 U	8.0 U
4-Methyl-2-pentanone (MIBK)	ug/L	70 U	7.0 U
Acetone	ug/L	140 U	18 J
Benzene	ug/L	8,700	130
Bromodichloromethane	ug/L	40 U	4.0 U
Bromoform	ug/L	80 U	8.0 U
Bromomethane	ug/L	120 U	12 U
Carbon disulfide	ug/L	90 U	9.0 U
Carbon tetrachloride	ug/L	100 U	10 U
Chlorobenzene	ug/L	40 U	4.0 U
Chloroethane	ug/L	80 U	8.0 U
Chloroform	ug/L	70 U	7.0 U
Chloromethane	ug/L	50 U	5.0 U
cis-1 2-Dichloroethene	ug/L	60 U	6.0 U
cis-1 3-Dichloropropene	ug/L	50 U	5.0 U
Dibromochloromethane	ug/L	50 U	5.0 U
Ethylbenzene	ug/L	1,100	1,000
Methylene chloride	ug/L	40 U	4.0 U
Styrene	ug/L	69 J	5.0 U
Tetrachloroethene	ug/L	50 U	5.0 U
Toluene	ug/L	3,300	11 J

Central Hudson Gas and Electric Corporation
Newburgh Project

Area A Pre-Design Investigation Data Summary Report

Table 7
Summary of Waste Characterization Analytical Data for Groundwater

Sample ID: / Date Collected:	Units	PDI-MW-1 06/08/06	PDI-MW-2 06/08/06
trans-1 2-Dichloroethene	ug/L	50 U	5.0 U
trans-1 3-Dichloropropene	ug/L	80 U	8.0 U
Trichloroethene	ug/L	70 U	7.0 U
Vinyl chloride	ug/L	80 U	8.0 U
Xylenes (total)	ug/L	1,500	560
Semivolatiles			
1 2 4-Trichlorobenzene	ug/L	140 U	68 U
1 2-Dichlorobenzene	ug/L	150 U	74 U
1 3-Dichlorobenzene	ug/L	140 U	68 U
1 4-Dichlorobenzene	ug/L	92 U	46 U
2 2-oxybis (1-chloropropane)	ug/L	120 U	62 U
2 4 5-Trichlorophenol	ug/L	160 U	78 U
2 4 6-Trichlorophenol	ug/L	160 U	79 U
2 4-Dichlorophenol	ug/L	170 U	84 U
2 4-Dimethylphenol	ug/L	150 U	73 U
2 4-Dinitrophenol	ug/L	1,000 U	510 U
2 4-Dinitrotoluene	ug/L	160 U	80 U
2 6-Dinitrotoluene	ug/L	120 U	59 U
2-Chloronaphthalene	ug/L	150 U	73 U
2-Chlorophenol	ug/L	120 U	60 U
2-Methylnaphthalene	ug/L	1,500 J	860 J
Semivolatiles (continued)			
2-Methylphenol	ug/L	160 J	59 U
2-Nitroaniline	ug/L	220 U	110 U
2-Nitrophenol	ug/L	150 U	75 U
3 3-Dichlorobenzidine	ug/L	200 U	98 U
3-Nitroaniline	ug/L	130 U	67 U
4 6-Dinitro-2-methylphenol	ug/L	850 U	420 U
4-Bromophenyl phenyl ether	ug/L	180 U	91 U
4-Chloro-3-methylphenol	ug/L	100 U	51 U
4-Chloroaniline	ug/L	86 U	43 U
4-Chlorophenyl phenyl ether	ug/L	160 U	82 U
4-Methylphenol	ug/L	180 J	33 U
4-Nitroaniline	ug/L	210 U	100 U
4-Nitrophenol	ug/L	370 U	180 U
Acenaphthene	ug/L	160 U	1,800
Acenaphthylene	ug/L	260 J	130 J
Anthracene	ug/L	200 U	530 J
Benzo(a)anthracene	ug/L	240 U	290 J
Benzo(a)pyrene	ug/L	220 U	260 J
Benzo(b)fluoranthene	ug/L	310 U	150 U
Benzo(ghi)perylene	ug/L	210 U	130 JM

Central Hudson Gas and Electric Corporation
Newburgh Project

Area A Pre-Design Investigation Data Summary Report

Table 7
Summary of Waste Characterization Analytical Data for Groundwater

Sample ID: / Date Collected:	Units	PDI-MW-1 06/08/06	PDI-MW-2 06/08/06
Benzo(k)fluoranthene	ug/L	180 U	91 U
Benzyl alcohol	ug/L	200 U	99 U
Bis(2-chloroethoxy)methane	ug/L	92 U	46 U
Bis(2-chloroethyl)ether	ug/L	170 U	87 U
Bis(2-ethylhexyl)phthalate	ug/L	260 U	130 U
Butyl benzyl phthalate	ug/L	190 U	96 U
Carbazole	ug/L	220 U	110 U
Chrysene	ug/L	190 U	270 J
Dibenzo(a h)anthracene	ug/L	270 U	130 U
Dibenzofuran	ug/L	160 U	82 U
Diethyl phthalate	ug/L	160 U	82 U
Dimethyl phthalate	ug/L	130 U	63 U
Di-n-butyl phthalate	ug/L	230 U	110 U
Di-n-octyl phthalate	ug/L	260 U	130 U
Fluoranthene	ug/L	220 U	570 J
Fluorene	ug/L	150 U	640 J
Hexachlorobenzene	ug/L	210 U	110 U
Hexachlorobutadiene	ug/L	170 U	84 U
Hexachlorocyclopentadiene	ug/L	440 U	220 U
Hexachloroethane	ug/L	210 U	110 U
Indeno(1 2 3-cd)pyrene	ug/L	230 U	120 J
Isophorone	ug/L	130 U	66 U
Naphthalene	ug/L	7,500	7,100
Nitrobenzene	ug/L	160 U	79 U
n-Nitroso-di-n-propylamine	ug/L	140 U	70 U
n-Nitrosodiphenylamine	ug/L	220 U	110 U
Pentachlorophenol	ug/L	1,000 U	500 U
Phenanthrene	ug/L	360 J	1,800
Phenol	ug/L	96 J	35 U
Pyrene	ug/L	200 U	1,000 J
Inorganics			
Aluminum	ug/L	1,460 B	32,900
Antimony	ug/L	27.0 U	27.0 U
Arsenic	ug/L	31.2 B	19.5 U
Barium	ug/L	52.3	384
Beryllium	ug/L	2.70 U	2.70 U
Cadmium	ug/L	5.50 U	5.50 U
Calcium	ug/L	52,200	96,300
Chromium	ug/L	6.50 U	59.9

Central Hudson Gas and Electric Corporation
Newburgh Project

Area A Pre-Design Investigation Data Summary Report

Table 7
Summary of Waste Characterization Analytical Data for Groundwater

Sample ID: / Date Collected:	Units	PDI-MW-1 06/08/06	PDI-MW-2 06/08/06
Inorganics (continued)			
Cobalt	ug/L	10.0 B	32.6 B
Copper	ug/L	21.5 U	86.6
Cyanide Total	ug/L	4,660	2.00 B
Iron	ug/L	4,690	80,500
Lead	ug/L	15.0 U	59.3
Magnesium	ug/L	24,900	42,800
Manganese	ug/L	287	2,040
Nickel	ug/L	9.50 U	64.2
Potassium	ug/L	3,810 N	5,680 N
Selenium	ug/L	25.0 U	25.0 U
Silver	ug/L	5.50 U	5.50 U
Sodium	ug/L	42,700	15,300
Thallium	ug/L	50.0 U	50.0 U
Vanadium	ug/L	7.70 B	56.7
Zinc	ug/L	55.0 U	228 B
Miscellaneous			
Chemical Oxygen Demand (COD)	mg/L	87.6	555
Oil and Grease (HEM)	mg/L	1.8 B	20.2
Solids Total Suspended (TSS)	mg/L	155	1,440

Notes:

B = Compound was also present in an associated blank.
J = Compound was positively identified; however, the associated numerical value is an estimated concentration only.
M = Reported concentration for the specified compound was manually integrated.
N = The spike sample is out of range.
U = Compound was not detected at the indicated concentration.

Figures

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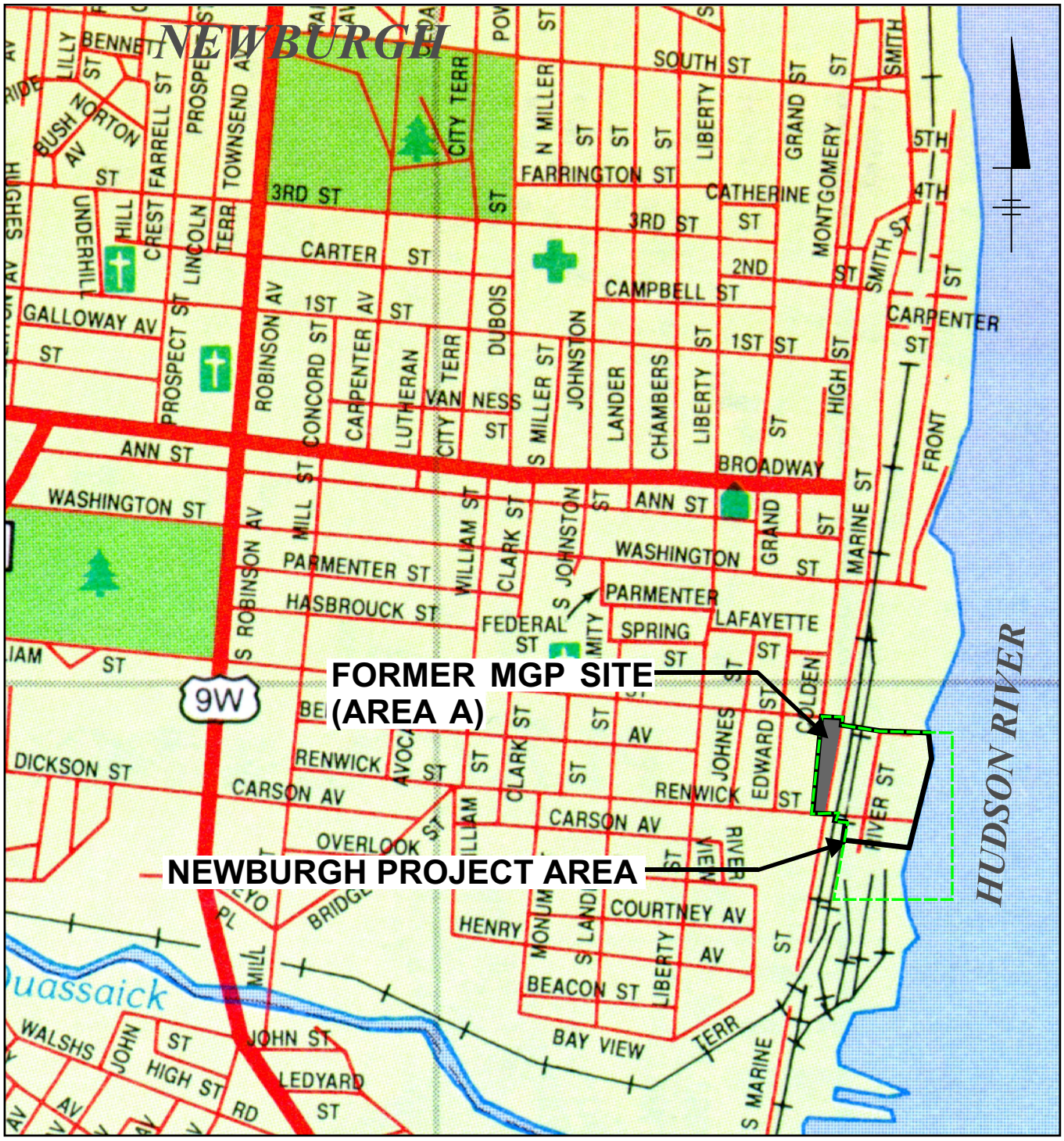

CENTRAL HUDSON GAS & ELECTRIC CORPORATION
NEWBURGH, NEW YORK
AREA A PRE-DESIGN
DATA SUMMARY REPORT

SITE LOCATION MAP

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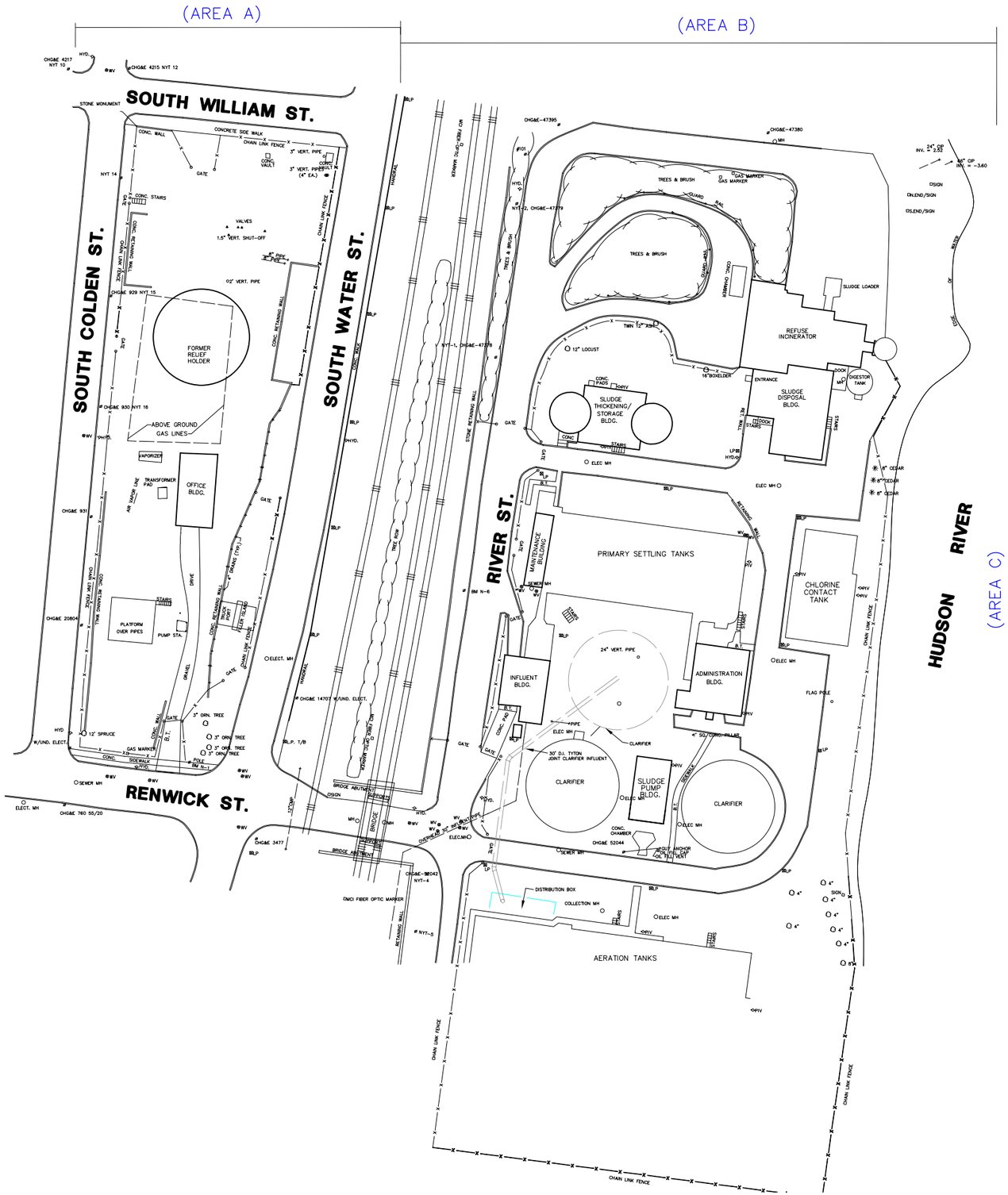
FIGURE
1

07/06/06 SYR-D85-DJH MRC KLS
20537004/20537n02.cdr



LEGEND:

- LP — LIGHT STAND
- CB — CATCH BASIN
- WV — WATER VALVE
- 4" — DECIDOUS TREE
- 8" CEDAR — CONIFEROUS TREE
- MH — MANHOLE
- — UTILITY POLE
- POSITION INDICATOR VALVE

NOTES:

1. TOPOGRAPHIC SURVEY WAS PERFORMED IN THE FIELD BETWEEN DECEMBER 14, 1995 AND JANUARY 5, 1996 WITH DEEP SNOW CONDITION. DUE TO THE SNOW CONDITIONS SOME TOPOGRAPHIC AND PANIMETRIC FEATURES MAY NOT HAVE BEEN LOCATED AND/OR MAY BE APPROXIMATE.
2. ELEVATIONS ARE BASED ON NATIONAL DEODETIC VERTICAL DATUM OF 1929.

0 50' 100'
APPROXIMATE SCALE

CENTRAL HUDSON GAS & ELECTRIC CORPORATION
NEWBURGH, NEW YORK
AREA A PRE-DESIGN DATA SUMMARY REPORT

SITE PLAN

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FIGURE 2

6/26/06 SYR-85-RGB GMS WLJ LAYER: ON=*, OFF=REF
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PROJECTNAME:----
XREFS: IMAGES:
20537X01

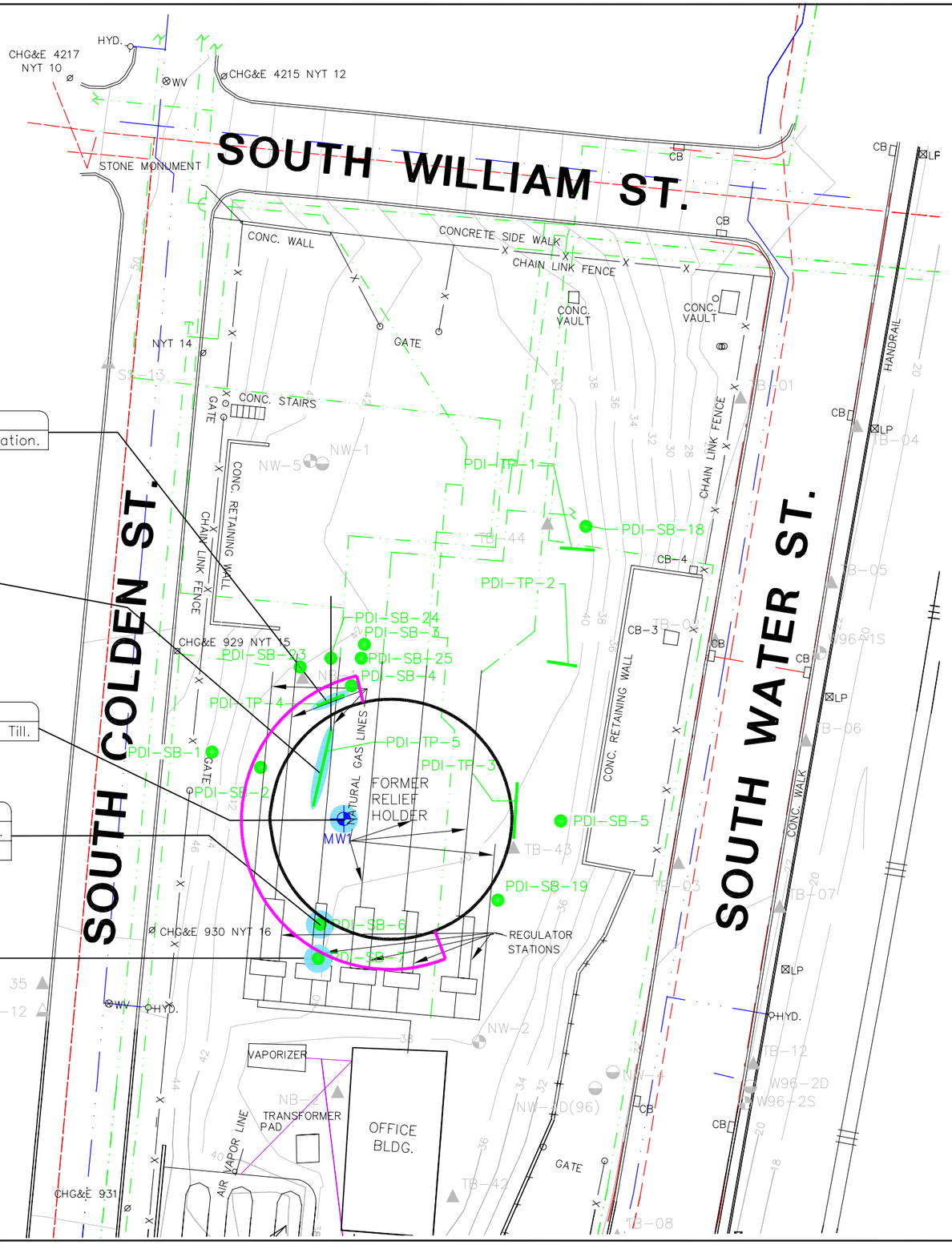
PDI–TP–4	
10–15'	NAPL Blebs and NAPL Entering Excavation.

PDI–TP–5	
2–12.5'	Heavy Sheen.
7–12.5'	NAPL Observed in Northern Third of Test Pit.

PDI–MW–1	
12–12.8'	NAPL Present from 12' to 12.8' (above till). Sheen in Till.

PDI–SB–6	
4–8'	Odor, Sheen, Black Staining, NAPL Throughout.
8–12'	NAPL Observed, Refusal at 12'.

PDI–SB–7	
8–12'	Odor, NAPL Observed.
12–12.5'	NAPL Observed in Sleeve, NAPL Blebs, Refusal at 12.5'.



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- CB — CATCH BASIN
- WV — WATER VALVE
- 4" — DECIDOUS TREE
- 8" CEDAR — CONIFEROUS TREE
- MH — MANHOLE
- UTILITY POLE
- PIV — POSITION INDICATOR VALVE
- SOIL BORING
- SURFACE SOIL SAMPLE
- MONITORING WELL (BEDROCK)
- MONITORING WELL (OVERBURDEN)
- MONITORING WELL (6/06)
- SOIL BORING (6/06)
- TEST PIT (6/06)
- FORMER RELIEF HOLDER PROPOSED EXCAVATION LIMITS
- LOCATION WHERE NAPL WAS ENCOUNTERED
- WATER LINE
- GAS LINE
- PROCESS LINE
- STORM SEWER
- SANITARY SEWER
- BURIED ELECTRIC LINE
- 42 — TOPOGRAPHIC CONTOUR LINE

NOTES:

1. TOPOGRAPHIC SURVEY WAS PERFORMED IN THE FIELD BETWEEN DECEMBER 14, 1995 AND JANUARY 5, 1996 WITH DEEP SNOW CONDITION. DUE TO THE SNOW CONDITIONS SOME TOPOGRAPHIC AND PLANIMETRIC FEATURES MAY NOT HAVE BEEN LOCATED AND/OR MAY BE APPROXIMATE.
2. 6/06 SAMPLING LOCATIONS EXCEPT FOR SOIL BORINGS PDI–SB–23 THROUGH SB–25 ARE BASED ON A SITE SURVEY CONDUCTED BY MORRIS ASSOCIATES 6/7/06. SOIL BORINGS PDI–SB–23 THROUGH SB–25 LOCATIONS ARE APPROXIMATE.
3. HORIZONTAL DATUM IS NEW YORK STATE PLAN, NAD 83, EAST ZONE.
4. VERTICAL DATUM IS NAVD 88.
5. NAPL–IMPACTED SOILS WILL BE REMOVED AROUND THE PERIMIETER OF THE FORMER RELIEF HOLDER FROM THE LOCATION OF SOIL BORING PDI–SB–4 COUNTERCLOCKWISE APPROXIMATELY 180 DEGREES. SOILS OUTSIDE THE HOLDER WILL BE EXCAVATED TO BEDROCK AND A MAXIMUM HORIZONTAL DISTANCE OF 10 FEET FROM THE OUTSIDE EDGE OF THE HOLDER OR UP TO 3 FEET FROM ANY EXISTING GAS UTILITY LINES (WHICHEVER OCCURS FIRST). THE LIMITS OF EXCAVATION IN THE FORMER RELIEF HOLDER AREA ARE ILLUSTRATED ON FIGURE 3. THE HOLDER WALLS MAY REMAIN IN PLACE.

0 15' 30'
GRAPHIC SCALE

CENTRAL HUDSON GAS & ELECTRIC CORPORATION
NEWBURGH, NEW YORK

AREA A PRE–DESIGN INVESTIGATION DATA SUMMARY REPORT

RESULTS OF AREA A PDI NAPL DELINEATION AND LIMITS OF EXCAVATION - FORMER RELIEF HOLDER AREA

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FIGURE 3

6/26/06 SYR–85–RCB WLJ AMS LAYER: ON=*; OFF=*REF*
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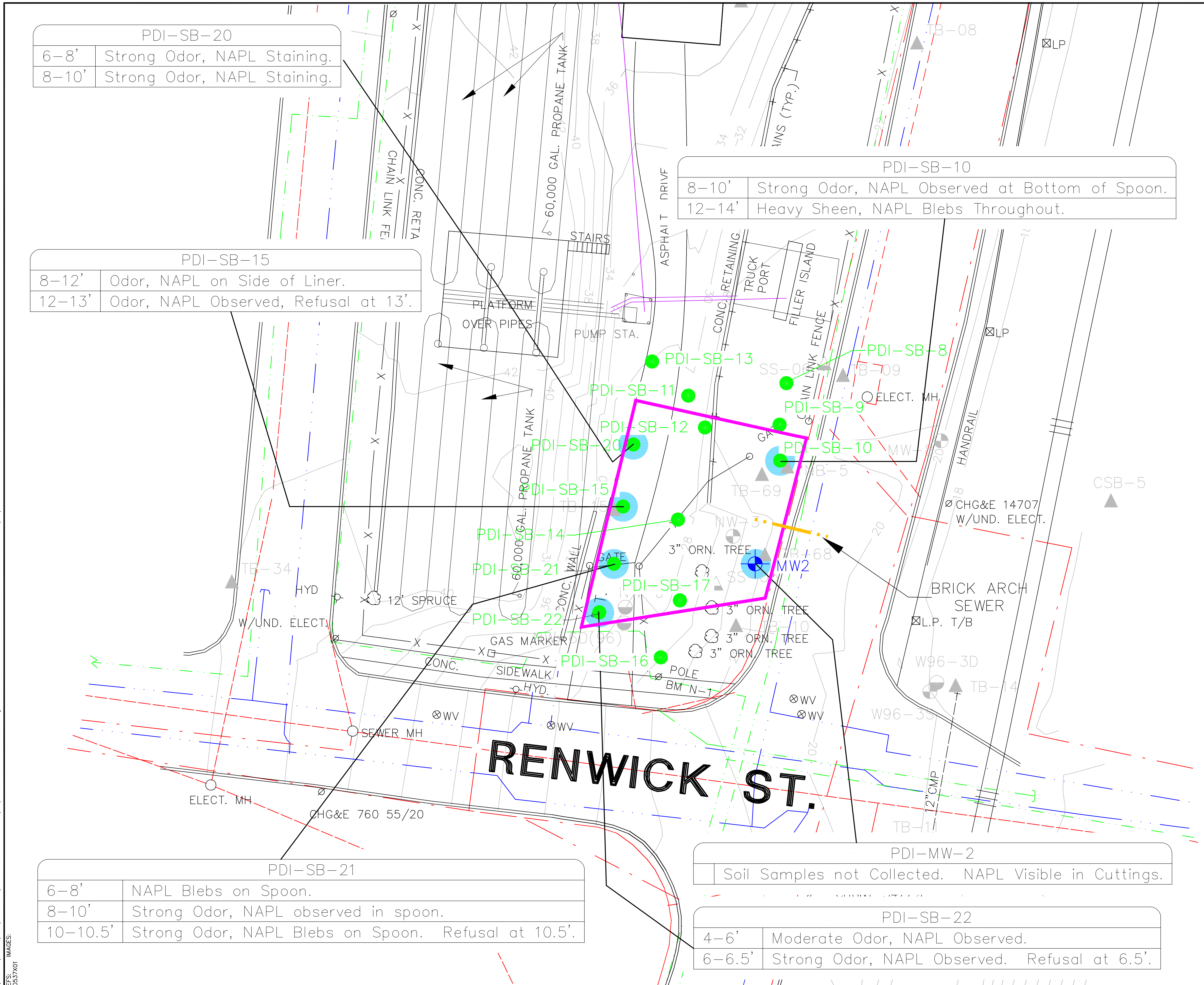

LEGEND:

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- WV — WATER VALVE
- 4" — DECIDOUS TREE
- 8" CEDAR — CONIFEROUS TREE
- MH — MANHOLE
- UTILITY POLE
- PIV — POSITION INDICATOR VALVE
- SOIL BORING
- SURFACE SOIL SAMPLE
- MONITORING WELL (BEDROCK)
- MONITORING WELL (OVERBURDEN)
- MONITORING WELL (6/06)
- SOIL BORING (6/06)
- FORMER TAR TANK PROPOSED EXCAVATION LIMITS
- LOCATION WHERE NAPL WAS ENCOUNTERED
- WATER LINE
- GAS LINE
- PROCESS LINE
- STORM SEWER
- SANITARY SEWER
- BURIED ELECTRIC LINE
- 42 — TOPOGRAPHIC CONTOUR LINE
- BRICK ARCH SEWER

NOTES:

1. TOPOGRAPHIC SURVEY WAS PERFORMED IN THE FIELD BETWEEN DECEMBER 14, 1995 AND JANUARY 5, 1996 WITH DEEP SNOW CONDITION. DUE TO THE SNOW CONDITIONS SOME TOPOGRAPHIC AND PLANIMETRIC FEATURES MAY NOT HAVE BEEN LOCATED AND/OR MAY BE APPROXIMATE.
2. 6/06 SAMPLING LOCATIONS EXCEPT FOR SOIL BORINGS PDI-SB-16, PDI-SB-17, PDI-SB-21 AND PDI-SB-22 ARE BASED ON A SITE SURVEY CONDUCTED BY MORRIS ASSOCIATES 6/7/06. SOIL BORINGS PDI-SB-16, PDI-SB-17, PDI-SB-21 AND PDI-SB-22 LOCATIONS ARE APPROXIMATE.
3. HORIZONTAL DATUM IS NEW YORK STATE PLANE NAD 83, EAST ZONE.
4. VERTICAL DATUM IS NAVD 88.

0 15' 30'
GRAPHIC SCALE

CENTRAL HUDSON GAS & ELECTRIC CORPORATION
NEWBURGH, NEW YORK
AREA A PRE-DESIGN INVESTIGATION DATA SUMMARY REPORT

RESULTS OF AREA A PDI NAPL DELINEATION AND LIMITS OF EXCAVATION - FORMER TAR TANK AREA

BBL an ARCADIS company

FIGURE 4

6/26/06 SYR-85-RCB WLJ AMS LAYER: ON=*, OFF=*REF*
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Appendices

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Appendix A

Representative Photographs from the Area A PDI

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CENTRAL HUDSON GAS & ELECTRIC CORPORATION
NEWBURGH, NEW YORK

PHOTO LOG
AREA A PRE-DESIGN INVESTIGATION ACTIVITIES
MAY – JUNE 2006

Photo 1: View from the Site overlooking the Hudson River to the east.

Photo 2: View of Site looking northwest at above ground pipes in the relief holder area.

Photo 3: PDI-TP-1 excavation setup view looking north toward South William Street.


Photo 4: PDI-TP-5 facing north, former relief holder wall is exposed.

Photo 5: PDI-TP-3 black staining between 6’ and 16’ bgs. Brick covered by cement holder wall on the left.

Photo 6: PDI-TP-4 NAPL pooling on water entering excavation at approximately 10’ bgs.

Photo 7: Hollow stem auger rig setup for sampling at soil boring PDI-SB-5.

Photo 8: PDI-SB-5 core from 25’ to 36.5’ bgs.

Photo 9: Grouting at PDI-SB-11 looking north along South Water St.

Photo 10: View looking south in the former relief holder area; monitoring well PDI-MW-1 is seen in the background near the drums.

Photo 11: Locations of PDI-SB-18, PDI-TP-1, PDI-TP-2, PDI-TP-3, and geotechnical boring PDI-SB-5 looking south along South Water St.

Photo 12: Tractor-mount Geoprobe rig looking northwest near South Colden Street at soil boring locations PDI-SB-1 and PDI-SB-2.

Appendix B

Test Pit and Soil Boring Logs

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Date Start/Finish: 5/15/06
Excavating Company: Parratt Wolff Inc.
Operator's Name: Jim Narehood
Backhoe: John Deere Track-Hoe

Northing: E - 970098.75
Northing: W - 970099.44
Easting: E - 626936.80
Easting: W - 626925.38
Surface Elevation: E - 36.91
Surface Elevation: W - 36.85
Test Pit Depth: 4.0' below grade
Field Person (s): Dave Cornell

Test Pit No. TP-1
Client: Central Hudson Gas and Electric Corporation
Location: Former Newburgh MGP (Area A) Newburgh, New York

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Engineer's/Geologist's Notes
0 / 0	1	0-4	NA		Brown fine to medium SAND, some Silt, little fine to coarse subrounded Gravel and Cinders, trace Brick, Slag, Concrete, Cobbles and Steel, moist.	
					Steel pipe 8" diameter at 3.8' bgs.	
5 / -5						
10 / -10						
15 / -15						

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engineers, scientists, economists

Remarks: bgs = below ground surface; NA = Not Applicable/Available.

Date Start/Finish: 5/15/06
Excavating Company: Parratt Wolff Inc.
Operator's Name: Jim Narehood
Backhoe: John Deere Track-Hoe

Northing: E- 970060.53
Northing: W- 970062.07
Easting: E - 626931.04
Easting: W - 626921.13
Surface Elevation: E - 36.85
Surface Elevation: W - 36.91
Test Pit Depth: 4.0' bgs
Field Person (s): Katherine P. Murray

Test Pit No. TP-2
Client: Central Hudson Gas and Electric Corporation
Location: Former Newburgh MGP (Area A) Newburgh, New York

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Engineer's/Geologist's Notes
0 / 0	1	0-4	NA		Brown fine to medium SAND, some Silt, little fine to coarse subrounded Gravel and Cinders, trace Brick, Slag, Concrete, Cobbles and white Ash-like material, moist	
5 / -5						
10 / -10						
15 / -15						

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Remarks: bgs = below ground surface; NA = Not Applicable/Available.

Date Start/Finish: 5/16/06 **Excavating Company:** Parratt Wolff Inc. **Operator's Name:** Jim Narehood **Backhoe:** John Deere Track-Hoe	**Northing:** E - 970022.29 **Northing:** W - 970003.64 **Easting:** E - 626911.30 **Easting:** W - 626910.14 **Surface Elevation:** E - 36.04 **Surface Elevation:** W - 35.87 **Test Pit Depth:** 19.0' bgs **Field Person (s):** Katherine P. Murray	**Test Pit No.** TP-3 **Client:** Central Hudson Gas and Electric Corporation **Location:** Former Newburgh MGP (Area A) Newburgh, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Engineer's/Geologist's Notes
0	0	1	0-6	NA		FILL. Steel 1.5" pipe encountered at 4' bgs parallel to test pit broken with holes. At 4.5' bgs began encountering black-stained Soils, odor.	
5	-5	2	6	7.2		Gray SILT and CLAY, trace fine to coarse subangular Gravel, odor and staining, little NAPL in seams of Silt and casts of Gravel, red-brown slight mottled NAPL, moist to wet.	
		3	8	25.3			
10	-10	4	10	31.1		Water Table appears to be at 11.5' bgs.	
		5	13	67.2			
15	-15	6	15.7	471			

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Remarks: bgs = below ground surface; NA = Not Applicable/Available.

Client:
Central Hudson Gas and Electric Corporation

Site Location:
Former Newburgh
MGP (Area A)
Newburgh, New

Test Pit No. TP-3

Borehole Depth: 19.0' bgs

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Engineer's/Geologist's Notes
	8	16.2	471		Olive-brown SILT, some fine to coarse subrounded to subangular Gravel, Cobbles and Boulders, little fine Sand, trace Clay, little to trace NAPL, wet.	
	7	18.7	204			
20-20						
25-25						
30-30						
35-35						

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Remarks: bgs = below ground surface; NA = Not Applicable/Available.

Date Start/Finish: 5/16/06
Excavating Company: Parratt Wolff Inc.
Operator's Name: Jim Narehood
Backhoe: John Deere Track-Hoe

Northing: S - 970047.43
Northing: N - 970051.15
Easting: S - 626845.32
Easting: N - 626854.39
Surface Elevation: S - 37.65
Surface Elevation: N - 37.22
Test Pit Depth: 17.0' bgs
Field Person (s): Dave Cornell

Test Pit No. TP-4
Client: Central Hudson Gas and Electric Corporation
Location: Former Newburgh MGP (Area A) Newburgh, New York

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Engineer's/Geologist's Notes
0 / 0	1	0-2	0.0		Brown fine to coarse SAND and fine to coarse rounded GRAVEL, moist.	
	2	2-4	0.0		White Ash-like material cemented with brown fine to coarse SAND, some fine to coarse rounded Gravel, moist.	
5 / -5	3	4-6	0.0		Brown turning gray at 10' bgs SILT and CLAY slightly mottled, little fine Sand and fine to coarse subrounded Gravel, moist.	
	4	6-8	0.0			
10 / -10	5	8-10	167		Staining below 10' bgs. Water coming into the excavation from 10'bgs contained NAPL blebs and NAPL.	
	6	10-12	83.7			
	7	12-14	322		Olive-brown SILT and fine to coarse subrounded to subangular GRAVEL, and COBBLES, trace Clay and fine to medium Sand, heavy sheen, saturated.	
15 / -15						

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Remarks: bgs = below ground surface; NA = Not Applicable/Available.

Client:
Central Hudson Gas and Electric Corporation

Site Location:
Former Newburgh
MGP (Area A)
Newburgh, New

Test Pit No. TP-4

Borehole Depth: 17.0' bgs

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Engineer's/Geologist's Notes
	8	14-16.4	71.3		Olive-brown SILT and fine to coarse subrounded to subangular GRAVEL, and COBBLES, trace Clay and fine to medium Sand, heavy sheen, saturated.	
					Outside of holder wall appears to be Brick with a skim coat of Concrete/Cement.	
20-*20*						
25-*25*						
30-*30*						
35-*35*						

BLASLAND, BOUCK & LEE, INC.
engineers, scientists, economists

Remarks: bgs = below ground surface; NA = Not Applicable/Available.

Date Start/Finish: 5/16/06
Excavating Company: Parratt Wolff Inc.
Operator's Name: Jim Narehood
Backhoe: John Deere Track-Hoe

Northing: S - 970014.38
Northing: N - 970039.46
Easting: S - 626844.13
Easting: N - 626849.94
Surface Elevation: S - 37.45
Surface Elevation: N - 37.58
Test Pit Depth: 11.5' bgs
Field Person (s): Dave Cornell

Test Pit No. TP-5
Client: Central Hudson Gas and Electric Corporation
Location: Former Newburgh MGP (Area A) Newburgh, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Engineer's/Geologist's Notes
0	0	1	2	7.8		Gray fine to coarse SAND and fine to coarse subrounded to rounded GRAVEL, some rounded Cobbles, heavy sheen below 2.0' bgs.	
		2	4	318			
5	-5	3	6	716			
		4	8	120			
10	-10	5	10	483			
				1168		At North end of the test pit between 20-35.0', from the south end, at a depth of 7.0-12.5' bgs. Black NAPL throughout, coarse to fine SAND and coarse to fine rounded GRAVEL, some Cobbles, little bottles, wood.	
15	-15						

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Remarks: bgs = below ground surface; NA = Not Applicable/Available.

Date Start/Finish: 5/16/2006
Drilling Company: Parratt Wolff Inc.
Driller's Name: Gary Ellingsworth/Josh Ellingsworth
Drilling Method: Geoprobe
Sampling Method: 4' Macrocore

Northing: 970032.23
Easting: 626810.79
Surface Elevation: 43.86
Borehole Depth: 8.5' bgs

Descriptions By: Katherine P Murray

Well/Boring ID: **PDI-SB-1**

Client: Central Hudson Gas and Electric Corporation

Location: Former Newburgh MGP (Area A) Newburgh, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
	45							
0							Dark brown fine SAND, trace Organics and coarse Sand, damp.	
							Brown fine to medium SAND, some Silt, trace Clay and coarse Sand, very slight odor, wet.	
		1	0-4	2.4	21.2		Tan SILT, little fine to coarse Sand, trace Clay (increasing with depth) and fine Gravel, wet.	
	40							Borehole backfilled with Bentonite to grade.
5		2	4-8	1.6	10.7		Refusal at 8.0-8.5" bgs. Three attempts were made, refusal was met on each attempt.	
	35							
10								
	30							
15								

Remarks: bgs = below ground surface; NA = Not Applicable/Available; HSA = Hollow Stem Auger; SS = Split Spoon

Date Start/Finish: 5/17/2006
Drilling Company: Parratt Wolff Inc.
Driller's Name: Gary Ellingsworth/Josh Ellingsworth
Drilling Method: Tripod
Sampling Method: 4' Macrocore

Northing: 970027.17
Easting: 626826.74
Surface Elevation: 37.72
Borehole Depth: 8.0' bgs

Descriptions By: Katherine P Murray

Well/Boring ID: **PDI-SB-2**
Client: Central Hudson Gas and Electric Corporation
Location: Former Newburgh MGP (Area A) Newburgh, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
	40							
0							Brown fine to coarse SAND, trace fine Gravel, moist.	
		1	0-4	2.1	0.0		Gray, brown, black, white SLAG, ASH, CINDERS, with fine to coarse SAND, trace fine Gravel, slight odor, moist.	
	35							Borehole backfilled with Bentonite to grade.
							Gray-brown fine to coarse SAND, some fine to medium Gravel, little Silt, trace Clay, moist.	
5		2	4-8	1.6	0.0		Tan-brown SILT and CLAY, some fine to coarse Sand, little to trace fine Gravel, fractured gray Shale, slight odor, moist.	
	30							
							Refusal at 8.0' bgs.	
10								
	25							
15								

Remarks: bgs = below ground surface; NA = Not Applicable/Available; HSA = Hollow Stem Auger; SS = Split Spoon

Date Start/Finish: 5/17/2006
Drilling Company: Parratt Wolff Inc.
Driller's Name: Gary Ellingsworth/Josh Ellingsworth
Drilling Method: Geoprobe
Sampling Method: 4' Macrocore

Northing: 970067.69
Easting: 626860.97
Surface Elevation: 38.00
Borehole Depth: 14.0' bgs

Descriptions By: Katherine P Murray

Well/Boring ID: **PDI-SB-3**
Client: Central Hudson Gas and Electric Corporation
Location: Former Newburgh MGP (Area A) Newburgh, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
	40							
0							Brown fine to medium SAND, little fine Gravel, trace Silt and NAPL, black-staining, damp.	
							Tan-brown ASH, some fine to coarse Sand, damp.	
	35	1	0-4	2.9	0.5			Borehole backfilled with Bentonite to grade.
							Brown-gray fine to medium GRAVEL and fine to coarse SAND, little Ash, damp.	
5							Two refusals at 4' bgs, 3rd attempt.	
		2	4-8	3.0	0.1		Tan ASH, CINDERS, damp.	
							Olive-tan SILT, some Clay, trace fine to coarse Sand and fine Gravel, damp.	
	30						TAN-brown SILT, little Clay and fine to coarse Sand, trace fine Gravel, Ash, Cinders, slight odor, moist. Fifth attempt at 8' bgs.	
							Gray SILT, some Clay, little fine Shale Gravel, wet.	
							Black SHALE fragments, sheen, wet.	
10		3	8-12	2.1	2.2		Dark Gray fine to coarse SAND, some fine Gravel, sheen, odor, wet.	
							Increasing Silt and Clay with Shale fragments interbedded.	
	25	4	12-14	1.8	2.4			
15							Refusal at 14.0' bgs.	

Remarks: bgs = below ground surface; NA = Not Applicable/Available; HSA = Hollow Stem Auger; SS = Split Spoon

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Date Start/Finish: 5/18/2006
Drilling Company: Parratt Wolff Inc.
Driller's Name: Joe Percy/Joel Rausseler
Drilling Method: HSA/Mud Rotary
Auger Size: 4.25" ID/NX 2 15/16"
Rig Type: Diedrich D50
Sampling Method: 2" SS

Northing: 970054.04
Easting: 626856.70
Surface Elevation: 37.58

Borehole Depth: 30.0' bgs

Descriptions By: Katherine P Murray

Well/Boring ID: **PDI-SB-4**

Client: Central Hudson Gas and Electric Corporation

Location: Former Newburgh MGP (Area A) Newburgh, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value / RQD (%)	PID Headspace (ppm)	Geologic Column	Bedrock Fractures	Stratigraphic Description	Well/Boring Construction
	40										
0		1	0-2	1.6	5 15 8 11	23	5.7			Brown fine to medium SAND, some Coarse Sand, Cobbles and fine Gravel, dry.	
										Red-brown fine SAND, dry.	
	35	2	2-4	1.3	7 7 7 7	14	18.6			Red-tan ASH, some fine to medium Sand, trace coarse Sand, slight odor, dry.	Borehole backfilled with Bentonite to grade.
5		3	4-6	1.7	2 4 3 4	7	8.9				
										Light brown fine to medium SAND, little Silt, wet.	
		4	6-8	1.2	5 4 4 4	8	1.4			Light tan SILT, little Clay, trace fine to coarse Sand and fine Gravel, wet.	
	30									Olive-tan SILT and CLAY, wet.	
		5	8-10	0.5	4 2 2 2	4	0.3			Gray-brown SILT, little Clay and fine to coarse Sand, trace fine Gravel, wet.	
10		6	10-12	0.11	3 3 2 3	5	0.1			Gray fine to coarse SAND, some fine to medium Gravel, sheen, odor, wet.	
	25	7	12-14	1.1	2 12 50/0.3	NA	1.2			Dark gray fine to coarse SAND, some fine Gravel, little Silt, trace Clay, slight odor, wet.	
		8	14-15	NA	NA	NA	NA			Auger to 15' bgs and begin coring.	
15		9	15-17	1	NA	0	NA			Fractured dark gray SHALE. Pretty clear return water, no sheen or odor.	

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Remarks: bgs = below ground surface; NA = Not Applicable/Available; HSA = Hollow Stem Auger; SS = Split Spoon; hz = horizontal; v = vertical; la = low angle; f = fresh; sw = slightly weathered

Client: Central Hudson Gas and Electric Corporation

Well/Boring ID: **PDI-SB-4**

Borehole Depth: 30.0' bgs

Site Location:
Former Newburgh MGP (Area A)
Newburgh, New York

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows Counts	N - Value / RQD (%)	PID Headspace (ppm)	Geologic Column	Bedrock Fractures	Stratigraphic Description	Well/Boring Construction
20 / 20	9	15-17	1	NA	0	NA			Fractured dark gray SHALE. Pretty clear return water, no sheen or odor. Rollerbit to 18' bgs.	
	10	18-20	1.5	NA	15	NA			No weathered fractures visible, no staining.	Borehole backfilled with Bentonite to grade.
20 / 15	11	20-25	5	NA	55	NA		h/f	Dark gray SHALE, white Calcite or Quartz veins generally vertical.	
									Dark gray SCHIST or SHALE with possible 30 degree to horizontal fractures (50% natural/mechanical), weaker bedding planes with more extensive white Calcite or Quartz veins running vertically.	
25									Light gray massive SHALE. Slight odor in return water.	
30 / 10	12	25-30	5	NA	50	NA		h/la	Dark gray SHALE to 28' bgs. Shale/Schist interbedded with natural fractures at 30 degrees to horizontal bedding plane below 29' bgs to end of core, white Calcite /Quartz in swirling patterns between 28-30' bgs. Odor and slight sheen in return water.	
5										
35										

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Date Start/Finish: 5/17/2006
Drilling Company: Parratt Wolff Inc.
Driller's Name: Joe Percy/Joel Rausseler
Drilling Method: HSA/Mud Rotary
Auger Size: 4.25" ID/NX 2 15/16"
Rig Type: Diedrich D50
Sampling Method: 2" SS

Northing: 626925.61
Easting: 970009.54
Surface Elevation: 36.15

Borehole Depth: 37.5' bgs

Descriptions By: Dave Cornell

Well/Boring ID: **PDI-SB-5**

Client: Central Hudson Gas and Electric Corporation

Location: Former Newburgh MGP (Area A) Newburgh, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value / RQD (%)	PID Headspace (ppm)	Geologic Column	Bedrock Fractures	Stratigraphic Description	Well/Boring Construction
0	35	1	0-2	2.0	8 7 7 5	14	0.0			Brown and black SILT and fine SAND, little fine to coarse angular Gravel, trace Cinders, Clay, moist. [FILL].	
		2	2-4	1.8	5 5 5 3	10	0.0			Brown Clayey SILT, trace Cinders, little trace fine Sand, moist. [FILL].	Borehole backfilled with Bentonite to grade.
5		3	4-6	1.7	1 1 1 1	2	0.0			Gray-white Silty fine SAND and white ASH like material (fine Gravel, fine Sand, Silt, medium Sand), moist.	
	30	4	6-8	1.9	4 14 14 11	28	0.0			Brown fine to medium SAND, little fine angular Gravel and coarse Sand, trace Silt, moist. SILT and CLAY between 7.4-7.6' bgs.	
		5	8-10	1.0	4 7 5 3	12	0.0			Brown SILT, little Clay and fine to medium angular Gravel, little to trace fine Sand, trace Ash-like material and Cinders, moist.	
10	25	6	10-12	1.5	1 2 2 3	4	0.0			Brown Silty CLAY, little fine to coarse subrounded Gravel, wet.	
		7	12-14	1.8	3 4 5 7	9	0.0 28.5 162			Brown turning olive gray to black, little fine Sand, becoming coarser grained with increasing depth and Silty fine Sand with Slag below 13.3' bgs, trace NAPL blebs below 13.5' bgs, moderate odor, wet to saturated.	
15		8	14-16	1.5	1 1 2 4	3	8.1 11.7 38.7			Brown-gray to black fine Sandy SILT, trace Clay and red-brown slightly mottled NAPL along seams, wet to saturated.	

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Remarks: bgs = below ground surface; NA = Not Applicable/Available; HSA = Hollow Stem Auger; SS = Split Spoon; hz = horizontal; v = vertical; la = low angle; f = fresh; sw = slightly weathered

Client: Central Hudson Gas and Electric Corporation

Well/Boring ID: **PDI-SB-5**

Borehole Depth: 37.5' bgs

Site Location:
Former Newburgh MGP (Area A)
Newburgh, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows Counts	N - Value / RQD (%)	PID Headspace (ppm)	Geologic Column	Bedrock Fractures	Stratigraphic Description	Well/Boring Construction
	20	9	16-18	1.9	4 9 9 14	18	11.7 127			Gray turning brown at 16.5 ' bgs SILT, little to some Clay, trace fine Gravel and fine Sand, becoming more dense with depth, slightly mottled, faint to moderate odor, saturated.	
		10	18-20	2.0	7 10 23 26	33	10.8 5.9			Orange-brown Silty CLAY, little fine to coarse subangular Gravel, faint odor, saturated.	Borehole backfilled with Bentonite to grade.
20		11	20-22	2.0	14 15 19 19	34	7.1 5.3			Brown-gray SILT, trace Clay, saturated. Little Clay, (21.5-22.5; bgs).	
	15	12	22-22.8	0.8	50 50/.3 NA NA	NA	6.6 3.8			Brown SILT with some embbeded multi-colored subrounded fine to coarse Gravel, little to trace fine Sand and Clay, moist. [TILL].	
		13	24-24.6	0.6	70 50/.1	NA	24.3			Gray fine SAND and angular GRAVEL (metamorphosed Shale/Schist), little Silt possible weathered Rock, trace NAPL blebs, moist.	
25		14	25-26.5	0.5	NA	0	NA		h	Possibly still in weathered ROCK or dense TILL at the beginning of the run and then into a metamorphosed Shale (possibly Schist), fractures are horizontal to 45 degrees from horizontal with thin veins of possible Calcite or Quartz typically running vertical, trace sheen and odor in return water.	
	10	15	26.5-28.5	0.5	NA	0	NA		v	Gray Schist or metamorphosed Shale with weathered green deposits on natural surfaces, 80 degree vertical fracture, many small pieces of natural weathered fragments (similar rock type and weathering), trace sheen and odor in return water.	
30		16	28.5-33	3.5	NA	45	NA		h/f	Upper 1.5' fractured Schist and metamorphosed Shale fragments bottom 24", dark gray metamorphosed Shale with vertical Calcite or Quartz Veins. Mechanical fractures, nearly horizontal, competent Rock at 30-31' bgs. NAPL in a fracture after 2' of coring.	
	5	17	33-36.5	3.5	NA	90	NA		h/f		
35											

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v = vertical; la = low angle; f = fresh; sw = slightly weathered

Client: Central Hudson Gas and Electric Corporation

Well/Boring ID: **PDI-SB-5**

Borehole Depth: 37.5' bgs

Site Location:
Former Newburgh MGP (Area A)
Newburgh, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows Counts	N - Value / RQD (%)	PID Headspace (ppm)	Geologic Column	Bedrock Fractures	Stratigraphic Description	Well/Boring Construction
	0	18	36.5-37.5	0.5	NA	0	NA		h/f	SAA, more horizontal Calcite or Quartz veins. Very competent (relatively soft).	Borehole backfilled with Bentonite to grade.
40	-5										
45	-10										
50	-15										
55											

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HSA = Hollow Stem Auger; SS = Split Spoon; hz = horizontal;
v = vertical; la = low angle; f = fresh; sw = slightly weathered

Date Start/Finish: 5/17/2006
Drilling Company: Parratt Wolff Inc.
Driller's Name: Gary Ellingsworth/Josh Ellingsworth
Drilling Method: Geoprobe
Sampling Method: 4' Macrocore

Northing: 969975.49
Easting: 626846.41
Surface Elevation: 36.13
Borehole Depth: 12.0' bgs

Descriptions By: Katherine P Murray

Well/Boring ID: **PDI-SB-6**

Client: Central Hudson Gas and Electric Corporation

Location: Former Newburgh MGP (Area A) Newburgh, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	35	1	0-4	2.9	0.5		Brown fine to coarse SAND, little fine Gravel, trace Silt, moist.	
							LIght tan ASH.	
							Tan-olive SILT, little Clay, moist.	Borehole backfilled with Bentonite to grade.
5								
	30	2	4-8	2.1	0.0		Olive SILT, some Clay, trace fine to coarse Sand, NAPL, black-stained, smeared outside of sample, wet.	
							Black-stained fine to coarse SAND, some Silt and fine Gravel, NAPL throughout, odor, sheen, wet.	
10		3	8-12	0.9	0.4		Very loose, NAPL throughout, sheen, odor. First attempt dropped out.	
	25						Quartz in tip of split spoon.	
							Refusal at 12.0' bgs.	
15								

Remarks: bgs = below ground surface; NA = Not Applicable/Available; HSA = Hollow Stem Auger; SS = Split Spoon

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Date Start/Finish: 5/16/2006
Drilling Company: Parratt Wolff Inc.
Driller's Name: Gary Ellingsworth/Josh Ellingsworth
Drilling Method: Geoprobe
Sampling Method: 4' Macrocore

Northing: 969964.23
Easting: 626845.75
Surface Elevation: 35.45
Borehole Depth: 12.5' bgs

Descriptions By: Katherine P Murray

Well/Boring ID: **PDI-SB-7**
Client: Central Hudson Gas and Electric Corporation
Location: Former Newburgh MGP (Area A) Newburgh, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	35	1	0-4	2.2	3.1		Gray-brown fine to coarse SAND, trace fine Gravel and Silt, slight odor, moist.	
							Tan SILT, trace Clay, fine Gravel, and coarse Sand, smear of black-staining on outside of spoon possibly NAPL, odor, moist to wet.	Borehole backfilled with Bentonite to grade.
5	30	2	4-8	1.9	4.0		Black-stained fine to coarse SAND, little Silt, strong odor, NAPL smearing, wet.	
							Tan fine SAND, some Silt, little medium to coarse Sand, NAPL smearing on outside of spoon, wet.	
		3	8-12	3.3	5.7		Black-stained.	
10	25						Olive green, fine to coarse SAND, some Silt, trace fine Gravel, NAPL in seams, sheen, odor, wet.	
		4	12-16	2.0	15.7		Black-stained fine to coarse SAND, little fine Gravel and Silt, trace Clay, NAPL blebs throughout, NAPL in sleeve, wet.	
15	20						Refusal at 12.5' bgs.	

Remarks: bgs = below ground surface; NA = Not Applicable/Available; HSA = Hollow Stem Auger; SS = Split Spoon

Date Start/Finish: 5/16/2006, 5/22/2006
Drilling Company: Parratt Wolff Inc.
Driller's Name: Joe Percy/Joel Rausseler
Drilling Method: HSA
Auger Size: 4.25" ID
Rig Type: Diedrich D50
Sampling Method: 2" SS

Northing: 969768.15
Easting: 626904.01
Surface Elevation: 18.00

Borehole Depth: 12.8' bgs

Descriptions By: Katherine P Murray

Well/Boring ID: **PDI-SB-8**

Client: Central Hudson Gas and Electric Corporation

Location: Former Newburgh MGP (Area A) Newburgh, New York

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
20									
0									
	1	0-4	0	NA	NA	NA		Fine to medium SAND, GRAVEL, and FILL. Performed with geoprobe on 5/16/06 - refusal at 1' bgs. Augered through concrete to 4' bgs on 5/22/06.	
15									Borehole backfilled with Bentonite to grade.
	2	4-6	0.5	10 23 23 47	46	58.4		Olive SILT, some fine to coarse Sand, trace fine Gravel and Clay, odor, damp. Brown fine to coarse SAND and fine to medium Gravel, little Silt, trace Clay, odor, damp.	
5									
	3	6-8	1.4	50 50/0.4 NA NA	NA	339		Gray fine to medium GRAVEL, little fine to coarse Sand and Silt, odor, damp.	
10									
	4	8-10	0.8	80 50/0.3 NA NA	NA	3.5		Less odor, dry.	
10									
	5	10-12	1.2	18 36 37 40	73	6.0		Increasing Rock fragments, sheen, slight odor.	
	6	12-12.8	0.3	37 50/0.3	NA	1.9			
5								Refusal at 12.8' bgs.	
15									

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Remarks: bgs = below ground surface; NA = Not Applicable/Available;
HSA = Hollow Stem Auger; SS = Split Spoon

Date Start/Finish: 5/16/2006, 5/22/2006
Drilling Company: Parratt Wolff Inc.
Driller's Name: Joe Percy/Joel Rausseler
Drilling Method: HSA
Auger Size: 4.25" ID
Rig Type: Diedrich D50
Sampling Method: 2" SS

Northing: 969755.37
Easting: 626901.89
Surface Elevation: 17.79

Borehole Depth: 13.8' bgs

Descriptions By: Katherine P Murray

Well/Boring ID: **PDI-SB-9**

Client: Central Hudson Gas and Electric Corporation

Location: Former Newburgh MGP (Area A) Newburgh, New York

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
20									
0	1	0-3	0.0	NA	NA	NA		Fine to coarse SAND and GRAVEL, over Concrete. [FILL]. Performed with geoprobe on 5/16/06 - refusal at 1' bgs.	
15	2	3-5	0.3	3 18 20 9	38	0.0		Gray fine to medium GRAVEL, trace fine to coarse Sand, slight odor, dry. Auger to below concrete, begin SS sampling at 3' bgs.	Borehole backfilled with Bentonite to grade.
5	3	5-7	0.4	4 8 10 8	18	1.8		Gray/brown fine to medium GRAVEL, some fine to coarse Sand, dry. Strong odor/sheen in tip of spoon, wet.	
10	4	7-9	0.4	6 5 9 5	14	1.8		Brown fine to medium SAND, some coarse Sand and fine Gravel, slight odor, moist.	
10	5	9-11	0.2	9 20 30 38	50	13.5		Dark gray fine to coarse SAND, some fine to medium Gravel, little Silt, odor, wet. [TILL].	
5	6	11-13	3.0	90/0.4 NA NA NA	NA	68		Dark gray fine to coarse SAND, some fine Gravel, little Silt, odor, wet. Probably slough from above.	
	7	13-13.8	0.5	16 50/0.3	NA	11.8		Dark gray to brown fine to coarse SAND, some Silt and fine Gravel, odor, wet. [TILL].	
15								Refusal at 13.8' bgs.	

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HSA = Hollow Stem Auger; SS = Split Spoon

Date Start/Finish: 5/16/200, 519/2006
Drilling Company: Parratt Wolff Inc.
Driller's Name: Joe Percy/Joel Rausseler
Drilling Method: HSA
Auger Size: 4.25" ID
Rig Type: Diedrich D50
Sampling Method: 2" SS

Northing: 969744.30
Easting: 626902.13
Surface Elevation: 17.64

Borehole Depth: 14.1' bgs

Descriptions By: Katherine P Murray

Well/Boring ID: **PDI-SB-10**

Client: Central Hudson Gas and Electric Corporation

Location: Former Newburgh MGP (Area A) Newburgh, New York

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
20									
0	1	0-2	0	NA	NA	NA		Augered (0-2' bgs) through Concrete. No recovery.	
15	2	2-4	0.4	50/0.4 NA NA NA	NA	0.0		Gray fine to coarse SAND, some Silt, little fine Gravel, damp.	Borehole backfilled with Bentonite to grade.
	3	4-6	1.0	9 12 7 7	19	122		Gray fine to coarse GRAVEL (Shale fragments), some coarse Sand, trace fine to medium Sand, odor, dry. Gray fine to medium SAND, some coarse Sand, strong odor, sheen, moist.	
5	4	6-8	1.8	10 8 7 7	15	189		Gray fine to coarse SAND, little fine Gravel and Silt, heavy sheen, strong odor, wet. Gray fine SAND, some Silt, trace Clay, odor, wet.	
10	5	8-10	1.0	5 37 24 29	61	45.7		Gray-brown fine to medium SAND, some fine to medium Gravel, little Silt, trace coarse Sand, odor, wet. Dark gray fine to coarse SAND, some fine to medium Gravel and Silt, strong odor, NAPL in bottom of spoon.	
	6	10-12	0.9	13 20 16 12	36	11.7		Gray fine to coarse SAND, some fine Gravel and Silt, heavy sheen, odor, wet.	
5	7	12-14	1.5	8 23 12 30	35	26.7		NAPL blebs throughout, heavy sheen.	
	8	14-14.1	0.3	50/0.1	NA	3.7		Refusal at 14.1' bgs. Bedrock.	
15									

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Remarks: bgs = below ground surface; NA = Not Applicable/Available; HSA = Hollow Stem Auger; SS = Split Spoon

Date Start/Finish: 5/24-5/25/2006
Drilling Company: Parratt Wolff Inc.
Driller's Name: Joe Percy/Joel Rausseler
Drilling Method: HSA/Mud Rotary
Auger Size: 4.25" ID/NX 2 15/16"
Rig Type: Diedrich D50
Sampling Method: 2" SS

Northing: 969764.31
Easting: 626873.80
Surface Elevation: 26.44

Borehole Depth: 28.0' bgs

Descriptions By: Katherine P Murray

Well/Boring ID: **PDI-SB-11**

Client: Central Hudson Gas and Electric Corporation

Location: Former Newburgh MGP (Area A) Newburgh, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value / RQD (%)	PID Headspace (ppm)	Geologic Column	Bedrock Fractures	Stratigraphic Description	Well/Boring Construction
0	25	1	0-2	0.8	3 4 5 4	9	0.0			Asphalt. Gray fine GRAVEL, little fine to coarse Sand, trace Silt, Clay, dry, [FILL].	
		2	2-4	0.5	2 3 6 5	9	0.0			Tan fine to medium SAND, little Silt, trace Clay, dry. Gray fine GRAVEL, little fine to coarse Sand, trace Silt, Clay, dry. [FILL].	Borehole backfilled with Bentonite to grade.
5		3	4-6	1.4	7 12 20 15	32	0.0			Red-tan fine to medium SAND, trace Silt, fine Gravel, coarse Sand, dry to damp.	
	20	4	6-8	1.1	4 6 7 10	13	188			Gray-green-blue SILT, some Clay, trace fine to medium Gravel, odor (strong toward the bottom), wet.	
		5	8-10	0.4	50/0.5 NA NA NA	NA	169				
10		6	10-12	0.8	50/0.1 NA NA NA	NA	256			Gray fine to coarse SAND, some fine to medium Gravel (Concrete-like), trace Silt, odor, dry.	
	15	7	12-14	0.6	20 38 28 46	66	146				
15		8	14-15	1.2	28 50 50/0.1 NA	NA	92.2			Brown fine to medium SAND, some Silt, trace fine Gravel and coarse Sand, dry. [TILL].	

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Remarks: bgs = below ground surface; NA = Not Applicable/Available; HSA = Hollow Stem Auger; SS = Split Spoon; hz = horizontal; v = vertical; la = low angle; f = fresh; sw = slightly weathered

Client: Central Hudson Gas and Electric Corporation

Well/Boring ID: **PDI-SB-11**

Borehole Depth: 28.0' bgs

Site Location:
Former Newburgh MGP (Area A)
Newburgh, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows Counts	N - Value / RQD (%)	PID Headspace (ppm)	Geologic Column	Bedrock Fractures	Stratigraphic Description	Well/Boring Construction
	10	NA	NA	NA	NA	NA	NA			Augered to 17.5' bgs began coring.	
		9	18-20	2	NA	10	0.2		v	Black SHALE fragments, fractures running at 75-80 degrees along bedding planes. White veins of Calcite/Quartz intermittent. Slight odor in return water.	Borehole backfilled with Bentonite to grade.
20		10	20-21.5	1.5	NA	0	NA				
	5	11	21.5-23	2	NA	95	NA			Black-dark gray SHALE with few white Calcite/Quartz veins, no fractures.	
25		12	23-26.5	3.7	NA	73	NA		f/la	Black SHALE, few mechanical fractures 45 degrees along bedding planes, few white Calcite/Quartz veins. Clean return water, no odor.	
	0	13	26.5-28	1.5	NA	67	0.1		f/la/v	Black SHALE with 30 degree mechanical fractures, one mechanical fracture 85 degrees, white Calcite/Quartz veins throughout.	
30											
	-5										
35											

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Remarks: bgs = below ground surface; NA = Not Applicable/Available;
HSA = Hollow Stem Auger; SS = Split Spoon; hz = horizontal;
v = vertical; la = low angle; f = fresh; sw = slightly weathered

Date Start/Finish: 5/16/2006
Drilling Company: Parratt Wolff Inc.
Driller's Name: Gary Ellingsworth/Josh Ellingsworth
Drilling Method: Geoprobe
Sampling Method: 4' Macrocore

Northing: 969754.51
Easting: 626878.93
Surface Elevation: 24.92
Borehole Depth: 12.0' bgs

Descriptions By: Katherine P Murray

Well/Boring ID: **PDI-SB-12**
Client: Central Hudson Gas and Electric Corporation
Location: Former Newburgh MGP (Area A) Newburgh, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	25	1	0-4	1.7	0.0		Gray/brown fine to coarse SAND, some fine to medium Gravel, trace Brick and Silt, moist.	
							Light brown fine to medium SAND, little Silt, trace Clay, fine Gravel and coarse Sand, odor, wet.	Borehole backfilled with Bentonite to grade.
							Light brown fine to medium SAND, some Silt, trace Clay (increasing with depth), wet.	
5	20	2	4-8	1.1	0.0		Light brown CLAY and SILT, trace fine to coarse Sand and fine Gravel, wet.	
							Gray/brown fine to medium SAND, some fine Gravel and coarse Sand, trace Silt and Clay, wet.	
							Gray/brown-tan fine SAND, some Silt, little fine Gravel and medium to coarse Sand, trace Clay, wet.	
10	15	3	8-12	1.5	0.0		Tan SILT, little Clay, fine Gravel and fine to coarse Sand, wet.	
15	10							

Remarks: bgs = below ground surface; NA = Not Applicable/Available; HSA = Hollow Stem Auger; SS = Split Spoon

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Date Start/Finish: 5/16/2006
Drilling Company: Parratt Wolff Inc.
Driller's Name: Gary Ellingsworth/Josh Ellingsworth
Drilling Method: Geoprobe
Sampling Method: 4' Macrocore

Northing: 969774.83
Easting: 626862.65
Surface Elevation: 26.71
Borehole Depth: 12.0' bgs

Descriptions By: Katherine P Murray

Well/Boring ID: **PDI-SB-13**
Client: Central Hudson Gas and Electric Corporation
Location: Former Newburgh MGP (Area A) Newburgh, New York

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
0 / 25	1	0-4	2.9	0.0		Tan fine to medium SAND, some fine to medium Gravel, trace Silt, dry.	
						Gray fine to medium SAND, some fine to medium Gravel, dry.	
						Light gray fine to medium SAND, some coarse Sand and (possibly) Slag, trace Silt, Clay and fine Gravel, dry.	
						Very dark brown fine SAND, some medium to coarse Sand, trace fine Gravel, dry.	
						Tan-brown fine SAND, dry.	
						Light gray medium GRAVEL, trace fine to coarse Sand and fine Gravel, dry	
5 / 20	2	4-8	3.3	29.7		Tan fine to coarse SAND, some fine to medium Gravel, trace Silt and Clay, wet.	
						Light gray fine to coarse SAND, some Silt, little Clay and fine Gravel, odor, wet.	
						Gray SILT and CLAY, trace fine to coarse Sand, odor, NAPL blebs, wet.	
						Tan fine to coarse SAND, some Clay and Silt.	
10 / 15	3	8-12	2.9	29.3		Gray fine to coarse SAND, some fine Gravel, little Silt, wet.	
15							

Borehole backfilled with Bentonite to grade.

Remarks: bgs = below ground surface; NA = Not Applicable/Available; HSA = Hollow Stem Auger; SS = Split Spoon

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Date Start/Finish: 5/16/2006
Drilling Company: Parratt Wolff Inc.
Driller's Name: Gary Ellingsworth/Josh Ellingsworth
Drilling Method: Geoprobe
Sampling Method: 4' Macrocore

Northing: 969726.12
Easting: 626870.60
Surface Elevation: 25.05
Borehole Depth: 8.0' bgs

Descriptions By: Katherine P Murray

Well/Boring ID: **PDI-SB-14**

Client: Central Hudson Gas and Electric Corporation

Location: Former Newburgh MGP (Area A) Newburgh, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	25	1	0-4	2.7	1.6		Dark brown fine to medium SAND, little fine Gravel, trace Brick and Silt, moist. [FILL]	
							Light brown fine SAND, little Silt, trace Clay, wet.	
							Light gray SILT and CLAY, fractured Rock at 2.4-2.5' bgs, sheen, slight odor, wet.	Borehole backfilled with Bentonite to grade.
							Dark fine to coarse SAND, little fine Gravel, trace Brick, wet.	
5	20	2	4-8	2.2	2.2		Light gray-brown SILT and CLAY, little fine Gravel, slight odor, sheen, wet.	
							Light gray fine to medium SAND, some Silt, trace fine Gravel and coarse Sand, Till-like material, wet.	
							Refusal at 8' bgs.	
10	15							
15	10							

Remarks: bgs = below ground surface; NA = Not Applicable/Available; HSA = Hollow Stem Auger; SS = Split Spoon

Date Start/Finish: 5/16/2006
Drilling Company: Parratt Wolff Inc.
Driller's Name: Gary Ellingsworth/Josh Ellingsworth
Drilling Method: Geoprobe
Sampling Method: 4' Macrocore

Northing: 969730.16
Easting: 626853.70
Surface Elevation: 25.63
Borehole Depth: 15.9' bgs

Descriptions By: Katherine P Murray

Well/Boring ID: **PDI-SB-15**
Client: Central Hudson Gas and Electric Corporation
Location: Former Newburgh MGP (Area A) Newburgh, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	25	1	0-4	2.2	0.0		Brown fine to coarse SAND, little fine to medium Gravel, trace Silt.	
					10.8		Black-stained fine to medium SAND, odor.	Borehole backfilled with Bentonite to grade.
5	20	2	4-8	0	NA		No sample recovered. Refusal at 4' bgs.	
10	15	3	8-12	4.0	10.3		Gray fine to coarse SAND, little Silt, trace fine Gravel, odor, sheen, NAPL smeared on sides of liner, wet.	
							Gray fine to medium SAND, some silt, trace coarse Sand, NAPL smeared on outside of liner, sheen, odor, wet.	
							Gray-green fine SAND, trace Silt, wet.	
15	10	4	12-16	2.9	18.8		Gray-green fine SAND, some Silt, trace medium Sand, sheen, NAPL, odor, wet.	
							Refusal at 13.0' bgs	
							Gray trace Clay (increasing with depth).	

Remarks: bgs = below ground surface; NA = Not Applicable/Available; HSA = Hollow Stem Auger; SS = Split Spoon

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Date Start/Finish: 5/16/2006
Drilling Company: Parratt Wolff Inc.
Driller's Name: Gary Ellingsworth/Josh Ellingsworth
Drilling Method: Geoprobe
Sampling Method: 4' Macrocore

Northing: NA
Easting: NA
Surface Elevation: NA
Borehole Depth: 12.6' bgs

Descriptions By: Katherine P Murray

Well/Boring ID: **PDI-SB-16**
Client: Central Hudson Gas and Electric Corporation
Location: Former Newburgh MGP (Area A) Newburgh, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	0							
					2.2		Dark brown-brown fine to medium SAND, trace organics, moist.	
							Brown fine to medium SAND, trace coarse Sand and fine Gravel, moist.	
					1.4			
		1	0-4	1.9			Brown fine to medium SAND, some Silt, trace Clay, fine Gravel and coarse Sand, moist.	
					2.6			
					2.1			Borehole backfilled with Bentonite to grade.
					1.2		Brown fine to medium SAND, little Silt, trace Organics, moist.	
5	-5							
					2.4		Trace, coarse Sand, and Clay.	
		2	4-8	2.4			Gray-green SILT, trace Clay, fine Sand, coarse Sand, and fine Gravel, odor, wet.	
					9.7			
					8.0			
					8.2		Brown fine to medium SAND, some Silt, trace fine Gravel, wet.	
					12.2			
10	-10	3	8-12	2.6			Gray fine to coarse SAND, some fine Gravel, trace Silt and Clay, odor, wet.	
					22.0		Refusal at 11.0' bgs	
					8.0			
15	-15							

Remarks: bgs = below ground surface; NA = Not Applicable/Available; HSA = Hollow Stem Auger; SS = Split Spoon

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Date Start/Finish: 5/25/2006
Drilling Company: Parratt Wolff Inc.
Driller's Name: Joe Percy/Joel Rausseler
Drilling Method: HSA/Mud Rotary
Auger Size: 4.25" ID/NX 2 15/16"
Rig Type: Diedrich D50
Sampling Method: 2" SS

Northing: NA
Easting: NA
Surface Elevation: NA

Borehole Depth: 23.5' bgs

Descriptions By: Katherine P Murray

Well/Boring ID: **PDI-SB-17**

Client: Central Hudson Gas and Electric Corporation

Location: Former Newburgh MGP (Area A) Newburgh, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value / RQD (%)	PID Headspace (ppm)	Geologic Column	Bedrock Fractures	Stratigraphic Description	Well/Boring Construction
0	0	1	0-2	1.8	3 4 6 6	10	0.0			Dark brown fine to medium SAND, trace fine Gravel and Organics, dry. Tan fine SAND, little medium Sand, damp.	
		2	2-4	1.2	4 4 5 7	9	0.0			Tan fine SAND and SILT, trace Clay, fine Gravel and coarse Sand, damp.	Borehole backfilled with Bentonite to grade.
5	-5	3	4-6	1.0	2 3 4 3	7	0.0				
		4	6-8	1.5	2 2 3 4	5	5.8			Tan fine to medium SAND, trace Silt, coarse Sand and fine Gravel, wet.	
		5	8-10	1.2	2 7 8 2	15	28.5			Gray fine to coarse SAND and fine GRAVEL, little Silt, sheen, odor, wet.	
10	-10	6	10-12	0.7	2 12 50/0.1 NA	NA	NA			No Sheen. Roller bit to hard rock 13.5' bgs.	
		7	12-13.5	NA	NA	NA	NA				
15	-15	8	13.5-18.5	4.7	NA	98	NA		la	Black dark gray SHALE, one natural fracture at 30 degrees, white Veins infrequently present throughout core.	

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Client: Central Hudson Gas and Electric Corporation

Well/Boring ID: **PDI-SB-17**

Borehole Depth: 23.5' bgs

Site Location:
Former Newburgh MGP (Area A)
Newburgh, New York

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows Counts	N - Value / RQD (%)	PID Headspace (ppm)	Geologic Column	Bedrock Fractures	Stratigraphic Description	Well/Boring Construction
	8	13.5-18.5	4.7	NA	98	NA		la	Black dark gray SHALE, one natural fracture at 30 degrees, white veins infrequently present throughout core.	Borehole backfilled with Bentonite to grade.
20 -20	9	18.5-22	3.2	NA	45	NA		f	Black dark gray SHALE, one natural fracture at 30 degrees, white Veins infrequently present throughout core. Mechanical fractures.	
	10	22-23.5	1.5	NA	20	NA		la	Same as above (18.5-22' bgs) with Schist section of natural 25-30 degree fractures. NAPL appearing in return water at approximately 23.5' bgs.	
25 -25										
30 -30										
35 -35										

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v = vertical; la = low angle; f = fresh; sw = slightly weathered

Date Start/Finish: 5/23/2006
Drilling Company: Parratt Wolff Inc.
Driller's Name: Joe Percy/Joel Rausseler
Drilling Method: HSA
Auger Size: 4.25" ID
Rig Type: Diedrich D50
Sampling Method: 2" SS

Northing: 970106.57
Easting: 626933.92
Surface Elevation: 36.98

Borehole Depth: 27' bgs

Descriptions By: Drew Graham

Well/Boring ID: **PDI-SB-18**

Client: Central Hudson Gas and Electric Corporation

Location: Former Newburgh MGP (Area A) Newburgh, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
0		1	0-2	0.2	2 2 2 2	4	0.0		Dark brown SAND and GRAVEL, trace Silt, large Cobble in sleeve, moist.	
	35	2	2-4	0.1	3 1 1 1	2	0.0		Dark brown GRAVEL, moist.	Borehole backfilled with Bentonite to grade.
5		3	4-6	0.3	5 4 2 2	6	0.0		Dark brown medium to coarse SAND, some Silt, trace Gravel and Cobbles, moist.	
	30	4	6-8	0.8	2 2 2 5	4	0.0			
		5	8-10	0.7	27 50/0.4 NA NA	NA	0.0		Brown medium to coarse SAND, some Silt, trace Gravel and large Cobbles, moist.	
10		6	10-12	0.3	50/0.4 NA NA NA	NA	0.0		Tan-brown medium to coarse SAND, GRAVEL and COBBLES, moist.	
	25	7	12-14	0.3	6 4 5 5	9	7.4		Gray GRAVEL, brownish-gray SILT, some Sand, little Gravel, slight odor, wet.	
15		8	14-16	1.0	4 5 11 5	16	1.6 0.4		Brown SILT, some Sand, trace Gravel, strong odor, thin NAPL blebs at approximately 14.2' bgs, wet. Brown SILT, some Clay, wet at top drying toward the bottom.	

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Remarks: bgs = below ground surface; NA = Not Applicable/Available; HSA = Hollow Stem Auger; SS = Split Spoon

Client: Central Hudson Gas and Electric Corporation

Well/Boring ID: **PDI-SB-18**

Borehole Depth: 27' bgs

Site Location:
Former Newburgh MGP (Area A)
Newburgh, New York

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
20	9	16-18	2.0	2 3 4 7	7	1.2		Gray-brown SILT, some Sand, trace Gravel, black-staining, wet.	
						0.0		Brown SILT, some Clay, grading to a brown Clay, some Silt, moist.	
	10	18-20	1.0	10 50/0.3 NA NA	NA	0.0		Brown CLAY, some Silt, moist. Reddish-brown CLAY, some Silt and Gravel, dry. [TILL].	Borehole backfilled with Bentonite to grade.
20	11	20-22	0.1	15 50/0.1 NA NA	NA	0.0		Large gray angular Cobble.	
15	12	22-24	0.2	50/0.4 NA NA NA	NA	0.0		Gray GRAVEL and ROCK fragments, wet.	
25	13	24-26	1.0	10 50 40 50	90	0.0		Gray ROCK fragments and TILL (Sandy Clay some Cobbles), wet.	
	14	26-27	NA	37 80 50/0.0	NA	0.0			
10									
30									
5									
35									

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Remarks: bgs = below ground surface; NA = Not Applicable/Available;
HSA = Hollow Stem Auger; SS = Split Spoon

Date Start/Finish: 5/30/2006
Drilling Company: Parratt Wolff Inc.
Driller's Name: Joe Percy/Joel Rausseler
Drilling Method: HSA
Auger Size: 4.25" ID
Rig Type: Diedrich D50
Sampling Method: 2" SS

Northing: 969983.46
Easting: 626904.92
Surface Elevation: 35.67

Borehole Depth: 17.0' bgs

Descriptions By: Allen Jay Evans

Well/Boring ID: **PDI-SB-19**

Client: Central Hudson Gas and Electric Corporation

Location: Former Newburgh MGP (Area A) Newburgh, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	35	1	0-2	1.0	2 3 4 4	7	0.1		Dark brown SAND, little fine to medium Gravel, moist.	
		2	2-4	1.5	2 1 5 4	6	0.1		Light brown pinkish ASH, moist.	
									Yellow-brown CLAY, some fine Sand, wet.	Borehole backfilled with Bentonite to grade.
5	30	3	4-6	0.7	3 2 2 5	4	0.3			
		4	6-8	0.7	4 7 3 2	10	9.8		Black/dark gray coarse SAND and broken ROCK, slight odor, wet.	
		5	8-10	1.5	0 0 0 3	0	83		Dark gray SAND, little Silt, trace NAPL, moderate odor, wet.	
10									Yellow-brown CLAY, some fine Sand, wet.	
	25	6	10-12	1.5	2 4 7 10	11	16.2		Yellow dark brown with gray mottled CLAY, trace fine Sand, slight odor, wet.	
		7	12-14	1.5	8 9 10 25	19	3.0 7.9		Gray CLAY, little fine Sand and fine Gravel, NAPL in seams of Clay, moderate odor.	
15	20	8	14-16	1.4	25 30 45 50/0.4	76	1.5		Brown-yellow Clay, some Gravel, little fine Sand, moist. [TILL].	

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Client: Central Hudson Gas and Electric Corporation

Well/Boring ID: **PDI-SB-19**

Borehole Depth: 17.0' bgs

Site Location:
Former Newburgh MGP (Area A)
Newburgh, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
		9	16-17	0.2	NA NA	NA	0.0		Light gray ROCK (Shale), dry.	Borehole backfilled with Bentonite to grade.
20	15									
25	10									
30	5									
35	0									

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Remarks: bgs = below ground surface; NA = Not Applicable/Available;
HSA = Hollow Stem Auger; SS = Split Spoon

Date Start/Finish: 5/30/2006
Drilling Company: Parratt Wolff Inc.
Driller's Name: Joe Percy/Joel Rausseler
Drilling Method: HSA
Auger Size: 4.25" ID
Rig Type: Diedrich D50
Sampling Method: 2" SS

Northing: 969749.27
Easting: 626856.89
Surface Elevation: 25.84

Borehole Depth: 12.1' bgs

Descriptions By: Allen Jay Evans

Well/Boring ID: **PDI-SB-20**

Client: Central Hudson Gas and Electric Corporation

Location: Former Newburgh MGP (Area A) Newburgh, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	25	1	0-2	1.0	20 28 50/0.5 NA	NA	0.0		Brown to gray-brown fine to coarse SAND, some medium Gravel, dry.	
		2	2-4	0.8	8 6 3 4	9	0.1		Little red Brick, moist.	Borehole backfilled with Bentonite to grade.
5	20	3	4-6	0.1	2 1 2 2	3	0.3		Slight odor.	
		4	6-8	1.6	2 1 1 1	2	31.5		Black-stained fine SAND, strong odor, NAPL stains, wet.	
		5	8-10	0.8	1 2 2 3	4	25.5		Dark gray fine SAND, little Silt and fine Gravel, strong odor, wet.	
10	15	6	10-12	1.4	7 9 12 12	21	110		Dark Gray SAND and soft weathered ROCK, moderate odor, trace NAPL in slough of spoon.	
		7	12-12.1	0.1	50/1	NA	NA		Refusal at 12.1' bgs.	
15	10									

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Remarks: bgs = below ground surface; NA = Not Applicable/Available; HSA = Hollow Stem Auger; SS = Split Spoon; MGP = Manufacturing Gas Plant

Date Start/Finish: 5/30/2006
Drilling Company: Parratt Wolff Inc.
Driller's Name: Joe Percy/Joel Rausseler
Drilling Method: HSA
Auger Size: 4.25" ID
Rig Type: Diedrich D50
Sampling Method: 2" SS

Northing: NA
Easting: NA
Surface Elevation: NA

Borehole Depth: 10.5' bgs

Descriptions By: Allen Jay Evans

Well/Boring ID: **PDI-SB-21**

Client: Central Hudson Gas and Electric Corporation

Location: Former Newburgh MGP (Area A) Newburgh, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	0	1	0-2	Na	NA	NA	NA		ASPHALT. Dark brown SAND, some Clay and fine to coarse Gravel, moist.	Borehole backfilled with Bentonite to grade.
		2	2-4	0.9	11 8 4 3	12	0.1		Trace red BRICK.	
5	-5	3	4-6	0.8	5 6 6 3	12	0.0		Dark gray to yellow-brown coarse SAND and broken ROCK, wet.	
		4	6-8	0.0	3 2 2 8	4	NA		No recovery. NAPL blebs on sampler, light odor.	
		5	8-10	1.0	4 28 19 10	47	201		Dark gray SAND, some Gravel, NAPL blebs and NAPL, strong odor, wet.	
10	-10	6	10-10.5	1.0	10 50/0.2	NA	101		Dark gray coarse SAND and broken ROCK, NAPL blebs on outside of sampler, strong odor, wet.	
									Refusal at 10.5' bgs.	
15	-15									

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Remarks: bgs = below ground surface; NA = Not Applicable/Available; HSA = Hollow Stem Auger; SS = Split Spoon; MGP = Manufacturing Gas Plant

Date Start/Finish: 5/31/2006
Drilling Company: Parratt Wolff Inc.
Driller's Name: Joe Percy/Joel Rausseler
Drilling Method: HSA
Auger Size: 4.25" ID
Rig Type: Diedrich D50
Sampling Method: 2" SS

Northing: NA
Easting: NA
Surface Elevation: NA

Borehole Depth: 8.0' bgs

Descriptions By: Allen Jay Evans

Well/Boring ID: **PDI-SB-22**

Client: Central Hudson Gas and Electric Corporation

Location: Former Newburgh MGP (Area A) Newburgh, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	0	1	0-2	NA	NA	7	NA		ASPHALT. Yellow-brown CLAY, some fine Sand, little fine Gravel.	
		2	2-4	0.8	4 4 2 3	6	0.0		Yellow-brown SAND, some Clay, little Gravel, wet.	Borehole backfilled with Bentonite to grade.
5	-5	3	4-6	1.3	1 2 4 6	6	176		Black fine SAND, little Gravel and Clay, moderate odor, NAPL, wet. Trace Clay, less visible NAPL, strong odor.	
		4	6-8	1.0	3 50/0.3 NA NA	10	105		Olive-brown ROCK.	
10	-10									
15	-15									

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Remarks: bgs = below ground surface; NA = Not Applicable/Available;
HSA = Hollow Stem Auger; SS = Split Spoon

Date Start/Finish: 6/27/2006
Drilling Company: Parratt Wolff Inc.
Driller's Name: Jim Robertson/Lane Pech
Drilling Method: HSA
Auger Size: 4.25" ID
Rig Type: Diedrich D50
Sampling Method: 2" SS

Northing: NA
Easting: NA
Surface Elevation: NA

Borehole Depth: 16.5' bgs

Descriptions By: Katherine Murray

Well/Boring ID: **PDI-SB-23**

Client: Central Hudson Gas and Electric Corporation

Location: Former Newburgh MGP (Area A) Newburgh, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	0	1	0-2	0.4	8 37 16 13	53	0.0		Brown fine SAND, some Silt, little medium to coarse Sand and Gravel, damp.	
		2	2-4	0.3	15 10 14 14	24	0.0		Brown/gray medium to coarse SAND, some fine Gravel, trace Silt and fine Sand, damp.	Borehole backfilled with Bentonite to grade.
5	-5	3	4-6	2	3 2 2 5	4	0.0		Red/tan fine to medium SAND, little fine Gravel, trace Silt, damp.	
		4	6-8	1.0	5 4 8 6	12	0.0		Brown fine to medium SAND, little coarse Sand and fine Gravel, wet.	
		5	8-10	1.2	4 3 3 2	6	0.0			
10	-10	6	10-12	1.1	8 4 1 6	5	0.0		Brown SILT, some fine Sand, trace to little medium to coarse, fine Gravel and Clay, saturated.	
									Gray fine to medium SAND, wet.	
		7	12-14	1.0	8 7 16 60	23	0.0		Gray/brown fine to medium SAND, some Silt , little fine Gravel (weathered Bedrock in tip of spoon), wet.	
15	-15	8	14-16	1.5	26 34 86 NA	120	NA		Gray SILT and fine to coarse SAND, some fine Gravel, wet. [Till-like material].	

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Remarks: bgs = below ground surface; NA = Not Applicable/Available; HSA = Hollow Stem Auger; SS = Split Spoon

Date Start/Finish: 6/27/2006
Drilling Company: Parratt Wolff Inc.
Driller's Name: Jim Robertson/Lane Pech
Drilling Method: HSA
Auger Size: 4.25" ID
Rig Type: Diedrich D50
Sampling Method: 2" SS

Northing: NA
Easting: NA
Surface Elevation: NA

Borehole Depth: 19.5' bgs

Descriptions By: Katherine Murray

Well/Boring ID: **PDI-SB-24**

Client: Central Hudson Gas and Electric Corporation

Location: Former Newburgh MGP (Area A) Newburgh, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	0	1	0-2	0.3	60 60/0.3 NA NA	NA	0.0		Tan-brown fine to medium SAND, some coarse Sand and fine Gravel, trace Silt, dry.	
		2	2-4	NA	50/0.2 NA NA NA	NA	NA		Concrete. No Recovery.	Borehole backfilled with Bentonite to grade.
									Gray Pulverized CONCRETE.	
5	-5	3	4-6	1.0	3 2 1 1	3	0.0		Pink-red-tan ASH, little fine to medium Sand, trace Silt, damp.	
		4	6-8	0.1	1 1 1 3	2	0.0			
		5	8-10	1.2	5 4 6 8	10	0.0		Tan SILT, some to little Clay, wet. Gray-brown fine to coarse SAND, some fine Gravel, wet.	
10	-10	6	10-12	0.9	5 3 5 5	8	0.0		Tan fine to coarse SAND, some fine to mediium Gravel (increasing with depth), trace Silt, slight sheen, no odor, saturated.	
		7	12-14	1.1	5 5 14 52	19	0.0		Gray fine to medium SAND, trace fine Gravel, coarse Sand and Silt, saturated. Tan SILT, saturated.	
15	-15	8	14-16	1.4	22 82 NA NA	NA	0.0		Gray fine to coarse SAND, some Silt and fine to medium Gravel, trace Clay, wet. [Till-like].	

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Remarks: bgs = below ground surface; NA = Not Applicable/Available; HSA = Hollow Stem Auger; SS = Split Spoon

Client: Central Hudson Gas and Electric Corporation

Well/Boring ID: **PDI-SB-24**

Borehole Depth: 19.5' bgs

Site Location:
Former Newburgh MGP (Area A)
Newburgh, New York

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
	9	16-18	2.0	40 92 64/0.5 NA	NA	0.0		Gray fine to medium GRAVEL, some fine to coarse Snad, little Silt, saturated.	Borehole backfilled with Bentonite to grade.
	10	18-19.5	1.3	23 48 50/0.2	NA	0.0		Gray becoming tan-gray with depth fine to medium SAND and SILT, little to some fine Gravel, saturated.	
20 -20									
25 -25									
30 -30									
35 -35									

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Remarks: bgs = below ground surface; NA = Not Applicable/Available;
HSA = Hollow Stem Auger; SS = Split Spoon

Date Start/Finish: 6/27/2006
Drilling Company: Parratt Wolff Inc.
Driller's Name: Jim Robertson/Lane Pech
Drilling Method: HSA
Auger Size: 4.25" ID
Rig Type: Diedrich D50
Sampling Method: 2" SS

Northing: NA
Easting: NA
Surface Elevation: NA

Borehole Depth: 20' bgs

Descriptions By: Katherine Murray

Well/Boring ID: **PDI-SB-25**

Client: Central Hudson Gas and Electric Corporation

Location: Former Newburgh MGP (Area A) Newburgh, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	0	1	0-2	NA	17 37 100/0.2 NA	NA	0.0		Brown-gray fine to coarse SAND, little fine Gravel and Brick, damp.	
		2	2-4	1.6	4 3 3 3	6	0.0		Pink-tan ASH, trace fine to medium Sand and Silt, damp.	Borehole backfilled with Bentonite to grade.
5	-5	3	4-6	1.0	7 5 5 3	10	0.0		Tan-pink ASH, some fine to medium Sand, trace Silt, dry.	
		4	6-8	1.3	2 3 3 3	6	0.0		Black CINDERS, trace fine to medium brown Sand, wet at 7' bgs.	
		5	8-10	0.2	4 5 6 4	11	0.0			
10	-10	6	10-12	1.3	3 4 4 12	8	15.7		Gray fine to medium GRAVEL, trace fine to medium Sand and Silt, slight odor, sheen at bottom, wet.	
		7	12-14	2.0	15 11 15 25	26	0.0		Gray fine to medium SAND, some fine to medium Gravel, little Silt, wet.	
									Gray SHALE, trace fine to medium Sand, wet.	
15	-15	8	14-16	1.5	26 27 30 34	57	0.0		Tan fine SAND and SILT, little coarse Sand, trace fine Gravel, wet.	

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Remarks: bgs = below ground surface; NA = Not Applicable/Available; HSA = Hollow Stem Auger; SS = Split Spoon

Client: Central Hudson Gas and Electric Corporation

Well/Boring ID: **PDI-SB-25**

Borehole Depth: 20' bgs

Site Location:
Former Newburgh MGP (Area A)
Newburgh, New York

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
	9	16-18	2.0	30 34 37 100	71	0.0		Gray fine to coarse SAND, some Silt, trace fine Gravel, wet.	Borehole backfilled with Bentonite to grade.
	10	18-20	2.0	12 36 32 51	68	0.0		Tan fine to coarse SAND, some Silt, trace fine Gravel, wet. Dark gray weathered SHALE and SILT.	
20 -20									
25 -25									
30 -30									
35 -35									

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Remarks: bgs = below ground surface; NA = Not Applicable/Available;
HSA = Hollow Stem Auger; SS = Split Spoon

Appendix C

Monitoring Well Logs/Construction Records

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Date Start/Finish: 5/24/2006
Drilling Company: Parratt Wolff Inc.
Driller's Name: Joe Percy/Joel Rausseler
Drilling Method: HSA/Mud Rotary
Auger Size: 4.25" ID/NX 2 15/16"
Rig Type: Diedrich D50
Sampling Method: 2" SS

Northing: 970009.87
Easting: 626854.18
Casing Elevation: 38.70

Borehole Depth: 16.0' bgs
Surface Elevation: NA

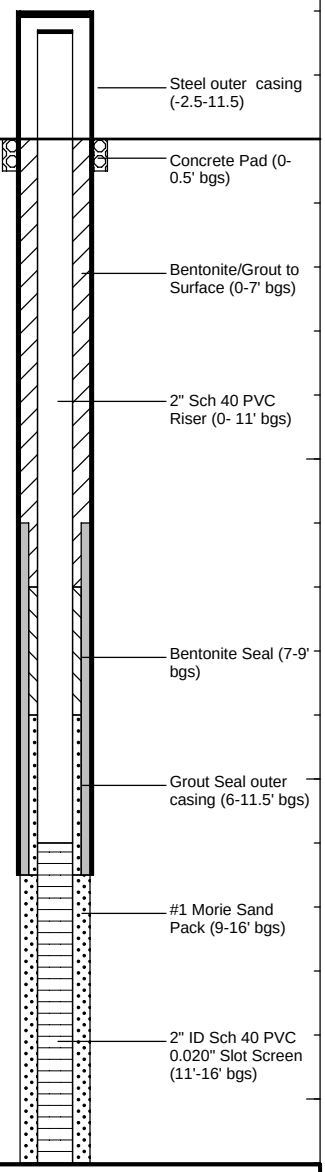
Descriptions By: Katherine P Murray

Well/Boring ID: **PDI-MW-1**

Client: Central Hudson Gas and Electric Corporation

Location: Former Newburgh MGP (Area A) Newburgh, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description
0	0								
		1	0-2						Soil samples not collected during outer casing installation. For lithology descriptions see PDI-TP-5.
		2	2-4						Auger to 11.5' bgs. Set outer casing into existing concrete, grout in place and allowed to set over night. Cored within casing to bedrock at 16' bgs with NX 2 15/16" core barrel.
5	-5	3	4-6						
		4	6-8						
		5	8-10						
10	-10	6	10-12						CONCRETE.
		7	12-14	1.2	8 23 50 70	73	76.8		Grey-olive fine to coarse SAND, some fine to medium Gravel, little Silt, odor, wet. Grey fine to medium SAND, some Silt, trace Clay, coarse Sand and fine Gravel, NAPL just above Till unit at top of interval, odor, sheen, wet.
15	-15	8	14-16.0	0.9	126/.04 NA NA NA	NA	68.2		SAA, odor, slough, wet. SS Refusal at 14.5' bgs.



Well/Boring Construction

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Remarks: bgs = below ground surface; NA = Not Applicable/Available; HSA - Hollow Stem Auger; SS - Split Spoon

Date Start/Finish: 5/23/2006
Drilling Company: Parratt Wolff Inc.
Driller's Name: Joe Percy/Joel Rausseler
Drilling Method: HSA/Mud Rotary
Auger Size: 4.25" ID
Rig Type: Diedrich D50
Sampling Method: 2" SS

Northing: 969712.03
Easting: 626894.44
Casing Elevation: 16.62

Borehole Depth: 13.5' bgs
Surface Elevation: NA

Descriptions By: Drew Graham

Well/Boring ID: **PDI-MW-2**

Client: Central Hudson Gas and Electric Corporation

Location: Former Newburgh MGP (Area A) Newburgh, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	15								Auger to 13.5 ' bgs. Replacement well for NW-3. For subsurface descriptions see NW-3.	Steel Flushmount with locking J-plug Concrete Pad (0-0.5' bgs) Sand Drain Bentonite (1-2' bgs) Sch 40 2" PVC Riser (0.2-3.5' bgs) 2" ID Sch 40 PVC 0.010" Slot Screen (3.5' - 13.5' bgs)
5	10									
10	5									
15										

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Remarks: bgs = below ground surface; NA = Not Applicable/Available; HSA - Hollow Stem Auger; SS - Split Spoon

Appendix D

Laboratory Data Sheets for Geotechnical Analysis

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July 11, 2006

Mr. Stephen Montagna
Blasland Bouck & Lee, Inc.
500 North Gulph Road Suite 401
King of Prussia, PA 19406

Re: L-06003
Laboratory Testing
Area A Pre-Design Investigations
CHG+E – Newburgh, New York
Project # 20537 #1

Dear Mr. Montagna:

Enclosed are the results of laboratory testing performed at your request on three each jar soil samples and three each rock core specimens delivered to our laboratory on June 5, 2006 for the above referenced project. Results include:

1.	Natural Moisture Content ASTM D2216	
	Laboratory I.D. #20443-20445	3 each
2.	Sieve Analysis ASTM D422 & D1140	
	Laboratory I.D. #20443-20445	3 each
3.	Atterberg Limits ASTM D4318	
	Laboratory I.D. #20443-20445	3 each
4.	Unconfined Compressive Strength of Intact Rock Core Specimens ASTM D2938	
	Laboratory I.D. #20443-20445	3 each

All requested tests have been completed on the previously received sample(s) for the above project. All sample remains are scheduled to be disposed of on August 10, 2006. Please notify PW Laboratories, Inc. by letter or telephone prior to August 10, 2006 if you would prefer to pick up the sample(s) or that the sample(s) be retained by PW Laboratories, Inc. for an additional period of time.

Thank you for this opportunity to work with you.

Very truly yours,

PW LABORATORIES, INC.

Virginia J. Thoma
Manager - Laboratory Services
VJT/afb
encs: Mr. Doug Weeks (fascimile only)

July 10, 2006

L-06003
Laboratory Testing
Area A Pre-Design Investigations
CHG+E – Newburgh, New York
Project # 20537 #1

ATTERBERG LIMITS
ASTM D4318

Lab ID #	Sample	Depth (feet)	Plastic Limit	Liquid Limit	Plasticity Index
20443	SB - 5	10.0 - 11.5	17	29	12
20444	SB - 5	12.0 - 13.8	25	31	6
20445	SB - 4	7.0 - 7.5	20	31	11

July 10, 2006

L-06003
Laboratory Testing
Area A Pre-Design Investigations
CHG+E – Newburgh, New York
Project # 20537 #1

NATURAL MOISTURE CONTENT
ASTM D2216

Lab I.D. #	Sample	Depth (feet)	Moisture Content as a Percent of Dry Weight
20443	SB - 5	10.0 - 11.5	19.9
20444	SB - 5	12.0 - 13.8	28.6
20445	SB - 4	7.0 - 7.5	17.8

SIEVE ANALYSIS OF SOIL / AGGREGATE

PROJECT TITLE: Laboratory Testing
Area A Pre - Design Investigations
CHG + E -Newburgh, New York
Project #20537 #1

PROJECT # L-06003
TEST METHOD ASTM D422 & D1140

REPORT # 1
REPORT DATE July 10, 2006

			Sieve Size - Percent Passing Sieve																
Lab I.D. #	Sample	Depth (feet)	1"	¾"	½"	3/8"	1/4"	#4	#10	#30	#40	#60	#100	#200					
20443	SB - 5	10.0 - 11.5	--	--	100	97.5	94.1	93.1	87.6	79.0	76.2	72.8	66.4	57.2					
20444	SB - 5	12.0 - 13.8	--	--	100	98.6	96.5	96.0	91.5	80.8	76.0	67.2	56.5	45.0					
20445	SB - 4	7.0 - 7.5	100	96.5	92.8	90.3	84.2	80.6	66.8	55.1	51.7	49.2	47.3	45.1					

Sample mass, as received, meets minimum mass requirements of test method: Yes ____ No X

Prewashed: Yes X No ____

Remarks:

Performed By: KW

Checked By: V.J. Thoma

UNCONFINED COMPRESSIVE STRENGTH OF INTACT ROCK CORE SPECIMENS

ASTM D2938

PROJECT #: L-06003 REPORT # 1

PROJECT TITLE: : Area A Pre - Design Investigation

CHG + E - Newburgh, New York REPORT DATE: July 10, 2006

Project # 20537 # 1

Core Test Condition: As Received X Other _____

Core I.D.	Depth	Date Cored	Date Tested	Average Trimmed Length (Inches)	Average Diameter (Inches)	L/D	Total Load (lbs.)	Rate of Loading (lbs./min.)	Compressive Strength (PSI)
SB - 5 Run #3	32.0' - 32.5'	5/17/06	7/7/06	4.38	1.97	2.2	72720	6460	23840
SB - 5 Run #3	32.5' - 33.0'	5/17/06	7/7/06	4.34	1.94	2.2	44960	6660	15190
SB - 4 Run #3	24.5' - 25.0'	5/18/06	7/7/06	4.35	1.93	2.3	69590	6190	23750

Appendix E

Laboratory Data Packages for Soil and Groundwater Waste Characterization Samples (provided on CD)

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