TRITIUM INVESTIGATION

EXELON GENERATION – BRAIDWOOD STATION
BRACEVILLE, ILLINOIS

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EXELON GENERATION – BRAIDWOOD STATION
BRACEVILLE, ILLINOIS

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EXECUTIVE SUMMARY

Conestoga-Rovers & Associates (CRA) has prepared this Focused Site Characterization Report (FSCR) for Exelon Generation Company, LLC (Exelon) to document findings with regard to the release of tritium into the groundwater at or in the vicinity of the Exelon Braidwood Nuclear Power Station (Braidwood Station) in Braceville, Illinois.

The purpose of this report is to provide a summary of Site characteristics as they relate to the sources, migration pathways, and extent of tritium in groundwater at the Braidwood Station Site. Tritium is the chemical of concern in this focused investigation because it is the only constituent of the releases that exceeds groundwater standards.

This report is the first step taken to pursue cleanup of tritium in the groundwater in a process that is in general compliance with 35 IAC 740 and meets the requirements of 35 IAC 742 Tiered Approach to Corrective Action Objective (TACO). [1]

The Site, for the purposes of this FSCR, is defined as the areas of tritium-impacted groundwater resulting from past releases of blowdown line water to groundwater at vacuum breakers (VB) 1, 2, & 3. This FSCR is for an area of investigation bordered by the main generating facility to the west, the Cooling Lake to the south, Comet Drive/Cemetery Road to the east, and Route 53 to the northwest.

Hydrogeology

Groundwater use in the Site area is both in the sand aquifer (20 to 30 feet deep) and in the deeper bedrock formations used regionally for municipal and private water supplies (depths of 600 to 1,700 feet). The shallow groundwater flows beneath the Site in a generally south to north manner, flowing from the Cooling Lake toward the ponds located north of the Braidwood Station property. The depth to water in this upper shallow sand aquifer ranges from 5 to 15 feet across the Site. The deeper bedrock water supply aquifers are separated from the shallow system by a number of regional aquitards. These barriers include the Wedron Till Formation (located just beneath the shallow sands) and various shale formations including the Scales Shale, which is over 70 feet thick at the Site and found at depths of 400 feet.

[1] This report has many references to Illinois environmental statutes and regulations. By referring to them, we do not intend to imply that they actually apply to the Braidwood tritium releases or have any legal force or effect with respect to these releases. We take no position on this issue. We recognize that the Braidwood plant operates under a license issued by the Nuclear Regulatory Commission and is subject to NRC regulation. We also understand that Exelon Generation Company, LLC takes the position that NRC regulations, rather than Illinois statutes and regulations, apply to the tritium releases.

Source of the Tritium

The Site is transversed by the Cooling Lake blowdown line. Within the boundary of the Site, there are three vacuum breaker valves which were installed on the line to prevent damage caused by any vacuum that occurs in the pipe. Braidwood Station uses the blowdown line to return water from the Station Cooling Lake back to the Kankakee River to reduce the dissolved mineral concentration of the water in the lake. The flow in this line historically has ranged from 8,000 to 25,000 gallons per minute. This blowdown line also serves as a permitted discharge point for the Station's sewage treatment plant and the liquid radwaste system under NPDES Permit No. IL0048321.

Under normal operating conditions at Braidwood Station, the principal radionuclide discharged from the plant is tritium. The excess plant water that contains tritium is collected in a liquid radwaste tank and then released periodically to the blowdown line, which discharges to the Kankakee River. The water flowing continuously in the blowdown line contains either:

- only lake water that contains ambient tritium; or
- elevated concentrations of tritium if the radwaste tank is discharging or had just discharged to the line. The source of tritium in the blowdown line is from these intermittent and short duration discharges from the liquid radwaste tank.

For purposes of this report, the specific "Recognized Environment Concerns" at the Site are historic failures of three vacuum breaker valves (VB-1, VB-2, and VB-3), which resulted in the release of tritium to the groundwater beneath the Site. Braidwood Station records, coupled with the existing groundwater data, indicate that the tritium detected in the groundwater in 2005 and 2006 is a direct result of failures at these vacuum breaker valves, which resulted in subsurface and surface releases of blowdown line water at VB-1 (1996, 2000, and 2005), VB-2 (2000), and VB-3 (1998). Pipe integrity testing and groundwater studies along the full length of the blowdown line at the Site do not indicate that the line (pipe) itself is the source of the tritium.

Scope of Work

Exelon's initial studies, in the early spring of 2005 found tritium in surface water and groundwater at the Station. These initial studies included sampling private wells to the west of the Site within the Village of Godley and sampling surface water from the perimeter ditch as it flows from east to southwest around the main generating station.

The discovery of tritium at concentrations that exceeded the ambient (natural for this region) concentrations in the perimeter ditch on the east side of the Braidwood Station property prompted a series of groundwater studies in the summer and fall of 2005. Exelon implemented an aggressive and comprehensive groundwater investigation program in mid-November 2005. This program also included pipe integrity testing over the full length of the blowdown line. As part of the groundwater studies and the overall groundwater characterization program[2] Exelon has installed over 265 groundwater monitoring points, collected over 420 groundwater samples and surface water samples, and sampled over 47 private wells on multiple occasions. At this specific Site, in the area of vacuum breakers VB-1, VB-2, and VB-3, Exelon has installed 160 permanent and temporary wells and collected over 370 groundwater and surface water samples. Currently, Exelon is continuing an on-going program of private well sampling and monitoring well sampling at the Site.

The results of the groundwater and surface water studies are presented in this Focused Site Characterization Report. Based on the results of our investigation, CRA concludes:

- Groundwater flow in the shallow sand aquifer, where the tritium is detected, is from south to north;
- Groundwater flow is influenced by the perimeter ditch and by the ponds located to the north and off the Braidwood Station property;
- The underlying deeper groundwater supply aquifers are separated from the tritium in the shallow sand aquifer by the regional Wedron Formation (clayey till) and multiple shale formations, including the 70 foot thick Scales Shale;
- Groundwater flowing from the area on the Braidwood Station property south of Smiley Road discharges into the large pond located to the north;
- The distribution of tritium (and Cooling Lake water indicators) in groundwater is consistent with historical releases from three vacuum breakers on the Site;
- The Braidwood Station records of valve failures and releases of water from the three subject vacuum breakers correlate well with the current distribution of tritium in groundwater;
- At two small areas on the Site tritium concentrations exceed the 35 IAC 620 groundwater standard (20,000 picocuries per liter (pCi/L)). The first area is approximately 4.5 acres near Smiley Road, at the southeast corner of the pond and just west of the blowdown line as it leaves the Station property. The second area is located north of VB-1 and is less than 2.0 acres.

[2] For this Site and other areas at the Braidwood Station (e.g., along the blowdown line and the other vacuum breakers).

- The data collected to date indicates that tritium at concentrations which exceeds the background concentrations (approximately 200 pCi/L) has migrated into and through the pond north of Smiley Road. The distance from vacuum breakers 2 and 3 to the leading edge of this tritium that exceeds the ambient concentration is approximately 2,400 to 2,800 feet;
- Only one private well had groundwater samples collected that were above the ambient levels, but the concentrations at this well were significantly less than the IEPA groundwater standard;
- In the main areas of groundwater impacted by tritium (i.e., those where concentrations are above the groundwater standard) the tritium is more concentrated with depth. The cause of the vertical differences (over a small saturated interval of 20 feet) is believed to be caused by clean water recharge by precipitation. The depth to groundwater is at times less than 5 feet below the ground surface in the areas of tritium impacts and, as such, the upper water table will be flushed with clean precipitation recharge;
- Deeper private water supply wells downgradient of the main tritium impacts were sampled and found to have ambient concentrations of tritium. This supports the role of the regional aquitards (e.g., Wedron clayey till and the Scales Shale) as vertical barriers to deeper migration of tritium. In addition, the lack of any steep downward vertical hydraulic gradients in the shallow sand aquifer would minimize the vertical movement of tritium into the clay;
- Routine monitoring of select groundwater and surface water sample points since November 2005 has indicated stable or decreasing trends in tritium levels in the groundwater;
- The distribution of tritium in groundwater on the upgradient side (to the south) of the pond located north of Smiley Road and the distribution of tritium in groundwater downgradient, or north of the pond, indicates that the pond is acting to reduce the elevated concentrations of tritium discharging into it along Smiley Road. This mixing and dilution is supported by tritium dating analyses performed by Dr. Robert Poreda of the University of Rochester. His analyses of Site data demonstrated that the pond is mixing on a seasonal basis and therefore is diluting the tritium that discharges from the south. In other words, the pond has played a significant role in preventing higher concentrations of tritium from migrating toward the north; and
- The groundwater flow and tritium migration varies across the Site and is expected to occur at a rate of 80 to 180 feet per year within the upper sand aquifer.

Exelon is already moving forward with the next phases of work:

- Fill data gaps;
- Implement a groundwater monitoring program; and
- Begin remediation.

The remainder of this Section provides the reader with some of the details of Exelon's on-going efforts.

Remedial Action Plan

Exelon has begun to develop interim and long-term remedial actions for the groundwater with tritium in excess of the groundwater standard. An Interim Remedial Action Plan (RAP) has been prepared to support short term actions that will prevent further migration of the tritium and will recover tritium from the main areas impacted. This RAP has been submitted to the IEPA, the Office of the Attorney General, and the Will County State's Attorney.

Community Relations Plan

Finally, as part of the ongoing private well sampling program, and in consultation with the IEPA, Exelon has developed a Community Relations Plan specific to the groundwater tritium issues at this Site. The Community Relations Plan was submitted to the IEPA on March 1, 2006. Exelon will implement this plan as well as continue its on-going coordination with the IEPA, the Nuclear Regulatory Commission (NRC), the Illinois Emergency Management Agency (IEMA), and the Illinois Department of Public Health (IDPH).

1.0 INTRODUCTION

Conestoga-Rovers & Associates (CRA) has prepared this Focused Site Characterization Report (FSCR) for Exelon Generation Company, LLC (Exelon) to document findings with regard to the release of tritium into the groundwater at or in the vicinity of the Exelon Braidwood Nuclear Power Station (Braidwood Station) in Braceville, Illinois (refer to Figure 1.1). Tritium has been detected in the shallow sand aquifer at levels above the Illinois Environmental Protection Agency (IEPA) Groundwater Quality Standards (35 IAC 620 Section 410) in areas east of the main generating facility.

These releases originated at three vacuum breaker (VB) valve locations (VB-1, VB-2, and VB-3) located along the Cooling Lake's blowdown line. Since the spring of 2005, Exelon has undertaken extensive efforts to define and characterize these releases, including extensive sampling of groundwater, surface water, and public wells. As a result of these efforts, Exelon has defined the lateral and vertical extent of the tritium plume and is able to identify those areas both on site and off site where tritium levels exceed either the IEPA groundwater standard of 20,000 picocuries per liter (pCi/L) or the ambient concentration of 200 pCi/L.

Exelon has notified the IEPA, the Nuclear Regulatory Commission (NRC), the Illinois Emergency Management Agency (IEMA), and the Illinois Department of Public Health (IDPH) of the results and since the spring of 2005 has continuously communicated to them information on groundwater conditions. On December 16, 2005, the IEPA Bureau of Water issued a Violation Notice (VN) to Exelon due to the presence of tritium in groundwater. Exelon responded to this notice in a letter to the IEPA, dated February 2, 2006.

A second VN was issued February 27, 2006, and on March 2, 2006 Exelon met with the Attorney General's office, the Will County State's Attorney, the IEPA, and the IEMA to discuss the resolution of this matter. Those discussions are continuing.

The purpose of this report is to summarize for the IEPA and other interested agencies the sources, migration pathways, and extent of tritium in groundwater at the Braidwood Station Site. The only chemical of concern in this focused investigation is tritium. However, Exelon has sampled and analyzed groundwater for all radionuclides potentially present and for inorganic parameters potentially associated with blowdown water, and tritium is the only constituent measured above its groundwater standard. This report is considered the first step toward pursuing cleanup of tritium in the groundwater.

This FSCR also presents the three dimensional nature of the tritium in groundwater which has migrated in the shallow sand aquifer and, as such, will form the basis of developing a Groundwater Management Zone (GMZ) pursuant to 35 IAC 620 Section 250.

2.0 SITE DESCRIPTION

2.1 SITE LOCATION AND DEFINITION OF BOUNDARIES

The Site, for the purposes of this FSCR, is defined as the areas of tritium-impacted groundwater resulting from past releases of blowdown line water to groundwater at vacuum breakers 1, 2, & 3. The Site therefore includes areas where tritium exceeds the groundwater standard and where it is detected above the ambient concentration (but below the groundwater standard). Refer to Figure 2.1 for the general Site boundaries. As seen on Figure 2.1, the Site is located within the Exelon Generation – Braidwood Station property and on adjoining properties to the north. The Site is located near or adjacent to the municipal borders of the Villages of Braidwood, Braceville, and Godley on the southwestern tip of Will County in Illinois (Figure 1.1).

The area of investigation for this Site is bounded to the south by the Cooling Lake, to the northwest by Illinois State Highway 53, to the west by the access road to Braidwood Station, and to the east by Comet Drive/Cemetery Road.

As shown on Figure 2.1, vacuum breaker VB-1 is about 300 feet east of the Station access road and 50 feet south of the switchyard. VB-2 is approximately 3,000 feet to the east of VB-1 along the blowdown line, and VB-3 is approximately 600 feet to the northeast of VB-2 along the blowdown line (Figure 2.1).

2.2 OVERVIEW OF BRAIDWOOD STATION OPERATIONS

Braidwood Generating Station is a two-unit nuclear generating facility capable of generating 1,120 net megawatts per unit. Units 1 and 2 are pressurized water reactors (PWRs) designed by Westinghouse and began commercial operation in July and October 1988, respectively. A PWR plant consists of three separate loops of fluids. Each loop is designed to avoid mixing the fluids of one loop with the fluids of another. The loops are called the primary loop, the secondary loop, and the tertiary loop.

The main purpose of the primary loop is to transfer the energy generated from fission in the fuel to the secondary loop steam generators. It is a closed loop system. Nuclear fission creates heat in the fuel. This heat is removed by the flow of reactor coolant water through the reactor vessel and into the steam generators. The heat is transferred to the secondary side where steam is generated. The water is then pumped back to the reactor vessel to cool the fuel again.

The main purpose of the secondary loop is to use the steam generated in the steam generators to turn the turbine generator, which makes electricity. It is also a closed system.

The main purpose of the tertiary loop is to use cooler lake water to condense the steam in the condenser and transfer the heat to the atmosphere. This loop needs makeup water to operate properly. Makeup water comes from the Kankakee River.

As the steam is condensed in the condenser, the circulating water becomes hotter. The circulating water is discharged to the Cooling Lake where it loses some of its heat through evaporation. The now cooler water is then pumped backed to the condenser to start the loop over again.

2.3 SURROUNDING LAND USE

Land surrounding the Site falls mainly into the agricultural, residential, and recreational use categories. Residential lots surround the Site to the north and to the east along Smiley Road and Center Street. Further to the north, there are several ponds or small lakes. The center of the Village of Braidwood is approximately 8,000 feet from the Site measured from Smiley Road. To the northwest of the Site, there are two main highways (Illinois State Highway 53 and Illinois Route 129) running parallel to each other with a railroad (Southern Pacific Railroad) between them. Within the southern portion of the Site is the Cooling Lake that is used as a recreational area in the summer for boating and fishing by the Illinois Department of Natural Resources (IDNR).

2.4 OVERVIEW OF GROUNDWATER USE IN THE SITE AREA

The groundwater beneath Braidwood Station is not used as a potable resource for its operations. The Braidwood Station obtains all of its water requirements from the Kankakee River. There are a number of domestic wells near the Site (see Figure 2.2 for private well locations) that obtain their water from the underlying shallow sand aquifer, which comprises Quaternary age eolian and lacustrine sands to a depth of approximately 30 feet below ground surface. These sands overlie glacial drift (till) deposits that overlie bedrock. The glacial till ranges from clay to gravel but is predominantly clayey till. The groundwater within this shallow sand aquifer is under water table conditions with the depth to water ranging from 5 to 15 feet below the land surface. The shallow aquifer is recharged by precipitation and the groundwater within the shallow aquifer discharges to nearby surface streams and strip mines. The well

yields from the shallow aquifer, which range from 2 to 5 gallons per minute (gpm), are only suitable for domestic or farming purposes.

The Quaternary age deposits (shallow sand aquifer) are underlain by Pennsylvanian bedrock composed of siltstone, shale, sandstone, clay, limestone, and coal. The Pennsylvanian strata may locally yield up to 20 gpm from the interbedded sandstones. The Cambrian-Ordovician aquifer is composed of a number of strata as outlined in Section 5.0. Water supply wells completed in this aquifer are at depths of over 600 feet. The next major aquifer is the Mt. Simon, which is found at depths of over 1,400 feet. Most of the groundwater supply wells within the surrounding area of the Braidwood Station are finished within these deeper aquifers (depths of 100 feet, and of 600 to 1,600 feet). There are a smaller number of water supply wells that are completed in the shallow sand aquifer. Further discussion on the Site geology, groundwater use, and groundwater supply wells is presented in Section 5.0. The Village of Braidwood, which is approximately 1½ miles north of the Site, provides municipal water via at least one deep bedrock water supply well that has a depth of over 1,600 feet.

3.0 BACKGROUND INFORMATION ON THE RELEASES OF TRITIUM

This section of the report provides information documenting the source of the tritium in the blowdown line, the operation of the blowdown line and the vacuum breaker valves, and the failures of these valves as they relate to groundwater impacts. The studies clearly show that the three vacuum breakers located just east of the main generation facility (VB-1, VB-2, and VB-3) are the source of the tritium. As such, these three vacuum breakers are considered to be the "Recognized Environmental Conditions", or "RECs", for the purpose of this Focused Site Characterization Report. The historical releases from each of these vacuum breakers are documented and discussed further in Sections 3.2 and 6.4. In addition, integrity testing of the blowdown line and groundwater studies near the blowdown line (refer to Section 6.4.1) have demonstrated that the pipe itself is not a REC and that the historical releases of water at the vacuum breakers fully explain the current distribution of tritium in the groundwater. The following discussions provide operational and historical information on the blowdown line and the vacuum breaker valves.

3.1 BLOWDOWN LINE OPERATION AND RADWASTE TANK DISCHARGES

Braidwood Station employs a blowdown line to return water from the Cooling Lake back to the Kankakee River for the purposes of reducing the dissolved mineral concentration of the lake water (refer to Figure 1.1). This blowdown line also serves as a permitted discharge point for the Station's sewage treatment plant and the liquid radwaste system. Further details on the operation and normal discharges through the blowdown line are provided in the following sections.

3.1.1 BLOWDOWN LINE DESCRIPTION AND PURPOSE

The blowdown line is constructed of a steel shell that is lined with concrete. The outside is covered with prestressed steel wire and concrete. The bell and spigot joints have a rubber gasket that seals the steel shells, and these joints are grouted inside and outside. The pipe is designed to withstand an internal pressure of 110 pounds per square inch (psig) but the system normally operates below 20 psig. In addition to the vacuum breaker valve, there is an air-release valve that allows small amounts of air to be released from the line so that the larger vacuum breaker does not cycle to relieve this air (Figure 3.1).

Braidwood Station uses a Cooling Lake to provide a heat sink for its main condensers. Since the lake is warm and has a large surface area, it loses much of its water to evaporation. Evaporation of the water concentrates dissolved and suspended minerals in the lake. High concentrations of dissolved minerals, especially calcium carbonate, can result in calcium deposits on the Plant's heat exchangers, reducing their performance. To reduce the concentration of dissolved minerals in the lake, Exelon discharges roughly 25,000 gpm of water to the Kankakee River through the blowdown line. Historically, flow rates were as low as 8,000 to 25,000 gpm. Exelon increased blowdown flow over the years to improve Cooling Lake chemistry. Approximately 48,000 gpm of water is pumped from the river to the lake, through the 'makeup line' to compensate for losses due to evaporation and blowdown. The makeup line was installed parallel to the blowdown line.

Figure 1.1 presents a plan view of the blowdown line as it traverses from west to east across the Site, just north of the Cooling Lake. Figure 2.1 shows the location of the blowdown line and the makeup line in the Site area. Figure 3.1 presents a portion of the profile of the construction of the blowdown line (and makeup water line) and their placement in the subsurface.

3.1.2 DESCRIPTION OF THE VACUUM BREAKER VALVES

The blowdown line is partly constructed of concrete, and it is not capable of withstanding any vacuum. Therefore, the pipe is fitted with 11 float-operated vacuum breaker valves. The makeup and blowdown lines are both fitted with vacuum breaker valves that allow air to escape as the lines are filled and allow air to enter the pipe when pressure and water levels in the pipe are low. The valves are 6-, 8-, or 10-inch nominal size and employ a stainless steel float to open and close the openings. Figure 3.1 presents a schematic of a typical vacuum breaker valve.

3.1.3 PERMITTED DISCHARGES FROM RADWASTE TANKS

Excess plant water that contains tritium is periodically released via the blowdown line to the Kankakee River. This discharge meets federal requirements. IEPA NPDES Permit No. IL0048321 allows for liquid radwaste discharges to the blowdown line. In addition, as required in the NRC's regulations (10 CFR 20, 10 CFR 50, and 40 CFR 190), the Braidwood Station has developed an Offsite Dose Calculation Model (ODCM), which it uses to monitor and limit the radioactive effluents from the plant.

3.1.4 DESCRIPTION OF THE SOURCE OF TRITIUM

Under normal operating conditions at Braidwood Station, the principal radionuclide discharged from the plant is tritium. Tritium is formed when a neutron is captured by the boron and/or lithium in the coolant. Excess plant water that contains tritium is periodically released to the Kankakee River.

3.2 HISTORY OF VACUUM BREAKER RELEASES

This section presents a description of the permitted liquid radwaste discharges to the blowdown line. This description is followed by a summary of the documented significant releases at each of the subject vacuum breakers (VB-1, VB-2, and VB-3). The scope of this report is limited to the tritium releases to the groundwater from vacuum breakers 1, 2, and 3.

The Liquid Radwaste Discharge Process

Typically the station releases tritiated water every 3 days from the 25,000 gallon liquid radwaste tank. However, during outages there can be a release from the tank daily. Prior to August of 2003, the typical flow rates in the blowdown line were 10,000 to 12,000 gpm. However, after 2003, the average flow rates were 20,000 to 25,000 gpm. The tritium concentration of water flowing within the blowdown line changes depending on whether there is a radwaste release tank being discharged at the time of the measurement. When no tritiated water is being discharged from the storage tank, the tritium concentration is that of the Cooling Lake, which is essentially ambient or background.

During a release, the concentration of tritium in the line will be significantly higher. The average tritium concentration during releases exceeds 1,000,000 pCi/L.[1] However, this is an average of water flowing in the blowdown line for only the period that the radwaste tank is actually discharging to the blowdown line, which typically ranges between 60 and 300 minutes. If a composite water sample were drawn by extracting a small continuous sample from the line (during a longer period when multiple radwaste tank releases occurred followed by periods of blowdown from the Cooling Lake), then

[1] This average concentration is based upon a calculation performed by Exelon using records of releases from Braidwood Station, specifically, the blowdown line tritium concentration was derived using actual isotope and other release data collected from each release tank and the measured (or estimated) blowdown line flow rate. These records are available at the Braidwood Station.

the composite concentration would be much less than 1,000,000 pCi/L and on the order of 40,000 to 100,000 pCi/L depending on the blowdown line flow.[2]

Since the tritium concentration of the blowdown line varies, it is important to recognize that a continuous leak would have an average concentration equal to the composite concentration of the blowdown line during the time the leak was active. Conversely, a large leak from a vacuum breaker could happen during a release from the radwaste tank and not become well mixed before entering the ground. This could account for concentrations of tritium that exceeded the composite values. The remainder of this section provides a discussion on the history of leaks from VB-1, VB-2, and VB-3.

Vacuum Breaker 1:

On December 1, 1996, Exelon discovered a leak at VB-1. The leak was in the 1-inch pipe to the air release valve. The valve had last been inspected in June of 1995 at which time no leaks had been noticed. The line eventually broke and was repaired in June of 1997. The volume of water that leaked was not recorded. However, Exelon estimated that the total leakage from VB-1 was between 120,000 to 380,000 gallons. Since the leak occurred over many weeks, this leak would have included liquid radwaste release water (containing tritium) in addition to the water from the Cooling Lake.

On November 20, 2000, Exelon discovered a leak when personnel noticed that water was flowing upward from the vacuum breaker pit through the manway cover and flooding the surrounding area. The responsible valve was repaired the next day. Exelon estimates that this leak was less than 4 million gallons. Sampling data indicate that this leak contained no tritium, suggesting that the leak likely occurred between releases from the radwaste tank.

On May 19, 2005, a leak at a rate of approximately 20 drops per minute was discovered at the pilot (air release) valve seat. The valve had been previously inspected in November 2004. The total leakage was to be estimated between 60 and 140 gallons. The repair was completed in October 2005. Again, the concentration of the tritium in the droplets is estimated to be a composite of flow in the line during 2005. Composite water (water in the pit) from the pilot valve leak identified in May 2005 was sampled and analyzed. The water sample contained 51,295 pCi/L of tritium. This was not, however, a sample of the groundwater, because the water was collected off of components within

[2] This is based upon calculations made by Exelon using records from the Braidwood Station. Composite values were determined using the existing records and applying the rates to the duration of each leak. Again, these records are available at the Braidwood Station.

the valve pit and probably represented a composite of tritium levels within the blowdown line.

Vacuum Breaker 2:

In November 2000, a resident reported flooding of the ditch adjacent to Braidwood Station to the IEPA, which informed Braidwood Station. Exelon detected a leak from VB-2 as a result of vacuum breaker valve float failure that was repaired in December 2000. The Station pumped all standing water back into the blowdown line. This leak was caused by a water hammer, which broke the float in the valve, exposing an 8-inch opening. Exelon's analysis of their records 30 days prior to isolating this leak reveals:

- The average tritium concentration during releases was 1,305,000 pCi/L.
- The maximum tritium concentration in the pipeline during this period was 3,103,000 pCi/L. [3]
- If a composite sample were drawn by extracting a small continuous sample from the line for the same 30-day period, the composite concentration would be roughly 91,400 pCi/L.

Vacuum Breaker 3:

In December 1998, there was a leak from VB-3 that was caused by a failed vacuum breaker float. This valve was found leaking due to flooding of the Smiley Road ditch on December 3, 1998. The valve was repaired on December 4, 1998. This valve was last inspected in December 1997, and no leakage was noted. The volume of the leak was not recorded, but was later estimated to be 3 million gallons over a 30-day period.

Exelon's records indicate that the historic releases and their estimated concentrations were:

- In 1998, the average blowdown line flow rate was 10,000 to 12,000 gallons per minute.
- In the 30 days prior to discovering the leak at VB-3, there were 24 releases from the radwaste tanks to the blowdown line.
- For the 30-day period prior to discovering the leak at VB-3, the average tritium concentration in the blow pipe was 624,000 pCi/L.[3]

[3] It is important to note that by the time these releases discharge into the Kankakee River that the tritium levels are significantly below the Federal limits as noted in the ODCM.

- The highest tritium concentration in the pipeline during this period was 1,852,000 pCi/L.[3]
- If a composite sample were drawn by extracting a small continuous sample from the line for the same 30-day period, the composite concentration would be 112,000 pCi/L.[3]

3.3 PREVIOUS GROUNDWATER STUDIES

There are numerous studies of the local geology and groundwater. These studies provide a comprehensive understanding of the hydrogeologic conditions on the east side of the Braidwood Station. The remainder of this section presents a brief description of these previous studies. Additional findings are discussed in Section 5.0.

3.3.1 POWER PLANT DOCUMENTS - UFSAR REPORT

During the construction of the Braidwood Station, a series of comprehensive investigations of regional and local geology and of surface water and groundwater conditions were conducted. These studies were performed for a number of purposes including geotechnical evaluations of the underlying geologic deposits, engineering designs for the slurry wall around the Cooling Lake, present and future sources of groundwater, present and future groundwater use, and other engineering and environmental purposes.

These studies are documented in the Updated Final Safety Analysis Report (UFSAR), which was prepared by Sargent and Lundy (December 1988). Much of the current understanding of the geology and the groundwater conditions is based upon the information in the UFSAR.

3.3.2 2000 DIESEL FUEL RESPONSE

On August 4, 2000, Exelon entered into the Illinois SRP in response to releases of diesel fuel from the west side of the main generating facility at the Braidwood Station on June 24, 2000. Beginning in 2001, Exelon initiated studies to address the conditions of soils, surface water, and groundwater on the northwest corner of the station. These studies determined the nature of flow in the shallow sand aquifer and its hydraulic relationship with the perimeter ditch that flows around the station from east to west.

Exelon submitted a number of documents to the IEPA under the SRP for this diesel fuel release. On January 27, 2005, the IEPA issued a No Further Remediation (NFR) letter to Exelon for the diesel fuel release.

3.3.3 2005 INVESTIGATIONS OF TRITIUM IN GROUNDWATER AND SURFACE WATER

In early spring of 2005, Exelon initiated investigations into the potential occurrence of tritium in water within the perimeter ditch (the drainage ditch that flows around the station). Initially, the studies were focused on the area west of the generating station (near the Village of Godley). Later, however, surface water samples collected upstream in the perimeter ditch and to the east of the Braidwood Station also found tritium above ambient concentrations. When elevated tritium was detected in the surface water at locations to the east, Exelon initiated a groundwater investigation based upon its experiences during the groundwater studies for the diesel fuel spill in 2000[4].

In the spring of 2005, Exelon initiated a groundwater monitoring program to determine the source and extent of tritium in the perimeter ditch and in the shallow groundwater on the east side of the Station. In the fall of 2005, groundwater samples collected at the northern property line (near Smiley Road) contained elevated levels of tritium that exceeded background levels (200 pCi/L), but were well below the Illinois groundwater standard of 20,000 pCi/L. After obtaining these results, Exelon took additional steps to investigate the source of the tritium and its extent in the groundwater. It installed monitoring wells at its northern property boundary and other wells downgradient of the most likely sources of the tritium (vacuum breakers).

In November 2005, Exelon undertook other studies to determine:

- the sources of the tritium in the groundwater;
- the lateral and vertical extent of the tritium in groundwater on and off the property; and
- when the releases had occurred and whether releases were still continuing.

[4] In October 2000, in response to a release of water from VB-2, Exelon installed four shallow monitoring wells (MW-101 to MW-104) in order to determine the direction and rate of groundwater flow near of VB-2.

These studies continued through February 2006 and form the basis of this FSCR and of the current understanding of the nature and extent of tritium in the groundwater at the Site.

At the time of this report approximately 300 groundwater samples and surface water samples were collected from permanent monitoring wells, temporary wells, ponds, ditches, and private residence wells. In the area downgradient from VB-1, VB-2, and VB-3, Exelon has sampled 15 private residence wells. Many of the domestic wells are being sampled routinely.

3.4 CURRENT REGULATORY STATUS

Braidwood Station is subject to a number of regulatory permits and notices. The remainder of this section discusses the primary permits.

3.4.1 NPDES AND NRC PERMITS FOR THE BLOWDOWN LINE

The blowdown line and the Cooling Lake water makeup line transverse the Site area in the south. The blowdown line is subject to regulation under the IEPA NPDES Permit (IL0048321) and the Braidwood Station ODCM. The NPDES permit provides limits on parameters such as pH, Total Suspended Solids, BOD5, Oil and Grease, Total Residual Chlorine, Total Residual Oxidant, and temperature. The permit also requires monitoring of parameters such as blowdown discharge flow. The ODCM is the document required in the NRC's regulations (10 CFR 20, 10 CFR 50, and 40 CFR 190) to monitor and limit the radioactive effluents from the plant. The ODCM places limits on concentrations of radioactive effluents released and requires monitoring of the concentrations of these effluents.

3.4.2 DECEMBER 2005 VIOLATION NOTICE

In a letter dated December 16, 2005, Exelon received a Violation Notice from the IEPA Bureau of Water. This letter was a response to the tritium that exceeded the 35 IAC 620 groundwater standard (20,000 pCi/L).

Exelon responded to the December 16th Violation Notice in a letter, dated February 2, 2006. In their February 2nd letter, Exelon committed to entering the IEPA SRP and to

preparing this Focused Site Characterization Report. The February 2nd letter also contains a schedule to develop deliverables and plans required under the SRP with the goal of remediating the Site and obtaining an NFR letter. The IEPA's December 16, 2005 Violation Notice letter and Exelon's February 2, 2006 response letter are in Appendix A.

On February 17, 2006, Exelon met with the IEPA to discuss the VN and Exelon's plans to remediate the tritium. On March 2, 2006, Exelon met with the IEPA, the IEMA, the Office of the Attorney General, and the Will County State's Attorney to discuss this matter. As part of this process, Exelon has prepared the FSCR for submittal to the IEPA, the Office of the Attorney General, and the Will County State's Attorney.

3.4.3 REGULATORY AGENCY COORDINATION

Since the Spring of 2005, when the surface water in the perimeter ditch was found to contain tritium, Exelon has regularly communicated with these agencies:

- IEMA;
- IDPH;
- NRC;
- IEPA Bureau of Water; and
- Office of the Illinois Attorney General.

In addition, Exelon has been providing these agencies regular updates of investigative plans, the status of sampling programs, and preliminary analytical data. Both the preliminary and final analytical results of all groundwater analyses have been provided to the IEMA and to the NRC as soon as they are available. In addition, since November 2005, Exelon has attended the following meetings :

- December 20, 2005 with the IEPA, IEMA, NRC, and IDPH in Springfield to discuss the current understanding of the source of the tritium, the known extent of the tritium, and the future sampling program;
- January 23, 2006 with the IEPA, IEMA, NRC, and IDPH in Springfield to discuss recent findings and the proposed response and actions to be taken with respect to the Notice of Violation;
- February 17, 2006 meeting with the IEPA to discuss the compliance commitment agreement; and
- March 2, 2006 meeting at the Attorney General's office.

Exelon has also had a number of meetings with local property owners and area residents. Exelon has developed a Community Relations Plan, and this has been provided to the IEPA under separate cover (March 1, 2006). As part of this plan, Exelon held an open house information forum on February 28, 2006 at the Exelon Training Center along Essex Road. This forum was open to all interested members of the public.

4.0 SITE-SPECIFIC SAMPLING PLAN - GROUNDWATER INVESTIGATION OF TRITIUM

4.1 PURPOSE AND SEQUENCE OF INVESTIGATIONS

The investigations of tritium in groundwater at the Braidwood Station began in early Spring of 2005.[5] The initial investigation included drilling and sampling permanent wells around each of the three subject vacuum breakers (VB-1, VB-2, and VB-3) to determine groundwater flow directions and the concentration of tritium in the groundwater. Based upon the results from the monitoring wells installed in July 2005 (MW-105 to MW-109), additional monitoring wells were installed in September 2005 downgradient (to the north) of the vacuum breakers and at the Braidwood Station property line (MW-110 to MW-113) to determine if tritium above the ambient concentration was migrating off Site.

The analytical results from monitoring wells at the property line, specifically the tritium concentrations in MW-113 (the initial sample collected October 19, 2005 had a tritium result of 4,480 pCi/L), lead to the development of an aggressive investigation program and an Exelon Task Force to address the presence of tritium on and off the Braidwood Station property. This program consisted of the installation and sampling of temporary wells that were installed at shallow and deeper depths within the upper sand aquifer between November 2005 and February 2006. The goals of the aggressive investigative program were to determine :

- the source of the tritium;
- the lateral and vertical extent of the tritium in groundwater on and off site; and
- when the releases had occurred and whether releases were still continuing.

This section of the report provides an overview of the field studies completed from 2005 to the time this report. This section includes the number, location, type, and methods of sample collection.

Figure 4.1 presents the location of all groundwater monitoring points (temporary wells and permanent wells). Figure 4.2 presents the locations of surface water bodies sampled and monitored, including the perimeter ditch and off-property ponds. Figure 2.2 presents the locations and identifiers of private wells sampled as part of the investigations in the area north of Smiley Road.

[5] Groundwater flow was determined in an area near VB-2 during an investigation of the leak from this vacuum breaker in November 2000.

4.2 FIELD STUDIES COMPLETED TO DATE

CRA retained Terra-Trace Environmental Services (Terra-Trace) of Lake Bluff, Illinois to install the temporary wells, Altech Services, LLC (Altech) of Livonia, Michigan to install the permanent wells, and Boart Longyear Company (Boart) of Schofield, Wisconsin to install the recovery wells. Drilling investigations began in July 2005 and were completed in February 2006. A total of 156 wells consisting of 143 temporary wells, 9 permanent wells, and four recovery wells, were installed at the Site during this time period (four permanent wells had been installed previously in 2000). Figure 4.1 presents groundwater monitoring locations. Figure 4.2 presents surface water monitoring locations. Table 4.1 presents monitoring wells specifications.

Three staff gauges (SG-A, SG-B, and SG-C) were installed in three ponds located north of Smiley Road. Surface water samples were collected from these ponds and the perimeter ditch.

Single well aquifer testing was conducted at four permanent wells on October 20, 2005 and at two temporary wells on February 2, 2006.

The sections below outline a brief discussion of the field activities performed and work completed to date. Appendix B provides a complete discussion of the methods used to perform the field activities.

4.2.1 PERMANENT MONITORING WELL INSTALLATION

CRA oversaw the installation of four permanent monitoring wells (MW-101 through MW-104) at the Site in November 2000 to determine the direction of groundwater flow.

Five permanent monitoring wells (MW-105 through MW-109) were installed on July 26 and 27, 2005 for groundwater flow and tritium analyses. Four permanent monitoring wells (MW-110 through MW-113) were later installed on September 18, 2005 as part of the tritium investigation. All wells except for MW-110 were advanced to 16 feet below ground surface (bgs). MW-110 was advanced to 20 feet bgs. The monitoring wells were installed so that the well screen straddled the water table at depths of 15 to 20 feet bgs. Subsequent sampling of deeper wells indicated a need to install permanent and temporary monitoring wells deeper and to the bottom of the sand zone (25 to 30 feet

bgs). Monitoring wells MW-105D, MW-106D, MW-111D, MW-112D, and MW-113D were installed during December 2005 and January 2006 to depths of 24 to 27 feet bgs.

Well completion forms and stratigraphic logs are in Appendix C.

4.2.2 PERMANENT MONITORING WELL DEVELOPMENT

In order to establish good hydraulic communication with the aquifer and reduce the volume of sediment in the wells, the permanent wells were developed.

4.2.3 TEMPORARY MONITORING WELL INSTALLATION

Beginning in November 2005 and extending through February 2006, 216 shallow and deep temporary wells were installed using direct push (Geoprobe) methods. The use of the Geoprobe drilling technique and the installation of temporary 1-inch diameter monitoring wells allowed easy and fast collection of groundwater levels and groundwater samples for tritium analyses. Shallow wells range in depth from 11 to 21 feet bgs. Deep wells range in depth from 21 to 41 feet bgs. Deep wells were installed to the top of the underlying clay layer, the location of which was determined at each location in one of two ways. The top of the clay layer was identified by using a Geoprobe macrocore and visually looking at the soil sample retrieved in the macrocore or by a noticeable change in resistance encountered by the Geoprobe as noted by the Geoprobe operator.

Well completion forms and stratigraphic logs are in Appendix C.

4.2.4 TEMPORARY MONITORING WELL DEVELOPMENT

In order to establish good hydraulic communication with the aquifer and reduce the volume of sediment in the wells, the temporary wells were developed.

4.2.5 INSTALLATION OF RECOVERY WELLS

In anticipation of possible hydraulic control or tritium recovery actions, four recovery wells (RW-1 through RW-4) were installed on December 1 and 2, 2005 as a contingency. The recovery wells were advanced to reach the top of the underlying clay layer, between 24 to 28 feet bgs.

Well completion forms and stratigraphic logs are in Appendix C.

4.2.6 RECOVERY WELL DEVELOPMENT

In order to establish good hydraulic communication with the aquifer and reduce the volume of sediment in the wells, the recovery wells were developed.

4.2.7 GROUNDWATER AND SURFACE WATER LEVEL MEASUREMENTS

The depth to water in each well was measured to the nearest 0.01 foot using an electronic water level meter. Measurements were recorded after each well installation and at each sampling event. Surface water level measurements were recorded by reading the staff gauges (SG-A, SG-B, and SG-C). Currently, water levels at the staff gauges are read on a routine basis.

The water level data are presented in Table 4.2.

4.2.8 GROUNDWATER SAMPLING AND ANALYSES

A total of 13 permanent, 143 temporary, and four recovery wells were sampled during this investigation. All 160 permanent, temporary, and recovery wells were sampled and analyzed for tritium in the Site area. In addition, two samples (RW-1 and RW-2) were analyzed for total metals and general chemistry. Twenty-four samples (BL-01 through BL-08, BL-10 through BL-16, BL-10D through BL-17D) were analyzed for sodium and chloride. The sodium and chloride were analyzed at these sampling points located along the blowdown line based on general chemistry sample analyses for the blowdown line. Two samples of water in the blowdown line itself and two background wells were sampled and analyzed for a full suite of general chemistry parameters. These samples were collected to look for indication of leaks within the blowdown line. Refer to Section 6.2 for further discussion. In addition, samples were also analyzed for other radioisotopes present in the liquid radwaste discharges (refer to Section 4.2.8.1).

Groundwater samples collected for tritium analyses were delivered to an Exelon representative, who submitted them to Environmental, Inc. of Northbrook, Illinois, to the IEMA, and to the NRC for analyses. Groundwater samples collected for total metals, general chemistry, sodium and chloride analyses were hand delivered to First

Environmental Laboratories, Inc. (First Environmental) of Naperville, Illinois. Results of tritium analyses and of other radioisotopes analyses are in Appendix D. This appendix includes copies of laboratory reports from Environmental, Inc., and these are presented on a CD.

To better evaluate the potential for past leaks or on-going leaks from the vacuum breakers and from the blowdown line, the general chemistry of the water flowing in the blowdown line was analyzed. Samples from the blowdown line and from representative groundwater monitoring locations were analyzed for a set of typical groundwater quality parameters (e.g., anions, cations, metals, etc.) by First Environmental. These samples were used to develop a list of indicator parameters (excluding tritium) for water flowing in the line. These analytical results are discussed in Section 6.2.

The quality assurance procedures and protocols used by Environmental, Inc. for the tritium analyses and for the other radioisotopes are in Appendix E. Environmental, Inc. is the only independent laboratory certified by the State of Illinois to conduct radiological testing of groundwater.

Monitoring wells were purged prior to sample collection (see Table 4.3 for purging parameters). Groundwater samples were collected in accordance with the CRA Slow Purging/Minimal Disturbance Protocols specified in Appendix B. The CRA procedures were further expanded to address the requirements of Exelon, Environmental, Inc., and Site conditions. The CRA procedures were supplemented with Exelon's protocols as specified in Appendix B.

4.2.8.1 OTHER RADIOISOTOPE ANALYSIS OF GROUNDWATER

In addition to the sampling and analysis of the groundwater for tritium, the primary radioisotope discharged to the blowdown line from the liquid radwaste tank, Exelon also analyzed for other radioisotopes. The initial set of groundwater samples collected from the monitoring points were also analyzed for a specific set of radioisotopes that were present in the liquid radwaste tank, but at much lower concentrations than tritium. This included sample analysis by Environmental, Inc. for parameters such as Cobalt-58, Cesium-134, and others. Appendix D provides the results from these specific radioisotope analyses. In the Site area, over 150 groundwater samples were submitted to Environmental, Inc. for these specific radioisotope analyses.

4.2.9 SURFACE WATER SAMPLING

Surface water samples were collected at several locations beginning in November 2005. On November 30, 2005, two surface samples were collected from the pond located at Center Street and Smiley Road (surface water locations SW-1 and SW-2). On December 2, 2005, two surface samples were collected from Fatlan Pond, located west of Center Street (locations SW-3 and SW-4). Surface water location SW-2 was sampled again on January 11, 18, and 25, 2006, and February 1, 2006. One surface water sample was collected from Zimmer Pond, located west of Comet Drive (location SW-5), on January 30, 2006. Surface sample PW-6P was collected from Scamen Pond on February 9, 2006. A surface sample was taken from Fatlan Pond on February 9, 2006. Currently, surface location SW-2 is being sampled on a weekly basis. Figure 4.2 provides surface water sampling locations.

4.2.10 PRIVATE WATER WELL SAMPLING PROGRAMS

Exelon initiated sampling of nearby private wells in November 2005. Since the initial samples collected on November 30, 2005, a routine program has been developed and implemented by CRA. This routine private well sampling program applies to 15 locations (residences) found north of Smiley Road and downgradient of the impacted groundwater areas (see Figure 2.2).

4.2.11 SINGLE WELL AQUIFER TESTING

Single well hydraulic response tests were performed on site on October 20, 2005 on four permanent wells (MW-105, MW-107, MW-109, and MW-112). Single well hydraulic response tests were performed off site on February 2, 2006 on two temporary wells (P-2 and G-2). The response tests were performed in order to determine the hydraulic conductivity of the aquifer in these areas. The tests were performed using rising head methods, wherein the water level in a monitoring well is depressed and water level recovery is monitored over time. A pressure transducer and data logger monitored water levels. Data obtained from the single well response tests was evaluated using the methods developed by Bouwer & Rice (1976).

The geometric mean for the test results from October 20, 2005 indicate a site-specific hydraulic conductivity of 2.5×10^{-2} cm/sec. The geometric mean for the test results from February 2, 2006 indicate a site-specific hydraulic conductivity of 3.7×10^{-2} cm/sec. Hydraulic conductivity analyses are in Appendix F.

4.3 AREA WIDE WATER WELL INVENTORY

CRA collected a water well inventory from the Illinois State Water Survey's Private Well Database and Public, Industrial, Commercial Survey (PICS) Database in November 2005, December 2005, and January 2006. The well inventory was collected for the area one mile north and one mile south of Smiley Road and one mile north and one mile south of the blowdown line for the area east of vacuum breaker VB-4 to the Kankakee River. The Private Well and PICS Database queries well records by county, township, range, and section.

The search included records from Will County, Township 32N, Range 9E and Sections 13 to 17, 20 to 24, and Range 10E Sections 18 and 19. The inventory produced 429 records total; 46 of these records (see Table 4.4) are downgradient (north) of the Site. The water well inventory provides information about the water well owner, driller, drill date, depth, and if available address, well type, aquifer type, static water level, and pump level. A collection of findings from the well inventory is in Appendix G.

4.4 REGIONAL HYDROGEOLOGIC DATA COLLECTION

As part of the characterization of Site conditions, CRA requested regional hydrogeologic data from the Illinois State Geological Survey (ISGS) and the Illinois State Water Survey (ISWS). Some of this information has not yet been received but will be incorporated into future evaluations.

4.5 SAMPLING AND ANALYSIS RELATED TO TRITIUM DATING

Exelon retained Dr. Robert Poreda of the University of Rochester to evaluate the age of the tritium found in the groundwater at the Site. The main purpose of the tritium dating analysis was to evaluate whether there was any indication of an active leak from the vacuum breakers or from the blowdown line. In addition, the results of the tritium dating analysis was used to confirm the conceptual site model presented in Section 6.0.

Dr. Poreda accompanied CRA to the Site on December 22, 2005 and collected groundwater samples for his analyses from 14 groundwater monitoring locations across the Site. These samples were collected from wells completed in the shallow and in the deep groundwater zone. In addition, the samples were collected across the tritium

impacted area. Groundwater was purged from temporary and permanent monitoring wells with the same procedures used for characterization sampling. However, Dr. Poreda also employed specific sample collection and containerization processes that are designed to minimize helium diffusion. The samples were then sent to the University of Rochester laboratory for specialty laboratory analyses. Further discussion on the sampling techniques, laboratory analyses methods, and the results of Dr. Poreda's studies are in Appendix H. This appendix also provides background information and other references on the dating evaluation process.

5.0 DOCUMENTATION OF FIELD ACTIVITIES - PRESENTATION OF STUDIES AND ANALYSES COMPLETED TO DATE

This section provides a summary of regional and Site-specific geology and hydrogeology along with a discussion of vertical hydraulic gradients, groundwater elevations and flow directions, and overburden aquifer hydraulic conductivity in the Site area.

5.1 PHYSICAL SITE SETTING

This section provides an overview of the surface and subsurface features of the Site area. Discussions on regional and local hydrogeology are provided.

5.1.1 REGIONAL TOPOGRAPHY AND SURFACE WATER FEATURES

The site is located within the Kankakee River Basin approximately ten miles from the confluence of the Kankakee River with the Illinois River (Figure 1.1). In general, the topography of the area slopes downward to the north toward the Illinois River.

5.1.2 REGIONAL GEOLOGY

The regional geology is composed of a relatively thin overburden layer overlying the bedrock (see Figure 5.1). The overburden consists of a sand and gravel unit and a glacial till unit with some lenses of coarse-grained glacial drift. The important bedrock units can be divided into five general sections:

- Pennsylvanian age siltstone, shale, and coal;
- Silurian dolostone;
- Ordovician shale;
- Ordovician-Cambrian sandstone and limestone/dolostone; and
- Cambrian Eau Claire shale.

The Pennsylvanian age units are generally horizontal strata that act as an aquitard. The coal-bearing Carbondale Formation (Colchester Member) within this group was previously strip-mined in the area of the Site. The strip mining removed the overlying units to the bottom of this coal seam.

Beneath the Pennsylvanian siltstone and shale aquitard lies a Silurian-age dolostone aquifer. The Ordovician shale of the Maquoketa Shale Group separates this dolostone aquifer from the underlying Cambrian-Ordovician aquifers. The Maquoketa Shale Group consists of several shale and limestone units that act as an aquitard between the two bedrock aquifers.

The Cambrian-Ordovician aquifers beneath the Maquoketa Shale Group consist of two major sandstone aquifers, the Ancell aquifer (composed of the Glenwood Formation and St. Peter Sandstone) and the Ironton-Galesville aquifer (composed of the Ironton and Galesville Sandstones). Separating these two aquifers is a confining unit made up mainly of dolomite and shale with some sandstone. In general, these two units are considered to be one aquifer and are called the deep bedrock aquifer. The deep bedrock aquifer is an average thickness of 1000 feet and dips to the southeast (Visocky, 1985).

The Cambrian-age Eau Claire Formation acts as an aquitard that separates the deep bedrock aquifer from the Mt. Simon aquifer. The Mt. Simon Sandstone is not suitable for groundwater extraction due to poor water quality (Visocky, 1997).

5.1.3 REGIONAL HYDROGEOLOGY

Groundwater in the region is mainly extracted from three aquifers:

- The sand and gravel overburden deposits;
- The shallow Silurian dolomite; and
- The deep sandstone and dolomite formations of Cambrian and Ordovician age.

There are several private wells screened within the surficial sand unit where well yields are highly variable. In general, yields range from 20 gpm to 100 gpm; the higher yields are in areas where the sand and gravel deposits are thickest. The recorded well yields in the Silurian-age dolostone aquifer are extremely variable, with yields over 1,000 gpm measured. In general, yields of less than 500 gpm are encountered most often (Schicht et al, 1976).

The most important aquifer in the region is the Cambrian-Ordovician Aquifer, which is also called the deep sandstone aquifer. The wells from this aquifer yield approximately 700 gpm. Figure 5.2 presents the groundwater elevations and regional groundwater flow direction in the bedrock aquifer. As shown, the groundwater in the region flows

toward Lake Michigan. Near the Site, this means that the regional groundwater flow in the deep bedrock aquifer is to the north-northeast (Schicht et al, 1976).

5.1.4 SITE-SPECIFIC TOPOGRAPHY AND SURFACE WATER FEATURES

Figure 2.1 presents the relevant surface water features at the Site. The topography at the Site is generally flat, with a gentle slope to the north. Surface water drains toward the Exelon and northwest ponds, as well as toward the perimeter ditch.

5.1.5 SITE-SPECIFIC GEOLOGY

The geology beneath the Site consists of a relatively thin overburden deposit that overlies alternating layers of shale/siltstone and dolostone. Figure 5.3 presents a generalized south-north geologic cross-section of the Site, and provides a general overview of the important lithologies of the subsurface.

The overburden at the Site consists of the Equality Formation (silty sand) and the Wedron Formation (glacial outwash and till). The Equality sand is the surficial unit and is described as a homogenous, loose, gray to brown sand in borehole logs completed at the Site. This formation is approximately 20 feet thick at the Site. The Wedron Formation consists of glacial till and interbedded discontinuous glacial outwash deposits. At the Site the Wedron Formation ranges from 15 to 20 feet thick. Figure 5.4 presents the top of the clay/till unit at the Site, which overlies the bedrock. The figure indicates that the clay unit generally dips to the north, generally following the overburden groundwater flow direction at the Site.

The bedrock at the Site is generally typical of the regional geology, with the exception that the Silurian dolostones are not present. The upper bedrock at the Site is encountered at approximately 40 feet below ground surface and consists of Pennsylvanian siltstone, shale, limestone and coal with a local water-bearing conglomerate. Strip mining south of the Site has removed the coal and the overlying units. The mined area has subsequently filled with water and is now a lake. The important features of the deeper stratigraphic units were presented in Section 5.1.2 and 5.1.3.

5.1.6 SITE-SPECIFIC HYDROGEOLOGY

In general, there are two aquifers used for water supply near the Site. The first aquifer consists of the sand in the overburden, and the second aquifer is the Ordivician-Cambrian sandstone units of the deep bedrock aquifer.

The groundwater in the sand aquifer of the overburden occurs under unconfined (water table) conditions and ranges in thickness from 20 to 22 feet. The groundwater in this aquifer is recharged by local precipitation and discharges to local ponds and streams, and to the bedrock. Water well yields from this aquifer are suitable for domestic use, and range from 2 to 5 gpm (UFSAR, December 1988).

Over 155 monitoring wells have been installed into the deep and shallow zones of the overburden aquifer at the Site. Figure 4.1 presents the monitoring well network. Several well nests have been installed in the overburden aquifer not only to determine the vertical distribution of impacted groundwater, but also the vertical hydraulic gradient within the aquifer. The calculated vertical hydraulic gradients at the Site are presented on Figure 5.5 and in Table 5.1. These data indicate that there is no systematic pattern of vertical hydraulic gradient at the Site.

Table 4.2 presents groundwater elevations. Figures 5.6 and 5.7 present the groundwater elevations and flow directions in the shallow and deep zones, respectively. The figures show that groundwater at the Site flows generally north-northwest in both zones of the aquifer.[6] The pattern of groundwater contours and the elevation of the water in Exelon Pond indicate that there is a significant interaction between the groundwater in the overburden and the water in the pond. Groundwater elevations south (upgradient) of the pond are higher than the pond elevation, indicating that groundwater discharges to the pond. The groundwater elevations measured north (downgradient) of the pond are lower than the pond level, indicating that surface water recharges the groundwater to the north. This has important implications for contaminant transport at the Site, because it indicates that impacted groundwater discharges to the pond, become mixed with unimpacted surface runoff, and then recharges to the groundwater at a significantly lower concentration.

The results from single-well response tests indicate that the hydraulic conductivity of the overburden aquifer is in the range of 2.5×10^{-2} cm/sec to 3.7×10^{-2} cm/sec (see Appendix F). The average horizontal hydraulic gradient in the overburden is 0.002.

[6] The groundwater elevation near MW-106 is probably elevated beyond its normal level due to localized mounding caused by nearby ditches and the Cooling Lake.

Assuming an effective porosity of 0.3, average groundwater velocity in the overburden aquifer is 80 ft/yr. to 170 ft/yr. The shallow aquifer flow is more influenced by the recharge and surface water features at the Site, and therefore has the higher groundwater velocity; the deeper groundwater velocity is closer to the lower end of the range of values.

The Braidwood Station Cooling Lake, which is located on the upgradient side of the Site, is not in direct contact with the upper sand aquifer, but rather is separated by a slurry wall that was installed at the time the Braidwood Station was built. The slurry wall was installed into the Wedron clayey till unit. The Cooling Lake is surrounded by this slurry wall and is, therefore, isolated from the upper sand aquifer in all areas of the Braidwood Station property.

The overburden aquifer is separated from the deep bedrock aquifer by approximately 140 feet of relatively impermeable shales. The shale units act as aquitards, limiting the hydraulic communication between the groundwater in the overburden and the bedrock aquifer. Most domestic wells in the area are completed within the Glenwood-St. Peter Formation, which is approximately 600 feet below the ground surface.

As mentioned in Section 5.1.2, there is a history of open-pit coal mining in the region. As a result of coal mining, there are several small lakes near the Site formed when abandoned open-pit mines subsequently filled with groundwater and precipitation. The Cooling Lake south of the facility is one of these lakes. Historical documents indicate the potential for abandoned mine shafts near the Site. In addition, a hand sketch provided by an adjacent landowner indicates the presence of a mine shaft and air shaft in property north of Smiley Road (see Appendix I). It is possible that these abandoned shafts could act as conduits for impacted water to infiltrate into the water-bearing units immediately underlying the Wedron till (Carbondale Channel Sandstone) and immediately overlying the coal seam (Carbondale conglomerate). The coal seams are found at depths of approximately 100 feet bgs. All of the currently available relevant information regarding mining shafts in the area is in Appendix I. Further evaluations of the influence of these historical mining operations on shallow groundwater is presented in Section 6.4.

6.0 DESCRIPTION OF THE CHEMICALS OF CONCERN AND SOURCE AREAS

This section presents an evaluation of the source of tritium, its fate in the subsurface, and its distribution in groundwater.

6.1 GENERAL TRITIUM CHARACTERISTICS

Tritium (chemical symbol ^3H) is a radioactive isotope of the element hydrogen. Tritium is produced naturally in the upper atmosphere when cosmic rays strike air molecules. Tritium is also produced during nuclear weapons explosions, as a byproduct in reactors producing electricity, and in special production reactors, where the isotopes lithium-7 and/or boron-10 are bombarded to produce tritium.

Although tritium can be a gas, its most common form is in water because, like non-radioactive hydrogen, radioactive tritium reacts with oxygen to form water. Tritium replaces one of the stable hydrogen atoms in the water molecule and is called tritiated water. Like H_2O, tritiated water is colorless and odorless. Tritiated water behaves chemically and physically like non-tritiated water in the subsurface, and therefore a plume of tritiated water will travel at the same velocity as the average groundwater velocity.

Tritium has a half-life of approximately 12.3 years. It decays spontaneously to helium-3 (^3He). This radioactive decay releases a beta particle (high-energy electron). The radioactivity of tritium is the source of the risk of exposure. The United States Environmental Protection Agency (USEPA) has established a Maximum Contaminant Level (MCL) of 4 millirem per year for beta particles and photon radioactivity from man-made radionuclides in groundwater. This standard applies to public water supplies (40 CFR 141.1). The average concentration of tritium that is assumed to yield 4 millirem per year is 20,000 pCi/L. If other radionuclides that emit beta particles and photon radioactivitiy are present in addition to tritium, the sum of the annual dose from all the radionuclides shall not exceed 4 millirem/year.

Tritium is one of the least dangerous radionuclides because it emits very weak radiation and leaves the body relatively quickly. Since tritium is almost always found as water, it goes directly into soft tissues and organs. The associated dose to these tissues is generally uniform and is dependent on the water content of the specific tissue.

Under normal operating conditions at the Braidwood Facility, tritium is the principal radionuclide discharged from the plant. Tritium is formed when boron and/or lithium

atoms present in the reactor coolant capture a neutron. Exelon periodically releases excess plant water that contains tritium to the Kankakee River through the blowdown line.

Tritium in the groundwater at the Site therefore has two sources: tritium in infiltrating precipitation (background) and tritium from leaks from the vacuum breakers in the blowdown line. Background tritium concentrations in groundwater is roughly 200 pCi/L. These background values are discussed in more detail in Section 7.0.

6.2 CHARACTERISTICS OF WATER IN THE BLOWDOWN LINE – COOLING LAKE WATER QUALITY

Braidwood generating station uses a cooling lake to provide a heat sink for its main condensers. Since the lake is warm and has a large surface area (over 2,800 acres), it loses much of its water to evaporation. This evaporation causes the concentration of dissolved and suspended minerals in the lake to increase.

Table 6.1 presents a comparison of the general chemistry of cooling water samples and samples from unimpacted groundwater wells. Appendix J presents the laboratory reports for these analyses. CRA compared Cooling Lake (blowdown line) samples at the facility and at the outfall to the Kankakee River to groundwater samples collected from MW-106D and MW-110. As shown in Table 6.1, the chemistry of the cooling water is generally consistent. More specifically, the concentrations of both chloride and sodium in the cooling water are significantly higher than in the groundwater samples. There are differences in the concentrations of other parameters between the cooling water and the groundwater, but the most significant differences are the chloride and sodium concentrations. Therefore, CRA used sodium and chloride as indicators of cooling water impact to the groundwater in the absence of tritium values. These data also show that the concentrations of metals and general chemistry parameters in the cooling water do not exceed applicable groundwater standards.

In addition to tritium and general chemistry sampling, Exelon has sampled the groundwater at monitoring wells for other radionucleides. These data are in Appendix D. The results indicate that none of the radionucleides exceeded the lower limit detection in groundwater. Therefore, the only contaminant of concern in the groundwater at the Site is tritium.

6.3 DISTRIBUTION OF TRITIUM IN GROUNDWATER AT THE SITE

Figures 6.1 and 6.2 present the estimated horizontal distribution of tritium in the shallow and deep overburden zones, respectively. The figures show that the highest tritium concentrations are near VB-2 and VB-3, supporting the conclusion that these two vacuum breakers are the source of the tritium. The groundwater plume extends north and west from this area toward Exelon Pond. As the figures clearly show, concentration northwest of the pond is considerably lower. This indicates the plume is being diluted by the pond.

There is a smaller source near VB-1, which is immediately east of the facility. As shown on Figures 6.1 and 6.2, tritium concentrations in this area are much lower than in the area north of VB-2 and VB-3. The concentrations of tritium decrease quickly to background levels downgradient of VB-1.

Figures 6.1 and 6.2 indicate that tritium concentrations are somewhat higher in the deep zone relative to the shallow zone. This is attributed to precipitation infiltration. After the impacted groundwater begins to migrate away from the source area, infiltrating precipitation not only forces the impacted water deeper into the aquifer, but also dilutes the impacted water at the water table. Maximum tritium results are presented on Figures 6.3 and 6.4 for the shallow and deep overburden, respectively, and in Table 6.2. The data shows that the maximum extent of the tritium plumes are consistent with those shown on Figures 6.1 and 6.2.

Figure 6.5 presents the locations of two hydrogeologic cross-sections at the Site. Hydrogeologic cross-sections A-A' and B-B' are presented on Figures 6.6 and 6.7, respectively. Figure 6.6 presents a cross-section along the groundwater flowpath from the Cooling Lake to northeast of the off-Site pond. Figure 6.7 presents a cross-section perpendicular to groundwater flow near the blowdown line. Both figures indicate that the greatest tritium values are at depth. However, the Wedron Formation clay till and the underlying shales act as aquitards, limiting the hydraulic communication between the groundwater in the overburden and the bedrock aquifer.

Using the most recent groundwater results, CRA calculated the mass of tritium in the overburden groundwater. The mass of tritium in the groundwater was determined at vacuum breakers VB-1 and at VB-2 and VB-3 (combined), with results of 0.19 Curies (Ci) and 2.05 Ci, respectively, or 2.24 Ci total on Site. The tritium mass was calculated by measuring the area the plume covers in the deep and shallow groundwater zones (Figures 6.1 and 6.2). The data are in Appendix K.

Periodic tritium analyses have been performed at selected locations at the Site to determine the variability in the data. In general, samples were collected weekly at each location. The locations involved in the periodic sampling program are presented on Figure 4.1, and the tritium results are presented in Table 6.3. Specifically, samples have been collected routinely at groundwater monitoring locations P-4, P-4D, P-13D, BL-9, BL-9D, S-2, S-2D, C-2, and C-2D, and at surface water sample locations SW-2 and Alpha Gate (on the perimeter ditch north of VB-1).

Appendix D shows tritium concentrations and groundwater elevations over time for the weekly sampling locations. The weekly tritium results indicate that tritium concentrations fluctuate over time, and the concentrations tend to vary with the groundwater elevation. In general, the tritium concentrations show a negative correlation with groundwater elevation in the locations south of Exelon pond (P-4, P-4D, P-13D, BL-9, and BL-9D on Figure D.1 of Appendix D), and a positive correlation with groundwater elevation in the locations north of Exelon Pond (S-2, S-2D, C-2, and C-2D on Figure D-2 of Appendix D). The negative correlation south of the pond is likely due to the fact that the increase in water level is from (non-tritiated) infiltrating water diluting the groundwater tritium. The tritium concentrations in the locations north of the pond are much closer to ambient atmospheric values in the area (200 pCi/L). This means that the precipitation infiltrating to the ground (raising the groundwater level) may have higher tritium concentrations than the groundwater and therefore tritium concentration increases with the increase in infiltrating water. The tritium concentrations in the surface water locations (SW-2 and Alpha Gate) fluctuate over time but do not appear to have a significant trend over time.

Groundwater samples from the private wells PW-10 and PW-11, which are completed in the deep bedrock north of the Site, indicate that tritium is at or below the background concentration in the deep bedrock aquifers. Samples from the private wells PW-7, PW-9, PW-14, and PW-15, which are completed in the channel sandstone deposits or the conglomerate, indicate that tritium is also below the background concentration in the channel sandstone deposits and the conglomerate. Maximum tritium results in all the private wells on site are presented in Figure 6.8 and in Table 6.4.

6.4 CONCEPTUAL MODEL OF TRITIUM RELEASE AND MIGRATION

This section summarizes the current understanding of the mechanism for tritium releases to the groundwater at the Site and presents the conceptual model.

The historical data indicate that there were several releases of tritiated water from the vacuum breakers. In each case, water from the blowdown line was released to the surface and downward into the subsurface.

The surface releases from VB-2 and VB-3 flooded the low-lying area between the valves and Smiley road. The area that flooded is bounded by the mounded dirt covering the blowdown pipe on the east and south, Smiley Road to the north, and an estimated 300-400 feet to the west. The exact westerly boundary is not known but is estimated based on the topography of the area. This is generally the area where the most concentrated part of the groundwater plume is detected today. Releases from VB-1 flowed in groundwater toward the Site perimeter ditch.

The observations of Station personnel and the construction of the vacuum breaker valve vaults (valve pits) both suggest that water was not only released to the ground surface but also discharged vertically downward into the groundwater table. The vacuum breaker vaults are round concrete vaults or valve pits which extend down to the top of the blowdown line. There is no sealed bottom on these round concrete structures in order to allow access to the valve extending off the main blowdown pipe and to allow access to the pipe itself. The bottom of the vacuum breaker vaults is filled with gravel to allow the shallow water table to come into the vault under high water table conditions and to allow collected water to drain out the bottom. Therefore, when the valve failures occurred, most of the water released would have flowed downward within the vacuum breaker vault and recharged the water table through the bottom. Consequently, most of the blowdown line water was released to the subsurface as well as to the land surface in releases from the vacuum breakers.

The groundwater data collected also support the mechanism that a significant component of flow from releases was downward into the vacuum breaker vault (valve pit). Under this scenario, a portion of the tritium released from the vacuum breakers entered the groundwater near the vacuum breaker location and then traveled with groundwater at the estimated velocity of 80 ft/yr. to 170 ft/yr. In a sense, the vacuum breaker vaults would act as dry wells to allow the tritium to enter the groundwater (vertically) at a rate faster than normal subsurface infiltration.

There is evidence of this downward migration pathway in the detections of blowdown line indicators or fingerprints (sodium, chloride and tritium) at a few of the deeper temporary wells installed downgradient of VB-2 and VB-3, specifically, at BL-9D and BL-10D located near VB-2 and the deeper temporary wells located 300 to 500 feet downgradient (north–northwest) of VB-3. In the case of VB-3, the subsurface

mechanism occurred for a short time and allowed elevated levels of tritium to enter into the groundwater instantaneously, and then the discharge stopped.

The overland flow of water resulted in the source areas from each release extending much further downgradient than would be expected if the impacted water was only released directly to the groundwater at the blowdown line. This pattern of tritium appears to mimic what would have occurred for a continuous leak if the blowdown line was responsible for the tritium in the groundwater. Other evidence shows that continuous release is not the case, however. The tritium dating results are inconsistent with a slow continuous leak in the blowdown line (see Appendix H). Tritium dates in the deep overburden near the blowdown line are consistent with a leak that occurred in or around 2000. As described in the Poreda report, the shallow groundwater tritium date is consistent with diffusion of helium from deeper groundwater, but not with a recent release.

Exelon also collected groundwater samples adjacent to the blowdown line (near VB-2) to determine if the pipe was leaking. These groundwater samples were analyzed for tritium, sodium, and chloride. These results, which are presented in Table 6.5, indicate that the concentrations are similar to those in the background wells. This means that there is no continuous leak from the blowdown line near VB-2 and that the release was from the vacuum breaker failures.

The surface area of the plume and maximum distance from VB-2 and VB-3 (approximately 2,600 feet) gives the appearance that the releases occurred prior to 1998 if groundwater flow velocity is approximately 80 ft/yr. to 170 ft/yr. This is also somewhat misleading because the groundwater discharges to and mixes with Exelon Pond. In effect, the impacted water takes a "short cut" in the pond and, therefore, travels much further and faster than under normal groundwater flow conditions.

This rapid migration is supported by the groundwater contours that indicate a strong influence from the pond (Figures 5.6 and 5.7) and is also supported by the tritium dating data. These results for the water north of the pond indicate that the starting dates of the water were reset by equilibration with the atmosphere. This equilibration with the atmosphere could only have occurred in the pond, and therefore the tritiated water must be mixing with the surface water, releasing its ^{3}He. This mixing not only has the effect of rapidly moving the impacted water further downgradient (to the north side of the pond), but also reducing the tritium concentration through dilution.

Despite the fact that the release at VB-1 occurred before those at VB-2 and VB-3, the plume at VB-1 is much smaller. This is because the release at VB-1 was smaller than the

other releases. It is also likely due to the fact that much of the shallow groundwater, which is migrating north from VB-1, is being intercepted by the perimeter ditch. A small portion of the tritiated groundwater discharges to the ditch and is carried off Site to the west. The deeper groundwater plume appears to be much smaller than expected based on its age and concentration, which may indicate that the ditch is also intercepting some of the deeper water.

The historical mining operations in the area (Appendix I) present the possibility that abandoned shafts or old exploration borings may act as conduits to the deeper water-bearing bedrock layers. However, the groundwater contours at the Site do not show any areas where this is occurring. Further, the chemistry from the private wells in the area do not contain concentrations of tritium that exceed background levels. In summary, based upon existing Site data the primary migration pathway of tritium has been laterally through the shallow sand aquifer from the north to the south and not downward into deeper hydrogeologic units.

7.0 ENDANGERMENT ASSESSMENT

This Section of the report addresses the releases from the Recognized Environmental Conditions (the failed vacuum breakers) and any potential risks to human health and the environment. The intent of this section is to describe the potential risks from any completed exposure pathways.

In summary, based upon historical knowledge and data of the Braidwood Station operations and based upon chemical analyses in the blowdown line and in groundwater samples, the only Chemical of Concern is tritium. The discussions that follow are focused on the exposure pathways related to tritium.

7.1 HEALTH EFFECTS OF TRITIUM

Tritium is a radioactive isotope of hydrogen. The most common forms of tritium are tritium gas and tritium oxide, which is also called "tritiated water." The chemical properties of tritium are essentially those of ordinary hydrogen. Tritiated water behaves the same as ordinary water in both the environment and the body. Tritium can be taken into the body by drinking water, breathing air, eating food, or through skin absorption. Once tritium enters the body, it disperses quickly and is uniformly distributed throughout the body. Tritium is excreted from the body through the urine, with a biological half-life of 10 days, the same as for water.

A person's exposure to tritium is primarily through the ingestion of water (drinking water) or through ingestion of waterbearing food products. Inhalation of tritium requires the water to be in a vapor form (i.e., through evaporation or vaporization due to heating). Inhalation is a minor exposure route when compared to direct ingestion or drinking of tritiated water. Absorption of tritium through the skin is possible, but tritium exposure is more limited here versus direct ingestion or drinking of tritiated water.

Tritium is weakly radioactive. It decays by emitting a low-energy beta particle that cannot penetrate deeply into tissue or travel far in air. It poses a potential health hazard only if it is taken into the body. The beta particle emitted by tritium when it decays is a form of ionizing radiation. For radiation protection purposes, all radiation exposure is considered to increase the risk of developing cancer, and the risk is considered to be proportional to dose, even at low levels for which there is no conclusive scientific evidence of radiation effects.

The EPA considers tritium to be one of the least dangerous radionuclides because it emits very weak radiation and leaves the body relatively quickly. Since tritium is almost always found in water, it goes directly into soft tissues and organs. The associated dose to these tissues is generally uniform and dependent on the tissues' water content. Tritium does not concentrate in any one organ; therefore, the dose is spread through the entire body.

7.2 GROUNDWATER STANDARD

The ingestion of tritium through drinking of potable water is a potential exposure route at this Site (refer to Section 8.4). Currently, the IEPA relies on a USEPA groundwater standard for tritium of 20,000 pCi/L (35 IAC 620 Section 410 (e)). The following is the basis of this standard per this section of the Act:

Beta Particle and Photon Radioactivity

Except due to natural causes, the average concentration of beta particle and photon radioactivity from man-made radionuclides shall not exceed a dose equivalent to the total body organ greater than 4 mrem/year in Class I groundwater. If two or more radionuclides are present, the sum of their dose equivalent to the total body, or to any internal organ shall not exceed 4 mrem/year in Class I groundwater except due to natural causes.

Except for the radionuclides listed in subsection (e)(3), the concentration of man-made radionuclides causing 4 mrem total body or organ dose equivalent must be calculated on the basis of a 2 liter per day drinking water intake using the 168-hour data in accordance with the procedure set forth in NCRP Report Number 22, incorporated by reference at Section 620.125(a).

Except due to natural causes, the average annual concentration assumed to produce a total body or organ dose of 4 mrem/year of the following chemical constituents shall not be exceeded in Class I groundwater:

Constituent	*Critical Organ*	*Standard (pCi/L)*
Tritium	*Total Body*	*20,000*
Strontium-90	*Bone Marrow*	*8*

Thus, the concentration of tritium in groundwater should not exceed the 20,000 pCi/L level at a potable water supply. Tritium concentrations that will protect human health are less than 20,000 pCi/L. CRA uses this standard for comparison purposes, comparing the analytical results presented in this report to the standard.

The surface water quality criteria for tritium (20,000 pCi/L) is based upon the same evaluation presented above as it addresses the ingestion and absorption exposure routes during recreational use of general resource surface water bodies. This standard is used herein for comparison purposes. Exelon will develop Site specific objectives under separate cover as discussed in Section 9.3.

7.3 SITE SPECIFIC BACKGROUND CONCENTRATIONS OF TRITIUM IN GROUNDWATER

At the Braidwood Station, the background, or ambient, concentrations of tritium in the groundwater occur where there have been no releases. Specifically, background concentrations should occur in those areas of the shallow sand aquifer that are either upgradient of the vacuum breakers or downgradient but outside the plumes. Based on these criteria, the background concentration is 200 pCi/L. This conclusion is based upon a number of evaluations and assessments.

Dr. Robert Poreda, University of Rochester, who is an expert in the field of tritium dating, indicated that his testing in Nebraska and Wisconsin showed typical background values of 100 pCi/L. However, the background at Braidwood would likely be slightly higher given its location downwind of the Quad Cities, LaSalle, and Dresden Nuclear power plants. According to Dr. Poreda, the upper limit for rainfall he has measured is 200 pCi/L.

In addition, information on background concentrations of tritium in groundwater were obtained from a Michigan Department of Environmental Quality study.[7] According to this study, concentrations in Michigan groundwater today may be on the order of 160 to 320 pCi/L. Consequently, the assumption that background at the Site is 200 pCi/L is reasonable.

Finally, the laboratory that is currently performing the analysis of tritium in the groundwater samples collected at this Site has a lower limit of detection of 200 pCi/L. This is a practical quantification limit above which the laboratory has confidence in their

[7] "Use of Tritium in Assessing Aquifer Vulnerability" available at http://www.deq.state.mi.us/documents/deq-dwrpd-gws-wpu-Tritium.pdf

quantitative estimate. Any result below this concentration is an estimate. The estimated values provided by the laboratory are still, nevertheless, at concentrations that are less than the 200 pCi/L background at this Site.

7.4 EXPOSURE ROUTE EVALUATIONS

The potential exposure point pathways and potential receptors for tritium that was released from the three vacuum breakers (VB-1, VB-2, and VB-3) are discussed in the following sections. CRA has identified any incomplete and complete exposure pathways.

7.4.1 IDENTIFICATION OF POTENTIAL EXPOSURE PATHWAYS AND POTENTIAL RECEPTORS

There are two mechanisms for tritium in the blowdown line water to reach the groundwater from the failed vacuum breakers:

- Direct discharge from the valve into the valve vault and downward into the groundwater table; and
- Overflow of the water from the top of the vault, through the manhole, and onto the land surface. Subsequently, the ponded water infiltrates downward to the water table.

7.4.1.1 DIRECT DISCHARGE SCENARIO

The complete exposure routes or pathways for tritium migration to potential receptors for the first scenario, direct discharge to the groundwater, include:

1.1 Groundwater flow to the north (downgradient direction) to private water supply wells;

1.2 Groundwater flow to the north and subsequent discharge into the ponds north of Smiley Road; and

1.3 Groundwater flow to the north from VB-1 and into the perimeter ditch, which then flows north and west.

Under the first release scenario, direct discharge to the groundwater from the vacuum breaker, the potential receptors include off-property users of the shallow sand aquifer and recreational users of the northern off-Site ponds. In addition, there could be a potential worker exposure to tritium in the perimeter ditch, which is on Exelon's property.

7.4.1.2 OVERFLOW SCENARIO

The complete exposure routes or pathways for tritium migration to potential receptors for the second scenario, overland surface flow, include:

2.1 Direct contact with standing or ponded water on the Braidwood Station Property at the time of the spill;

2.2 Seepage into the underlying vadose zone and into the groundwater;

2.3 Direct contact with surface water ponded at the time of the spill in the ditch south of Smiley Road;

2.4 Groundwater flow to the north (downgradient direction) to private water supply wells;

2.5 Groundwater flow to the north and into the ponds north of Smiley Road; and

2.6 Groundwater flow to the north from VB-1 and into the perimeter ditch, which then flows north and west.

Under the second release scenario, the potential receptors include Braidwood Station workers, contact with surface water ponded in the ditch on the south side of Smiley Road, off-property well users, and recreational users of off-property ponds. Also, there is the potential scenario where a worker could be exposed to tritium in the perimeter ditch. These potential receptors and the identified exposure routes are discussed in the following sections.

The water would be ponded or pooled on the surface before it seeped into the underlying soils. There is approximately 5 to 8 feet of unsaturated soils (vadose zone) above the water table. The ponded water would seep through these soils to the water table. As such, a small percentage of this water would initially remain in the soils above the water table after the spill. However, since tritium has characteristics of water it will not sorb onto the soil particles. Rather, it will remain as part of the residual water left in the soil pores. This residual tritium will eventually be flushed downward to the water

table. The infiltration of rain or snow melt will reduce the residual saturation by two methods:[8]

- Flushing of pore water with tritium out of the soil column into the underlying water table; and
- Dilution of the residual tritium levels with recharge.

The likelihood of the unsaturated soils containing significant levels of tritium in pore water over any extended period is unlikely. The reduction of any residual tritium in the soil column should be rapid given the approximately 12 inches of precipitation recharge each year in Illinois (35 IAC 742). As such, the expected concentration of tritium in the soil column should be in the range of ambient concentrations for rain water (160 to 320 pCi/L)[9] and significantly below the groundwater standard (20,000 pCi/L).

Given the physical conditions with regard to residual tritium in the soil column; this exposure pathway is incomplete. Direct contact with tritium in soils beneath the former spill areas[10] is not a complete pathway because:

- This area is within the boundaries of the Braidwood Station property and, therefore, access is restricted to Exelon employees;
- This is not an active, operational area of the facility and as such subsurface excavations or other construction work is not performed that might expose workers to the subsurface soils; and
- Braidwood Station excavation protocols would require health and safety monitoring and preventative measures to eliminate exposure to soils that might have unsafe radiological conditions.

In summary, the soil exposure route to tritium in the Site area is incomplete.

Once in the groundwater, the tritium will migrate to the north with groundwater flow away from the vacuum breakers. There is no exposure route for the ingestion of groundwater on Exelon's property. The Station receives its potable water from the Kankakee River (approximately 5 miles east of the Site). In addition, Exelon's property is considered an industrial property, and existing zoning and other institutional controls

[8] These mechanisms apply both to the water that ponded on the Braidwood Station property and to the water that ponded in the small ditch south of Smiley Road.
[9] Use of Tritium in Assessing Aquifer Vulnerability, http://www.epa.state.il.us/water/tritium.html, Illinois Environmental Protection Agency, Bureau of Water, October 1997.
[10] Including the small ditch south of Smiley Road.

would prevent the installation of potable water supply wells on the property. Therefore, there is no complete exposure route for groundwater ingestion on Exelon's property.

Groundwater containing tritium will migrate to the north (downgradient) of Exelon's property and onto adjacent private property. There are a number of private land owners to the north where the residential water supply is provided by private wells completed in the shallow sand aquifer. These shallow water supply wells are considered potential pathways. The land that is directly north of Smiley Road (where the Exelon Pond is located) is owned by the Braidwood Station. As such, the small area where there are exceedences of the groundwater standard does not have potable water wells in the shallow sand aquifer. However, migration of tritiated groundwater farther to the north of this is a potential exposure pathway.

Currently, there are no private water supply wells with tritium that exceed the groundwater standard. In addition, no private property contains groundwater with tritium at a concentration that exceeds the groundwater standard. These observations are based upon a wealth of groundwater data collected as part of this study.

To evaluate future conditions, CRA modeled the potential migration of the existing tritium located south of Smiley Road to the property to the north. BIOSCREEN, a USEPA analytical model, assessed the migration of tritium found within the main "plume" area south of Smiley Road. Appendix L presents the data used, the assumptions made, and the results of the analytical simulations. Figure 7.1 presents a graphical representation of the BIOSCREEN modeling for tritium. This figure depicts the shape of the extent of migration of the tritium from the area south of Smiley Road toward the north. Even with very conservative assumptions, the BIOSCREEN model predicts that tritium concentrations in groundwater under private property north of Smiley Road will not exceed the groundwater standard. Consequently, future exposure of private well users to tritium concentrations that exceed the groundwater standard is also incomplete. As a result of this modeling, Exelon concluded that no additional well owners require notification of potential impact to their wells.

The water well inventory, discussed in Section 4.3 and provided in Appendix G, indicates that there are a number of private and public (Village of Braidwood) water supply wells that are completed in the deep regional aquifer. These deep aquifers are found at depths of 100 to 1,600 feet bgs. Exelon has sampled 10 private water supply wells completed in the deeper aquifers and analyzed the groundwater as part of this investigation (see Figure 2.2 for the location of the deeper wells). For example, private wells PW-10 and PW-11 are downgradient of the main area of tritium-impacted groundwater. As can be seen in Appendix G and on Figure 6.8, these deeper wells did

not contain tritium that exceeded background. This is to be expected because the vertical movement of tritium into deeper formations is restricted by the following three regional aquitards (refer to Figure 5.1):

- The Wedron Formation of clayey till, which directly underlies the upper sand aquifer;
- The shales of the Carbondale Formation and the Spoon Formation; and
- The Scales Shale of the Maquoketa Group.

These three layers represent regional vertical barriers to groundwater flow. Moreover, the presence of these barriers eliminates the potential for tritium to migrate to the deep bedrock aquifers; therefore, the exposure pathway to deep bedrock water supply wells is incomplete.

It is possible that the former coal mining activities could have breached the shallower of the regional aquitards (Wedron Formation). Mining activities such as mine shafts, airshafts, and exploration holes would not have, however, breached the 70 to 80 feet thick Scales Shale Formation. This shale is found at a depth of over 200 feet bgs beneath the Site. Consequently, the Scales Shale would be a barrier to vertical groundwater flow to the regional aquifers. Again, the assertion that this pathway is functionally incomplete is supported by the results of sampling deeper bedrock wells. Tritium was not detected above background levels in any of these deeper wells.

Tritium has been found in surface water at the Site on three occasions. The first occasion was during the actual releases from the individual vacuum breakers when the water ponded on the land surface for a short time on the Braidwood Station property.[11] The second situation occurred when groundwater, containing tritium, discharged to the pond to the north of Smiley Road. The third situation occurred, in the case of the VB-1 area, when groundwater flowed into the perimeter ditch.

In the first situation, the potential for exposure no longer exists because the ponded water has seeped into the underlying soils and into the groundwater. The depth to the groundwater is at least 5 to 8 feet bgs at the Site. It is very unlikely that the water table will rise above the ground surface and create a surface water situation in the future. Consequently, worker exposure (direct contact) on the Braidwood Station property to water ponded on the land surface is not possible. In addition, any further exposure beyond the initial ponding of water in the ditch to the south of Smiley Road is

[11] And to some extent in the ditch located south of Smiley Road.

non-existent for the same reason. Any surface water in this ditch currently represents normal street run-off from the adjacent roadway and surrounding areas.

The second situation involves the transport of elevated levels of tritium in groundwater off the Braidwood Station property and into the pond to the north of Smiley Road. The pond is on private property,[12] has been used for recreational purposes in the past, and can be anticipated to be used for recreational purposes in the future. Therefore, there is a potential for direct contact and ingestion exposure to tritium by recreational users of this pond.

The third scenario involves the flow of tritium in groundwater from VB-1 into the perimeter ditch that flows to the north. The perimeter ditch is located within the boundaries and fence line of Exelon's property. As such, the only exposure would be worker exposure (direct contact) during maintenance or monitoring activities.

7.5 SUMMARY OF EXPOSURE ROUTES

In summary, there are three complete exposure routes for tritium:

- Groundwater ingestion by private well users when the wells are completed in the shallow sand aquifer;
- Recreational users of the ponds north of Smiley Road; and
- Braidwood Station workers involved with maintenance and monitoring of the perimeter ditch.

At this time, based upon the wealth of groundwater and surface water data provided in this report, none of the receptors at the above exposure points are at risk. The concentration of tritium in the groundwater or surface water at any of these three exposure points is significantly below the 20,000 pCi/L standard for groundwater. Specifically, there is no private property in the Site area with a groundwater concentration of tritium that exceeds the groundwater standard (20,000 pCi/L) in the shallow sand aquifer[13]. The surface water samples collected from Exelon pond[14] and the

[12] The pond directly north of Smiley Road (Exelon Pond) is on property recently purchased by Exelon and is now part of the Braidwood Station property. Exelon is constructing a fence to prevent use of the pond for recreational purposes, and the land will have its deed restricted to prevent the use of groundwater for potable purposes.

[13] There is an area at the southeast corner of the pond directly north of Smiley Road that contains tritium that exceeds the groundwater standard. However, Exelon owns this land and restrictions are in place to prevent the installation and use of shallow wells on this property.

other nearby ponds to the northwest and northeast have not contained tritium that exceeds the 20,000 pCi/L groundwater criteria. Likewise, concentrations of tritium measured in surface water samples from the perimeter ditch as it flows off the Site have all been at levels less than the 20,000 pCi/L groundwater criteria. In summary, although there are three potentially complete exposure routes for tritium migration from the RECs (historic vacuum breaker releases), there has not been an exposure to those receptors. Further, predictive calculations indicate that there will not be an exposure to these receptors in the future.

[14] This pond is currently owned and controlled by Braidwood Station.

8.0 CONCLUSIONS

The purpose of this report is to provide the IEPA a summary of Site characteristics as they relate to the sources, migration pathways, and extent of tritium in groundwater at the Braidwood Station Site.

Based on all of the studies completed to date, CRA concludes:

- Groundwater use in the Site area is both in the upper shallow sand aquifer (20 to 30 feet deep) and in the deeper bedrock formations used regionally for municipal and private water supplies (depths of 600 to 1,700 feet).
- The upper, shallow groundwater flows beneath the Site in a generally south to north manner, flowing from the Cooling Lake toward the ponds located north of the Braidwood Station property.
- Depth to water in this upper shallow sand aquifer ranges from 5 to 15 feet. The deeper bedrock water supply aquifers are separated from the shallow system by a number of regionally identified aquitards.
- Braidwood Station employs the blowdown line to return water from the Cooling Lake back to the Kankakee River. This blowdown line also serves as a permitted discharge point for the Station's sewage treatment plant and liquid radwaste system.
- The discharges from liquid radwaste contain tritium.
- Historical failures at the three vacuum breaker valves (VB-1, VB-2, and VB-3) have resulted in the release of tritium to the groundwater at this Site. The distributions of tritium in groundwater at this Site are consistent with historical releases from these three subject vacuum breakers.
- There are two localized areas on the Site where tritium is detected above the groundwater standard (20,000 pCi/L). The first area is south of Smiley Road and downgradient of VB-2 and VB-3 is approximately 4.5 acres. The second area is north of VB-1 and is less than 2.0 acres.
- Tritium above the background or ambient concentration (assumed to be 200 pCi/L in this study) has migrated into, and through, the pond located north of Smiley Road. The distance to the leading edge of the tritium plume (above the ambient concentration) from the source (VB-2 and VB-3) is approximately 2,400 to 2,800 feet.
- Deeper private water supply wells that are downgradient of the main tritium plume contain ambient concentrations of tritium. Regional aquitards act as vertical barriers to migration of tritium from surficial aquifers to deeper bedrock aquifers. This finding is consistent with an understanding of vertical groundwater flow.

- There are three complete exposure routes, or pathways, for tritium migration at the Site involving the following receptors:
  - Groundwater ingestion by private well users
  - Recreational users of the ponds
  - Braidwood Station workers
- At this time, based upon the wealth of groundwater and surface water data provided in this report, none of the above receptors are at risk.
- A BIOSCREEN model (a future migration analysis) indicates that even under conservative assumptions, the elevated concentrations of tritium will not migrate to private property at levels that exceed the groundwater standard.

In summary, CRA believes that the information collected to date is sufficient to develop future documents to support remediation of the Site. The nature of the sources, the extent of the contamination, the fate and transport of the contamination, the identification of complete exposure routes and receptors, and the future potential for migration have been well characterized.

The studies performed to date are sufficient to begin remedial action planning and develop remedial objectives. There are, however, some minor data gaps that need to be filled as part of the remedial action planning process. These requirements are clearly stated in the next section.

9.0 PLAN OF ACTION

The following discussion presents a plan of proposed activities intended to be completed in the near future.

9.1 FILL DATA GAPS

There are no significant data gaps with regard to characterization. However, there are some items that need to be addressed to better define potential remedial actions. For instance, additional water level and tritium data collection within and around the perimeter ditch would be useful for developing controls to prevent further tritium migration. Also, additional water level monitoring near the pond north of Smiley Road will be helpful in understating the hydraulics of the pond and its use in a remedial action. The pond north of Smiley Road has been instrumented with a pressure transducer to continuously monitor the water levels.

9.2 GROUNDWATER MONITORING

Exelon will prepare a plan to install new monitoring wells and abandon temporary wells. In addition, this plan will outline the frequency of monitoring and analyses for the permanent monitoring well network. Trigger levels of tritium concentrations will be developed and discussed in this plan. Eventually, this plan will be integrated with the remedial action selected for the Site and its operation and monitoring requirements.

Exelon will install permanent 2-inch diameter monitoring wells to be part of the long term, routine, groundwater monitoring program. Some temporary wells will be plugged and abandoned.

9.3 REMEDIATION

The tritium concentrations in groundwater and surface water at the Site were compared to the 20,000 pCi/L standard provided in 35 IAC 620 Section 4.10 (e). This standard is for a Class I groundwater as characterized by 35 IAC 620 Section 210. The groundwater in the shallow sand aquifer is considered a Class I aquifer based upon its hydraulic properties and its use as a potable water supply in the Site area.

Exelon will prepare a Remedial Objectives Report (using the guidance provided 35 IAC 740), which will be used to develop a Remedial Action Plan (RAP) for this Site. CRA anticipates that procedures presented in the Tiered Approach to Corrective Action Objectives (TACO) (35 IAC 742) will be use to develop these Remedial Objectives.

Data gathering activities to be undertaken include:

- Pumping and water level monitoring at the existing Recovery Wells to better assess the hydraulic properties for the shallow sand aquifer;
- Depth-specific sampling in the pond located north of Smiley Road to better estimate tritium concentrations if the pond is to be pumped; and
- Sampling of groundwater for general chemistry and other parameters which might be required for design purposes or for regulatory requirements.

Exelon has already initiated a feasibility study of various potential remedial actions. One option that can be implemented quickly easily is pumping the surface water from Exelon Pond, piping the water to the south, and discharging the water (untreated) into the blowdown line at VB-2. A similar approach is being considered for the smaller tritium plume near the perimeter ditch and north of VB-1. Here, the surface water in the perimeter ditch or a recovery well would also be pumped and piped directly to the blowdown line at VB-1.[15]

This remedial action is meant to be an interim or time critical remedy that will then become part of a long term remedial action plan. In other words, this remedy can be implemented soon, but other remedial components such as additional groundwater pumping, discharge to the new blowdown line, or monitored natural attenuation will take longer.

These interim remedies (either the pond-to-blowdown line or pumping the plume near the perimeter ditch-to-blowdown line) have been selected because they will achieve these goals:

- Design and construction that can be completed quickly;
- Regulatory review is currently proceeding;
- These remedies prevent further migration of the groundwater with tritium above the 20,000 pCi/L standard past the pond or into the perimeter ditch;

[15] At this time Exelon is considering either upgrading the existing blowdown line and its vacuum breaker valves or perhaps installing a new blowdown line.

- A system which prevents the further off-Site migration of residual tritium greater than 200 pCi/L;
- This system will slow, if not stop, the migration of tritium above the background standards to private property north of the Exelon Pond; and
- This system will reduce the mass of tritium in the groundwater.

At the time of this report Exelon has been in discussion with the IEPA, the Office of the Attorney General, and the Will County State's Attorney regarding this interim remedial action.

10.0 REFERENCES CITED

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Schicht, Richard J., J. Rodger Adams, and John B. Stall, 1976. Water Resources Availability, Quality, and Cost in Northeastern Illinois, Illinois State Water Survey Report of Investigation 83.

Visocky, Adrian P., Marvin G. Sherrill, and Keros Cartwright, 1985. Geology, Hydrogeology, and Water Quality of the Cambrian and Ordovician Systems in Northern Illinois, Illinois State Geological Survey, Illinois State Water Survey, Cooperative Groundwater Report 10.

Visocky, Adrian P., 1997. Water-Level Trends and Pumpage in the Deep Bedrock Aquifers in the Chicago Region, 1991-1995, Illinois State Water Survey Circular 182.

FIGURES

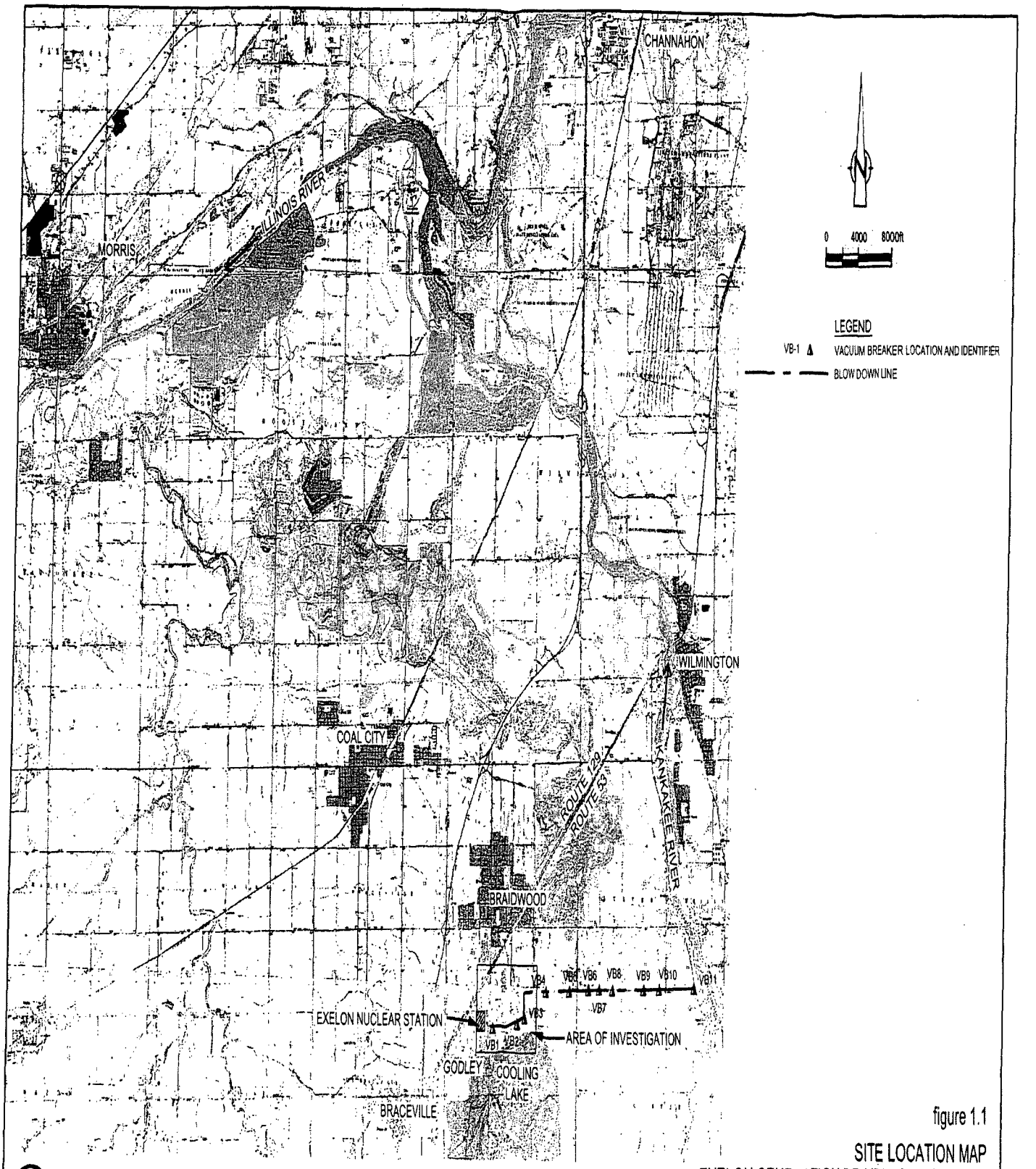


figure 1.1

SITE LOCATION MAP
EXELON GENERATION BRAIDWOOD STATION
Braceville, Illinois

16841-11(012)GN-WA010 MAR 21/2006

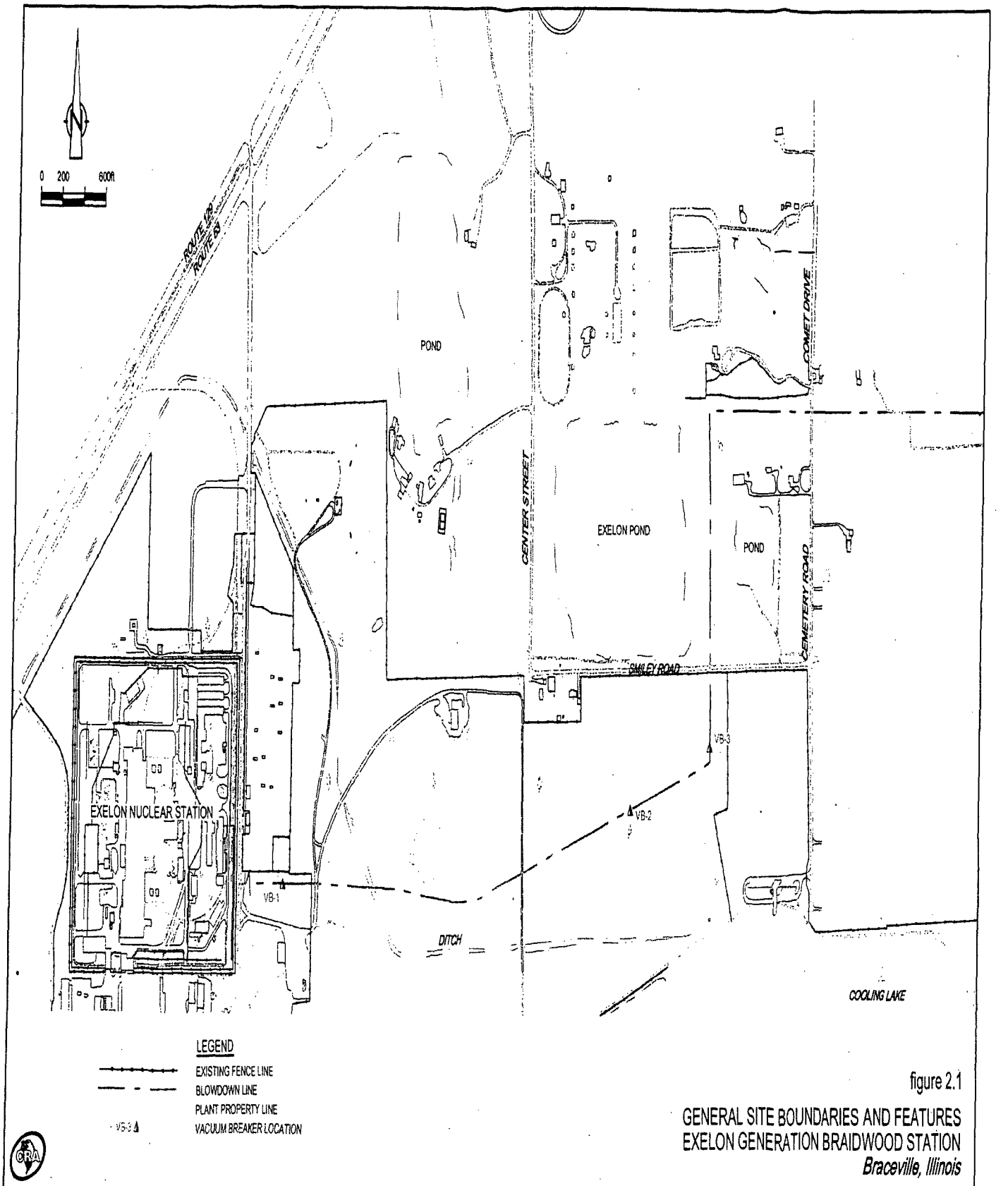


figure 2.1

GENERAL SITE BOUNDARIES AND FEATURES
EXELON GENERATION BRAIDWOOD STATION
Braceville, Illinois

16841-11(012)GN-WA011 MAR 21/2006

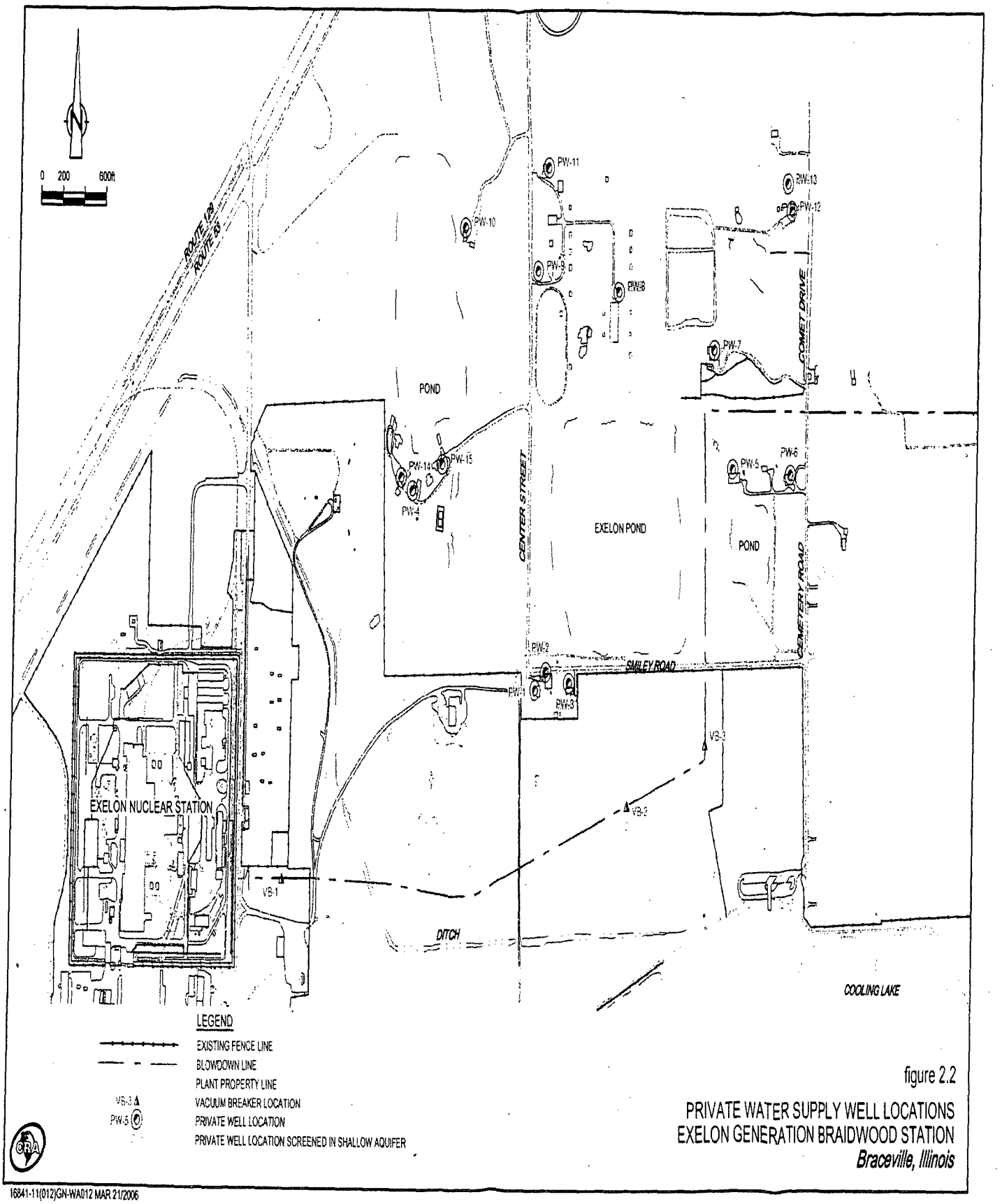
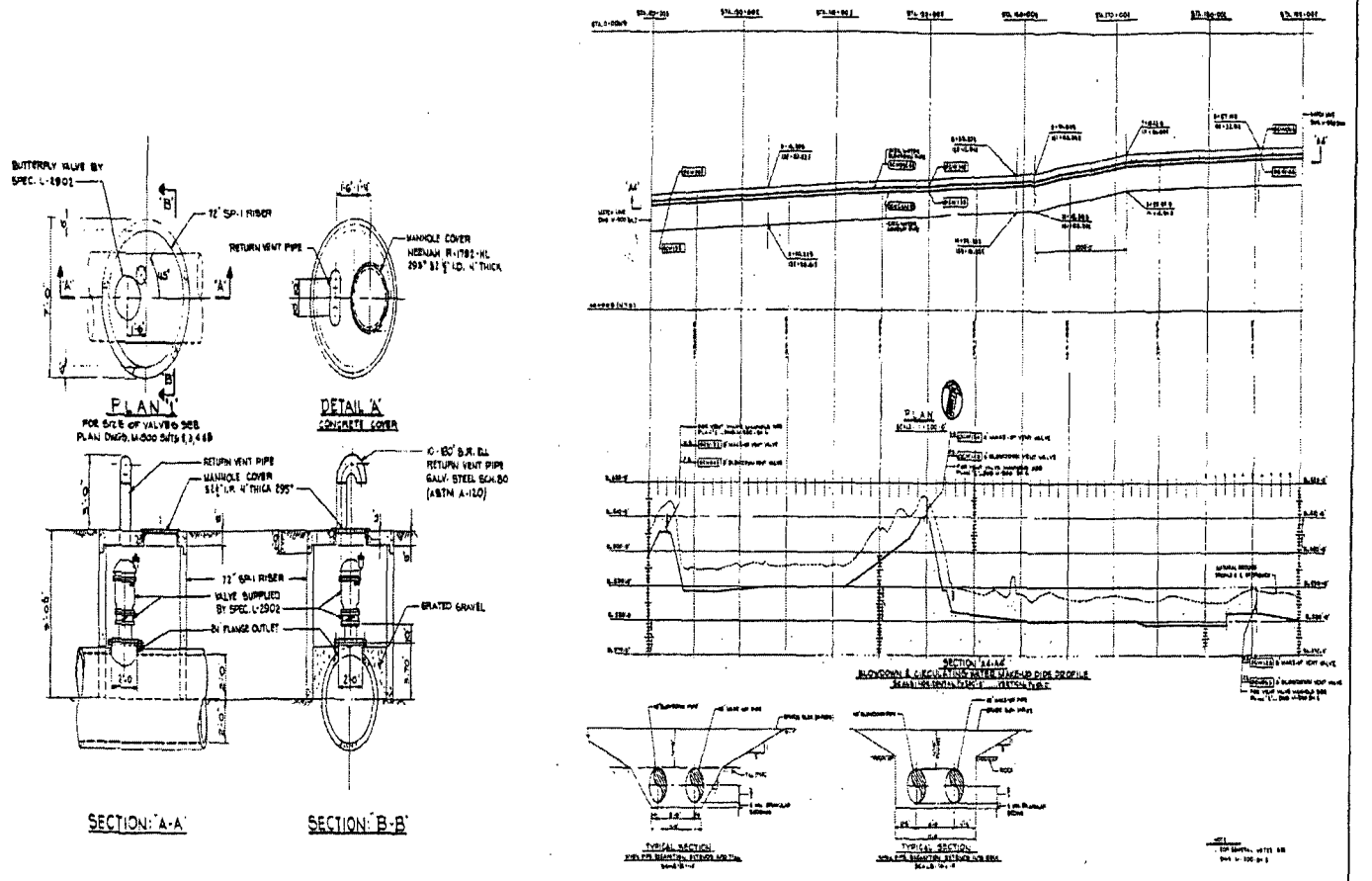


figure 2.2

PRIVATE WATER SUPPLY WELL LOCATIONS
EXELON GENERATION BRAIDWOOD STATION
Braceville, Illinois

16841-11(012)GN-WA012 MAR 21/2006



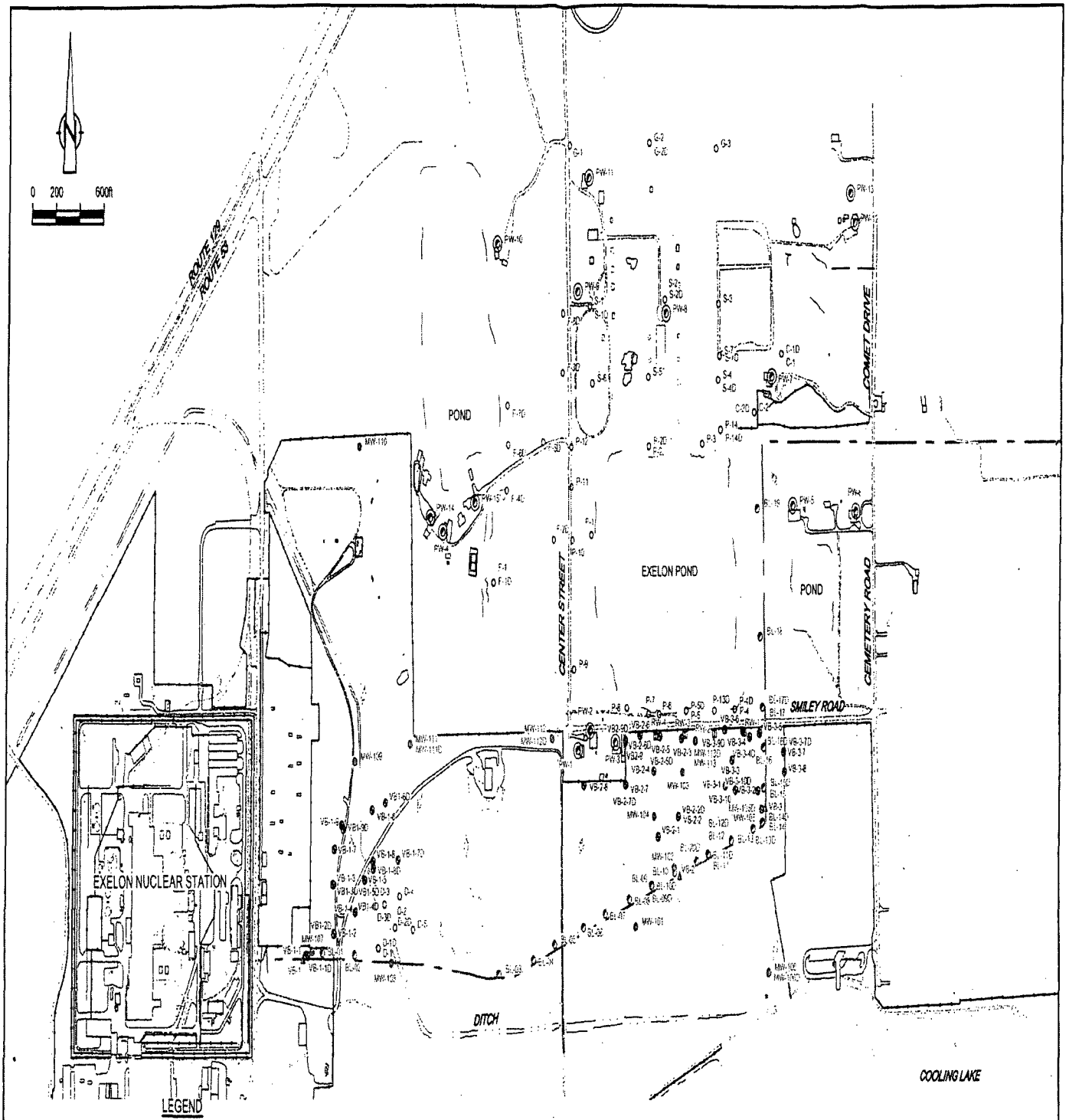
SOURCE: EXELON NUCLEAR OUTDOOR PIPING ARRANGEMENT, M-900 SHEET NUMBER 6 & 3.

NOT TO SCALE

figure 3.1

SCHEMATICS OF THE BLOWDOWN LINE
AND VACUUM BREAKERS
EXELON GENERATION BRAIDWOOD STATION
Braceville, Illinois

16841-11(012)GN-WA021 MAR 21/2006



LEGEND

- EXISTING FENCE LINE
- BLOWDOWN LINE
- PLANT PROPERTY LINE
- SHALLOW BLOWDOWN LINE SAMPLING LOCATION
- DEEP BLOWDOWN LINE SAMPLING LOCATION
- VACUUM BREAKER LOCATION
- VACUUM BREAKER SAMPLING LOCATION
- SHALLOW MONITORING WELL LOCATION
- DEEP MONITORING WELL LOCATION
- PRIVATE WELL LOCATION
- SHALLOW TEMPORARY WELL LOCATION
- DEEP TEMPORARY WELL LOCATION
- SHALLOW RECOVERY WELL LOCATION
- DEEP RECOVERY WELL LOCATION

figure 4.1

GROUNDWATER MONITORING LOCATIONS
EXELON GENERATION BRAIDWOOD STATION
Braceville, Illinois

16841-11(012)GN-WA013 MAR 21/2006

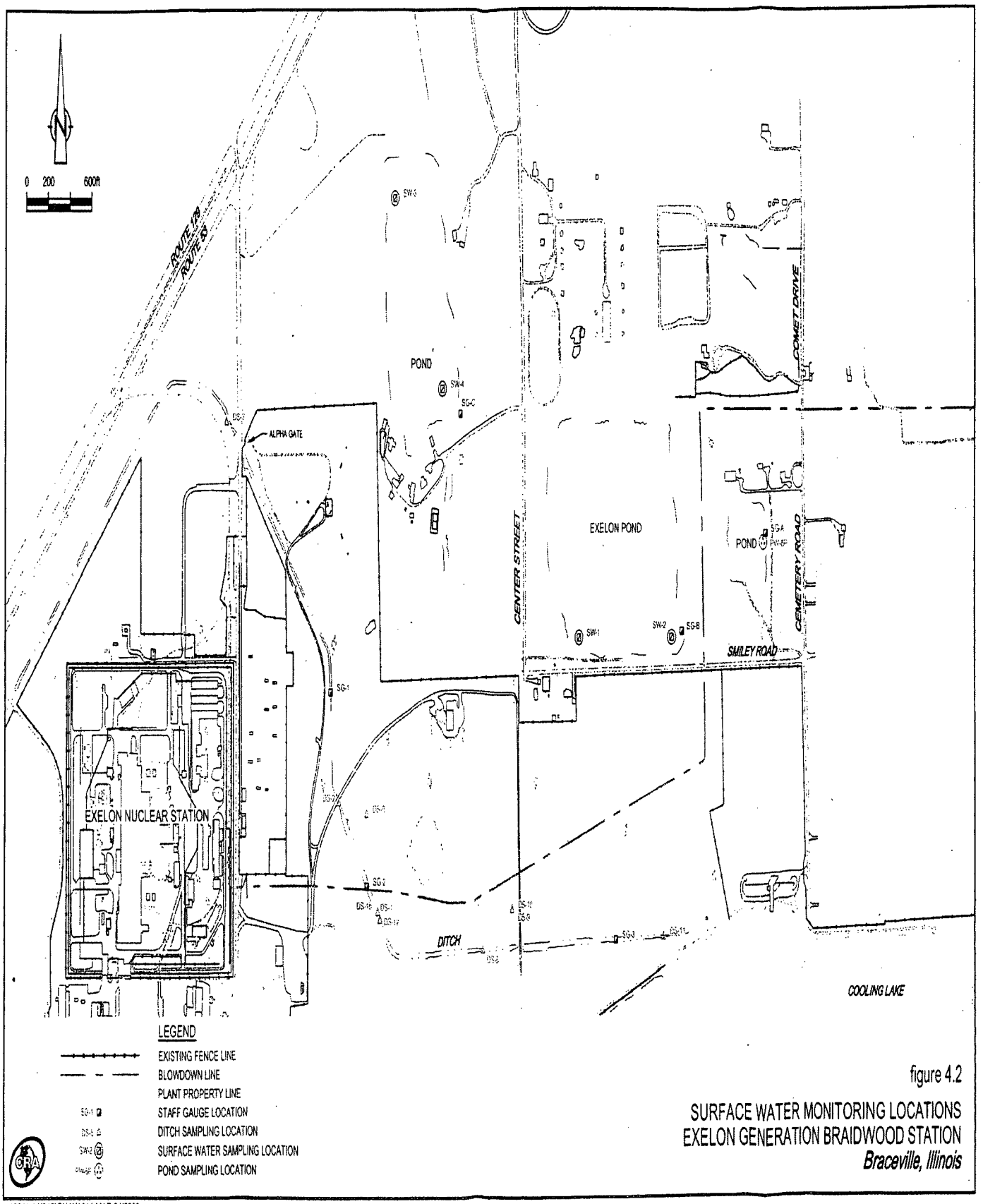
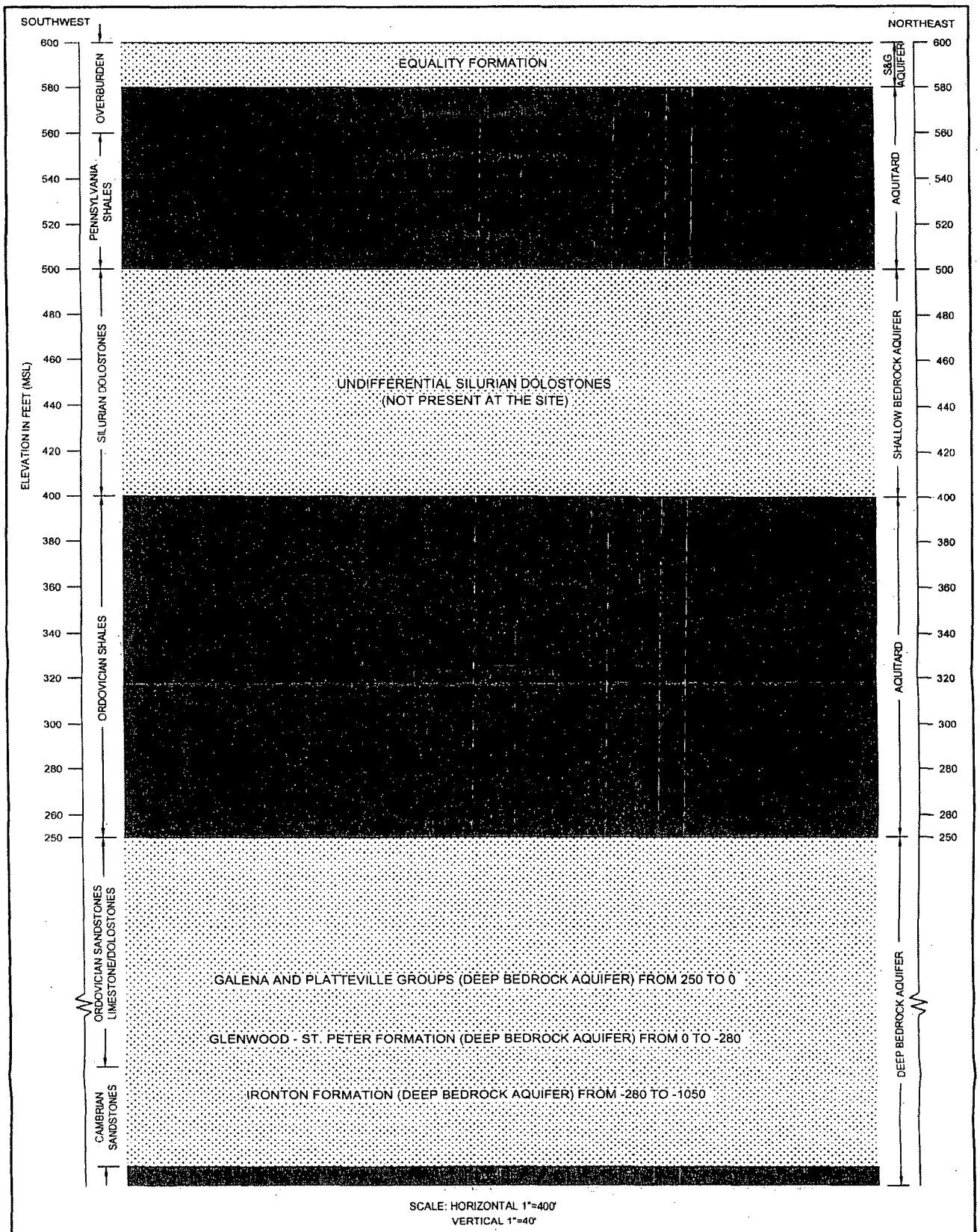


figure 4.2

SURFACE WATER MONITORING LOCATIONS
EXELON GENERATION BRAIDWOOD STATION
Braceville, Illinois

16841-11(012)GN-WA014 MAR 21/2006

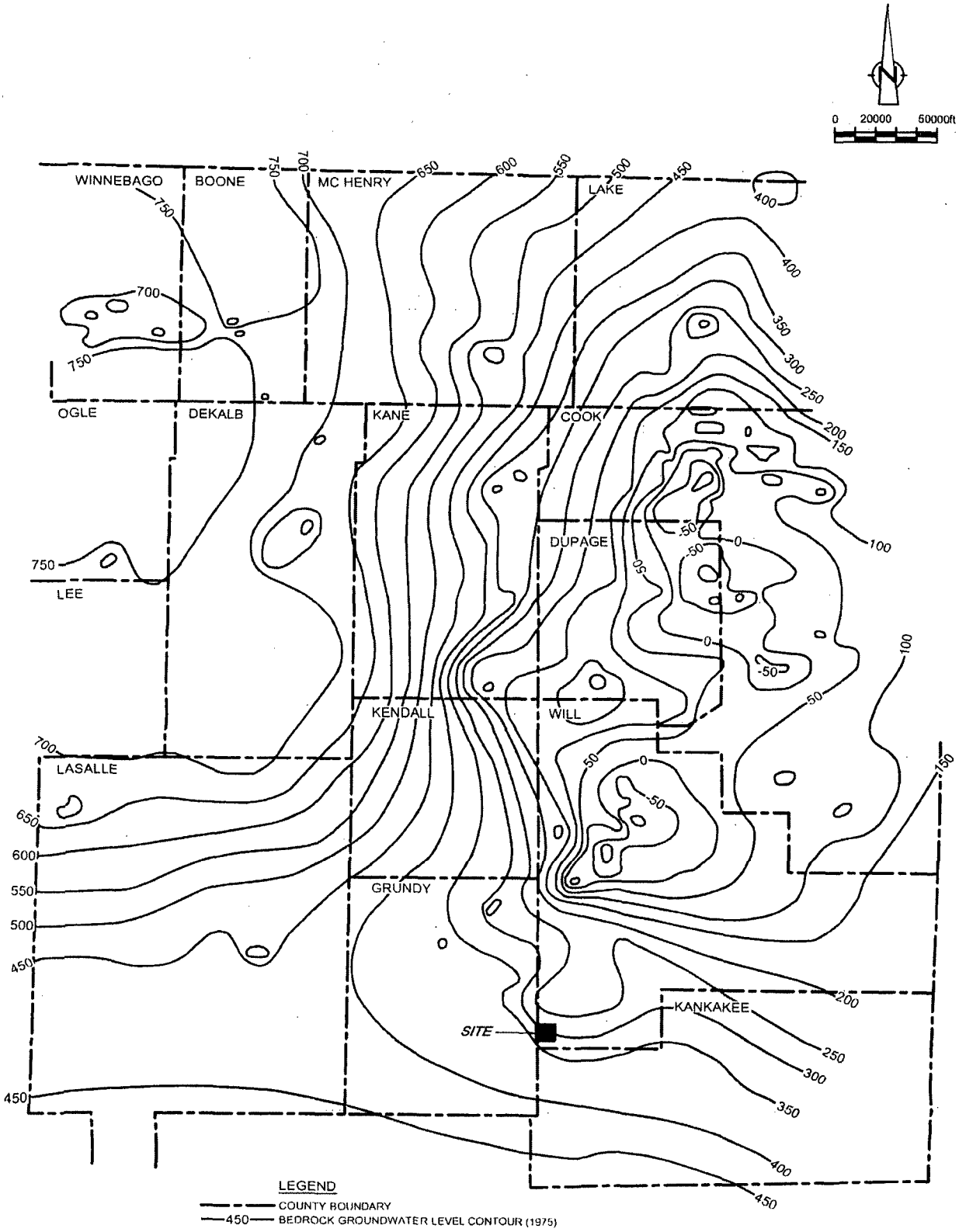


SCALE: HORIZONTAL 1"=400'
VERTICAL 1"=40'

LEGEND
WATER BEARING UNIT
AQUITARD LAYER

figure 5.1
REGIONAL STRATIGRAPHIC SECTION
EXELON GENERATION BRAIDWOOD STATION
Braceville, Illinois

16841-11(012)GN-WA015 MAR 21/2006



SOURCE: UFSAR FIGURE 2.4-40 DATED OCTOBER 1975.

figure 5.2

REGIONAL DEEP BEDROCK GROUNDWATER LEVEL CONTOURS
EXELON GENERATION BRAIDWOOD STATION
Braceville, Illinois

16841-11(012)GN-WA016 MAR 21/2006

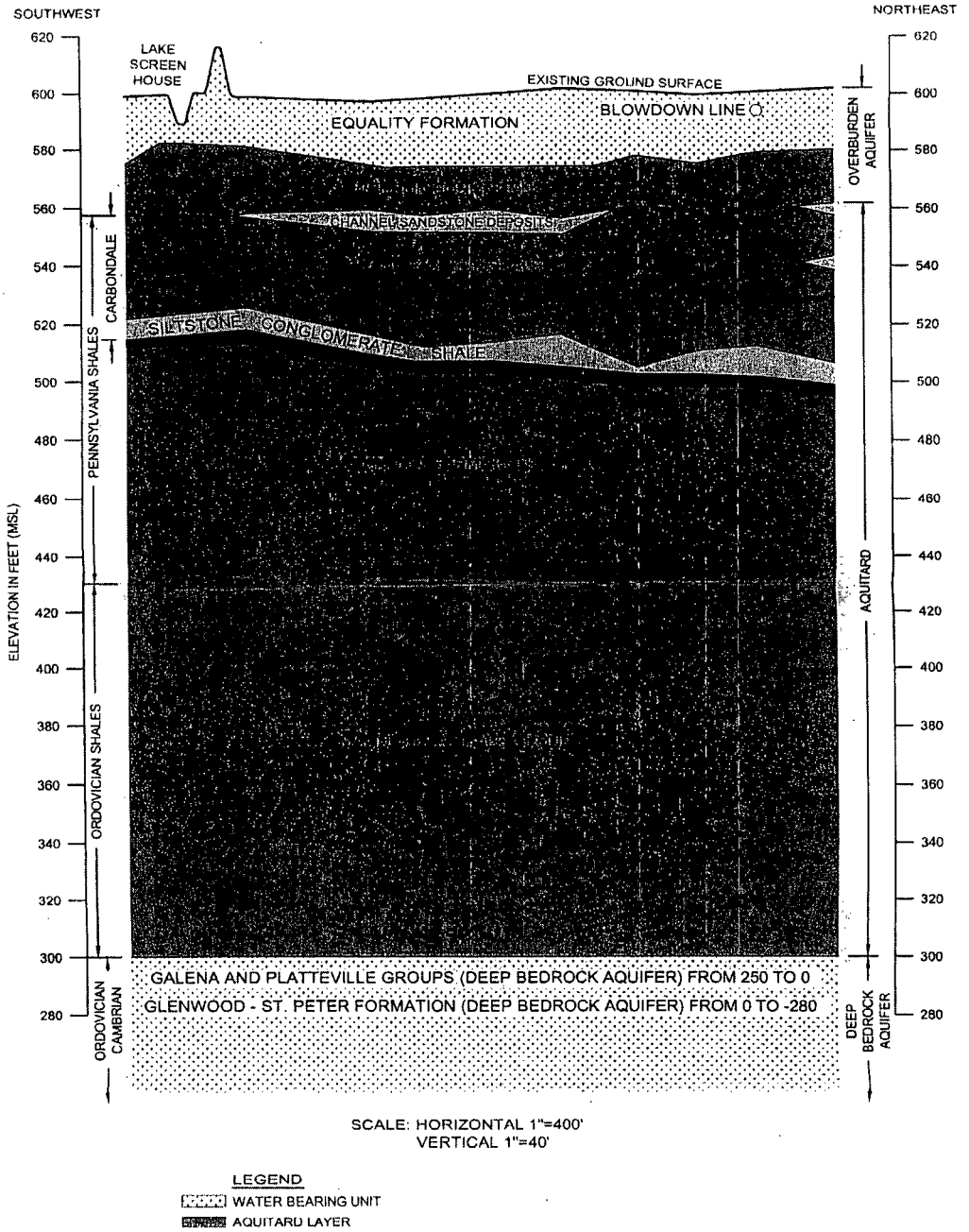
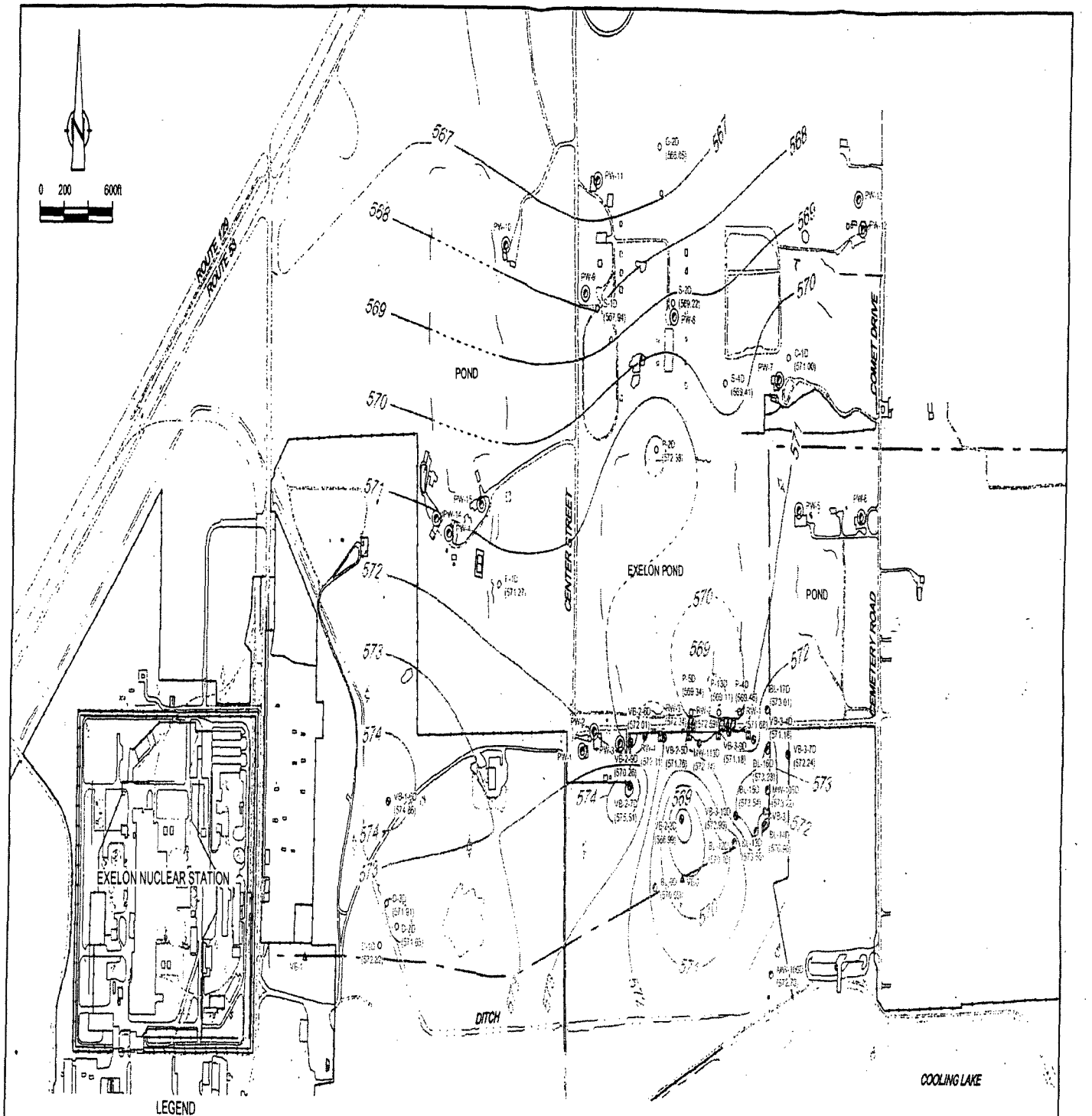


figure 5.3

SITE SPECIFIC GEOLOGIC CROSS-SECTION (UFSAR)
EXELON GENERATION BRAIDWOOD STATION
Braceville, Illinois

16841-11(012)GN-WA017 MAR 21/2006



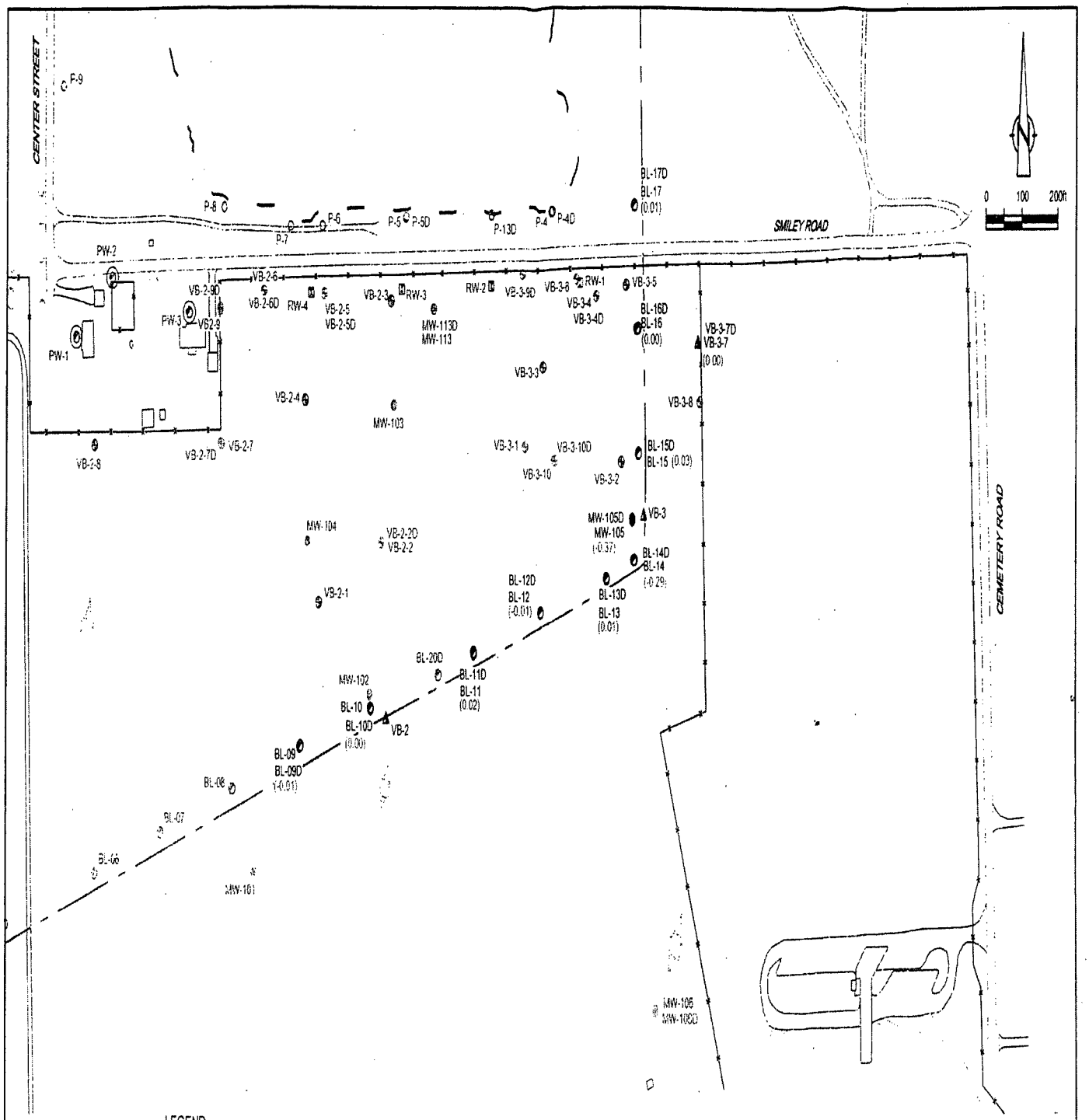
LEGEND

- EXISTING FENCE LINE
- BLOWDOWN LINE
- PLANT PROPERTY LINE
- BLOWDOWN LINE SAMPLING LOCATION
- VACUUM BREAKER LOCATION
- VACUUM BREAKER SAMPLING LOCATION
- MONITORING WELL LOCATION
- PRIVATE WELL LOCATION
- TEMPORARY WELL LOCATION
- RECOVERY WELL LOCATION
- ESTIMATED CLAY ELEVATION (ft AMSL)
- BOTTOM OF SAND/TOP OF CLAY CONTOUR

figure 5.4

ESTIMATED BOTTOM OF SAND/TOP OF CLAY MAP CONTOURS
EXELON GENERATION BRAIDWOOD STATION
Braceville, Illinois

16841-11(012)GN-WA020 MAR 21/2006



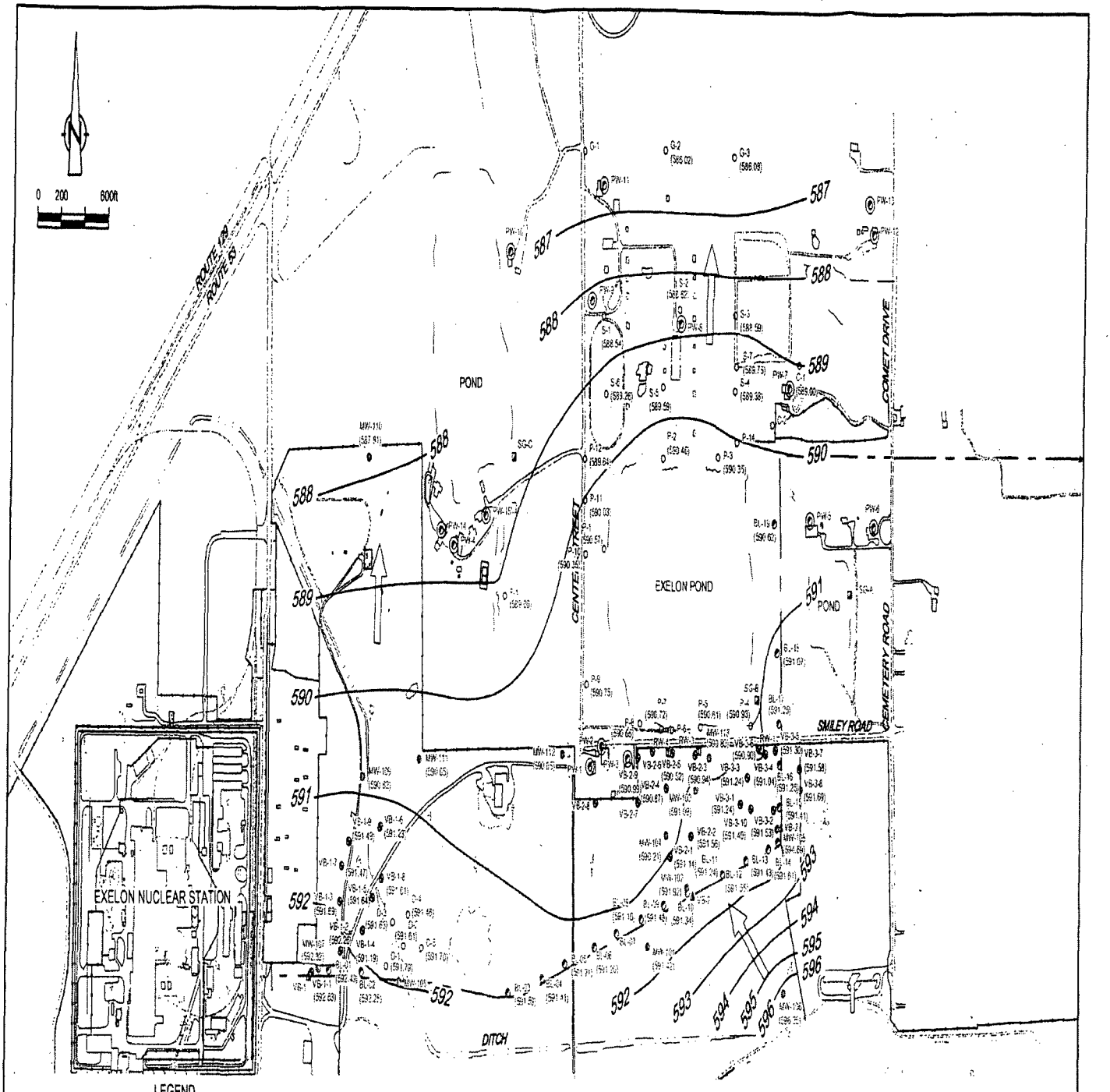
LEGEND

	EXISTING FENCE LINE
	BLOWDOWN LINE
	PLANT PROPERTY LINE
BL-19	SHALLOW BLOWDOWN LINE SAMPLING LOCATION
BL-09D	DEEP BLOWDOWN LINE SAMPLING LOCATION
VB-3	VACUUM BREAKER LOCATION
VB-3-7	VACUUM BREAKER SAMPLING LOCATION
MW-105	SHALLOW MONITORING WELL LOCATION
MW-113D	DEEP MONITORING WELL LOCATION
PW-5	PRIVATE WELL LOCATION
P-11	SHALLOW TEMPORARY WELL LOCATION
P-40	DEEP TEMPORARY WELL LOCATION
RW-3	SHALLOW RECOVERY WELL LOCATION
RW-2	DEEP RECOVERY WELL LOCATION
(0.01)	POSITIVE VERTICAL GRADIENT = UPWARD
(-0.01)	NEGATIVE OR ZERO VERTICAL GRADIENT = DOWNWARD

figure 5.5

VERTICAL GROUNDWATER GRADIENTS ALONG BLOWDOWN LINE
EXELON GENERATION BRAIDWOOD STATION
Braceville, Illinois

16841-11(012)GN-WA028 MAR 21/2006



LEGEND

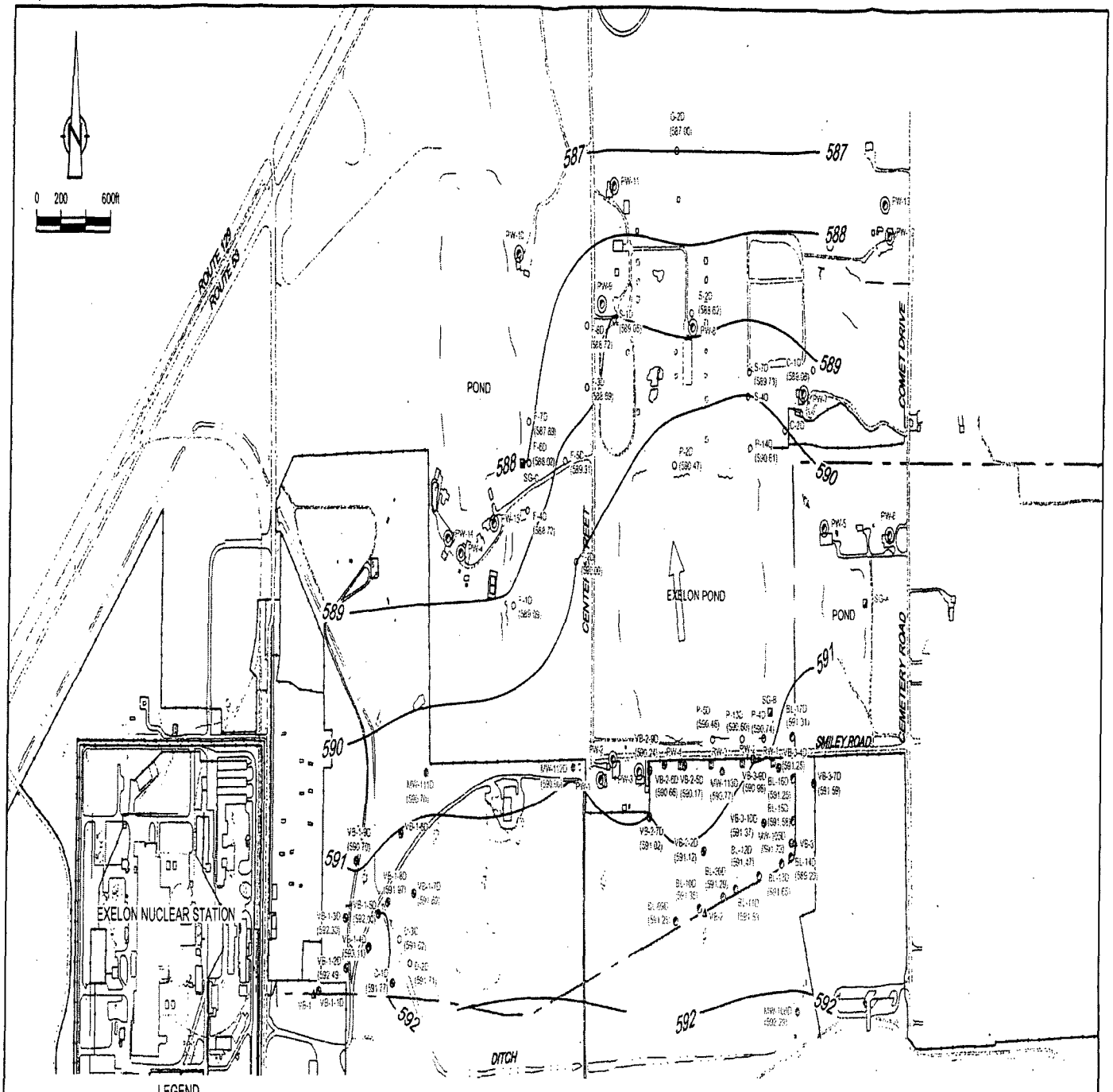
	EXISTING FENCE LINE	MW-106	MONITORING WELL LOCATION
	BLOWDOWN LINE	PW-5	PRIVATE WELL LOCATION
	PLANT PROPERTY LINE	P-11	TEMPORARY WELL LOCATION
VB-1	VACUUM BREAKER LOCATION	RA-3	RECOVERY WELL LOCATION
BL-11	BLOWDOWN LINE SAMPLING LOCATION	(590.34)	GROUNDWATER ELEVATION (ft AMSL)
VB-3-7	VACUUM BREAKER SAMPLING LOCATION	591	GROUNDWATER ELEVATION CONTOUR (ft AMSL)
SG-6	STAFF GAUGE LOCATION		GROUNDWATER FLOW DIRECTION

NOTE:
MONITORING WELL DATA TAKEN JANUARY 3, 2006 TO JANUARY 5, 2006

figure 5.6

GROUNDWATER LEVEL CONTOURS - JANUARY 2006
SHALLOW GROUNDWATER ZONE
EXELON GENERATION BRAIDWOOD STATION
Braceville, Illinois

16841-11(012)GN-WA018 MAR 21/2006



LEGEND

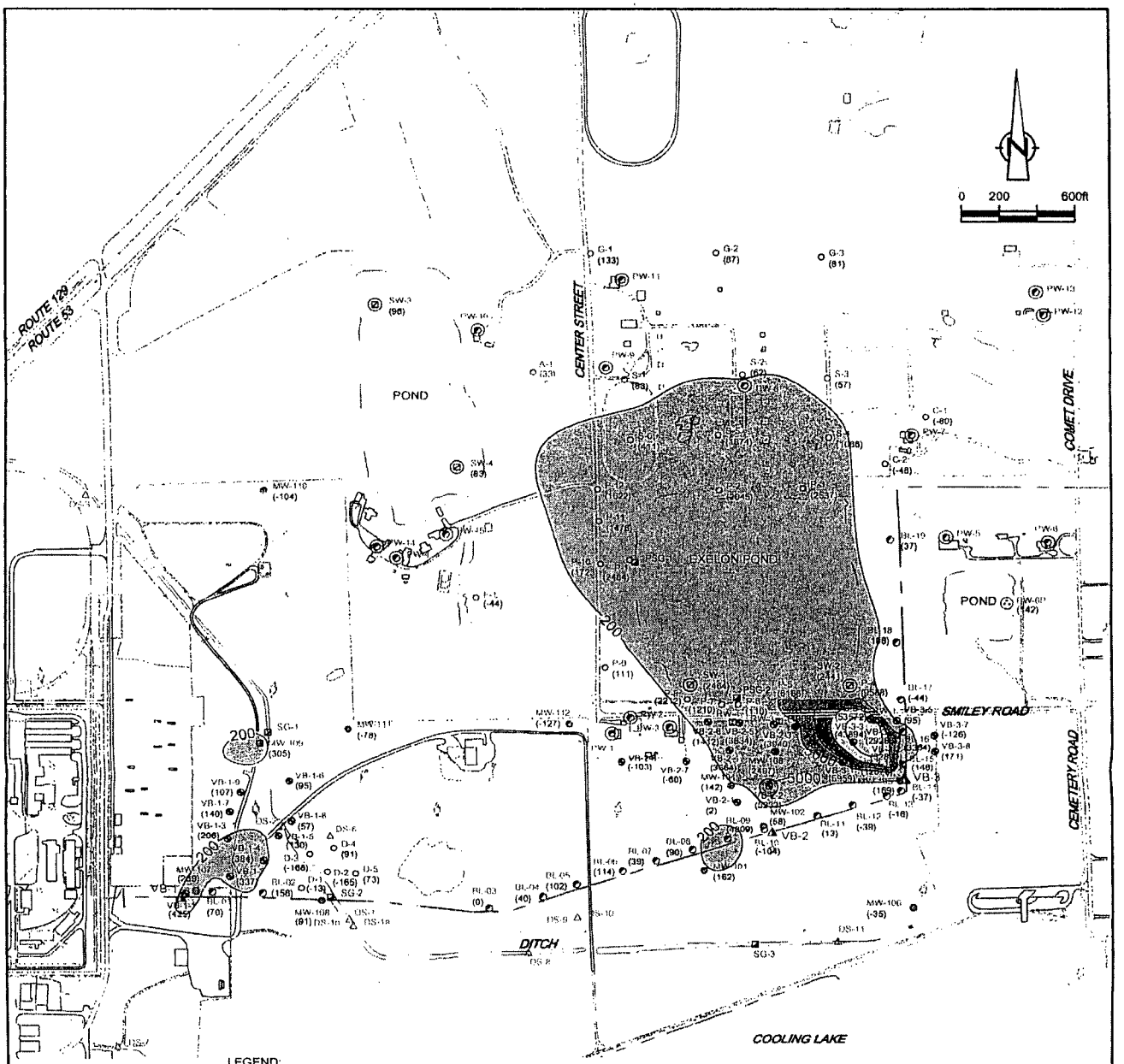
- EXISTING FENCE LINE
- BLOWDOWN LINE
- PLANT PROPERTY LINE
- BL-1/2 — BLOWDOWN LINE SAMPLING LOCATION
- VB-2 — VACUUM BREAKER LOCATION
- VB-3-1D — VACUUM BREAKER SAMPLING LOCATION
- MW-1/2 — MONITORING WELL LOCATION
- SG-6 — STAFF GAUGE LOCATION
- PW-2 — PRIVATE WELL LOCATION
- P-4D — TEMPORARY WELL LOCATION
- VB-1 — RECOVERY WELL LOCATION
- (590.15) — GROUNDWATER ELEVATION (ft AMSL)
- 591 — GROUNDWATER ELEVATION CONTOUR (ft AMSL)
- GROUNDWATER FLOW DIRECTION

NOTE:
MONITORING WELL DATA TAKEN JANUARY 3, 2006 TO JANUARY 24, 2006

figure 5.7

GROUNDWATER LEVEL CONTOURS - JANUARY 2006
DEEP GROUNDWATER ZONE
EXELON GENERATION BRAIDWOOD STATION
Braceville, Illinois

16841-11(012)GN-WA019 MAR 21/2006



LEGEND:

- EXISTING FENCE LINE
- EXISTING PERIMETER DITCH LIMITS
- BLOWDOWN LINE
- PLANT PROPERTY LINE
- BL-19 SHALLOW BLOWDOWN LINE SAMPLING LOCATION
- VB-3 VACUUM BREAKER LOCATION
- VB-3-7 VACUUM BREAKER SAMPLING LOCATION
- MW-105 SHALLOW MONITORING WELL LOCATION
- PW-5 PRIVATE WELL LOCATION
- P-11 SHALLOW TEMPORARY WELL LOCATION
- PSG-1 STAFF GAUGE LOCATION
- DS-8 DITCH SAMPLING LOCATION
- SW-2 SURFACE WATER SAMPLING LOCATION
- RW-3 SHALLOW RECOVERY WELL LOCATION
- PW-6P POND SAMPLING LOCATION
- (2,484) TRITIUM RESULT IN GROUNDWATER
- 200 TRITIUM CONTOUR

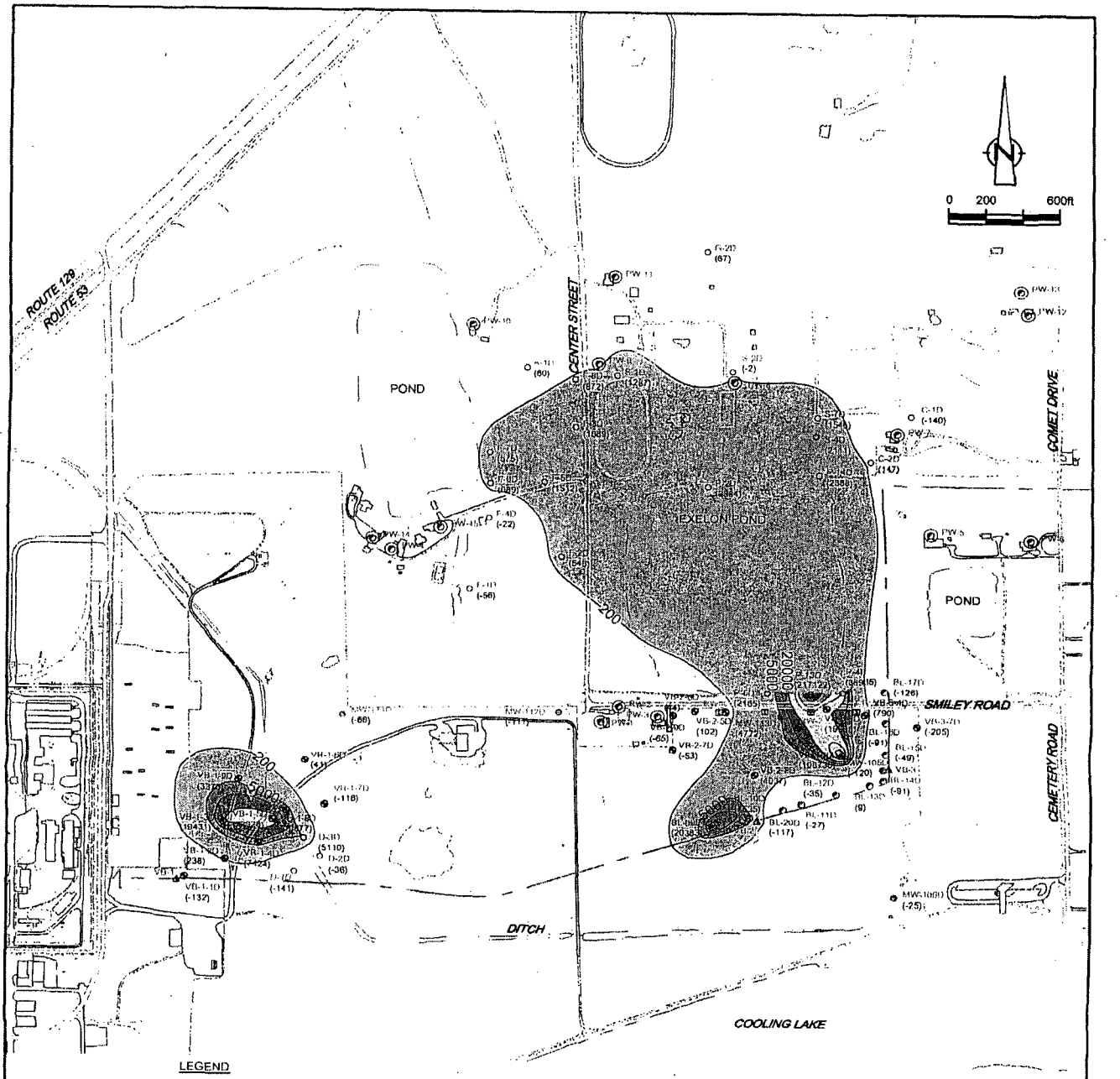
- TRITIUM RESULTS 200,000 TO 250,000 (PICOCURIES/LITER)
- TRITIUM RESULTS 100,000 TO 200,000
- TRITIUM RESULTS 60,000 TO 100,000
- TRITIUM RESULTS 40,000 TO 60,000
- TRITIUM RESULTS 20,000 TO 40,000
- TRITIUM RESULTS 10,000 TO 20,000
- TRITIUM RESULTS 5,000 TO 10,000
- TRITIUM RESULTS 200 TO 5,000
- TRITIUM RESULTS 0 TO 200

NOTE:
BACKGROUND TRITIUM CONCENTRATION: 200 pCi/L
DRINKING WATER STANDARD FOR TRITIUM: 20,000 pCi/L
TRITIUM DATA FOR SAMPLES COLLECTED THROUGH JANUARY 30, 2006. CONTOURS WERE GENERATED USING LOG VALUES.

figure 6.1

ESTIMATED TRITIUM RESULTS
SHALLOW GROUNDWATER ZONE
EXELON GENERATION BRAIDWOOD STATION
Braceville, Illinois

16841-11(012)GN-WA022 MAR 21/2006



LEGEND

- EXISTING FENCE LINE
- EXISTING PERIMETER DITCH LIMITS
- BLOWDOWN LINE
- PLANT PROPERTY LINE
- DEEP BLOWDOWN LINE SAMPLING LOCATION
- VACUUM BREAKER LOCATION
- DEEP VACUUM BREAKER SAMPLING LOCATION
- DEEP MONITORING WELL LOCATION
- PRIVATE WELL LOCATION
- DEEP TEMPORARY WELL LOCATION
- POND SAMPLING LOCATION
- DEEP RECOVERY WELL LOCATION
- (2,484) TRITIUM RESULT IN GROUNDWATER
- 200 TRITIUM CONTOUR

- TRITIUM RESULTS 200,000 TO 250,000 (PICOCURIES/LITER)
- TRITIUM RESULTS 100,000 TO 200,000
- TRITIUM RESULTS 60,000 TO 100,000
- TRITIUM RESULTS 40,000 TO 60,000
- TRITIUM RESULTS 20,000 TO 40,000
- TRITIUM RESULTS 10,000 TO 20,000
- TRITIUM RESULTS 5,000 TO 10,000
- TRITIUM RESULTS 200 TO 5,000
- TRITIUM RESULTS 0 TO 200

NOTE:
BACKGROUND TRITIUM CONCENTRATION: 200 PCI/L
DRINKING WATER STANDARD FOR TRITIUM: 20,000 PCI/L
TRITIUM DATA FOR SAMPLES COLLECTED THROUGH JANUARY 30, 2006. CONTOURS WERE GENERATED USING LOG VALUES.

figure 6.2

ESTIMATED TRITIUM RESULTS
DEEP GROUNDWATER ZONE
EXELON GENERATION BRAIDWOOD STATION
Braceville, Illinois

16841-11(012)GN-WA023 MAR 21/2006

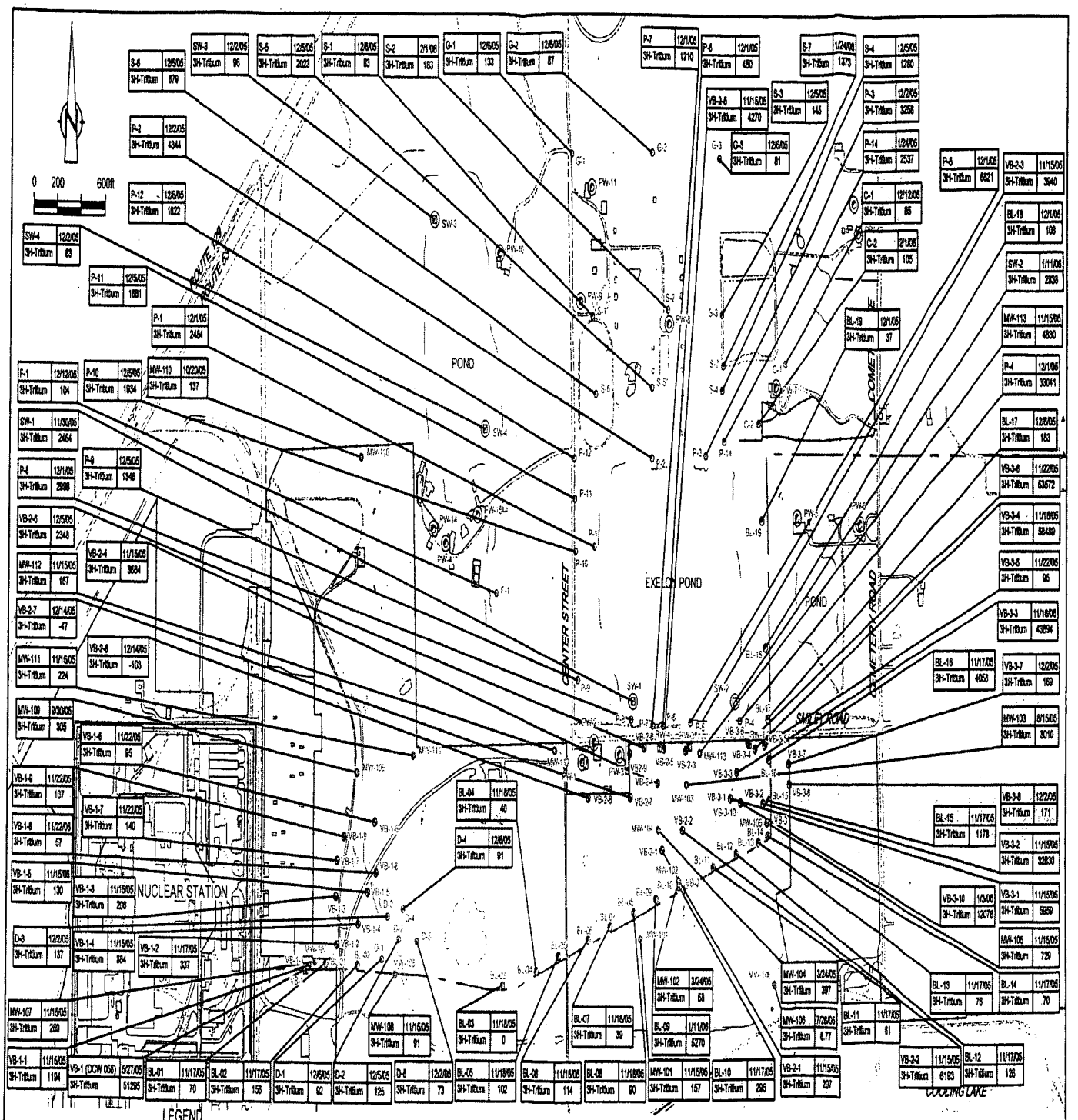


figure 6.3

MAXIMUM DETECTIONS OF TRITIUM IN THE SHALLOW GROUNDWATER ZONE THROUGH JANUARY 2006
EXELON GENERATION BRAIDWOOD STATION
Braceville, Illinois

16841-11(012)GN-WA025 MAR 21/2006

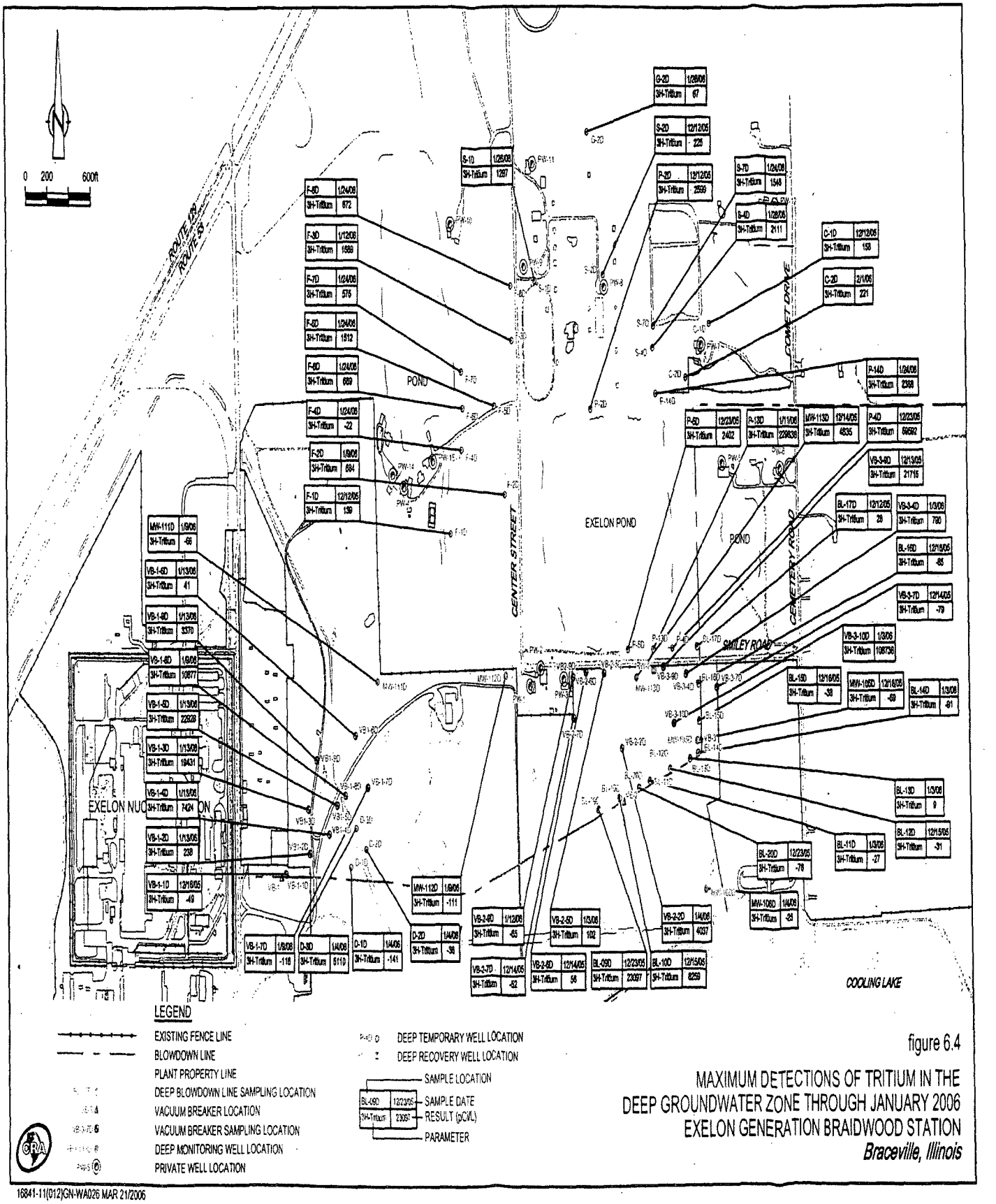
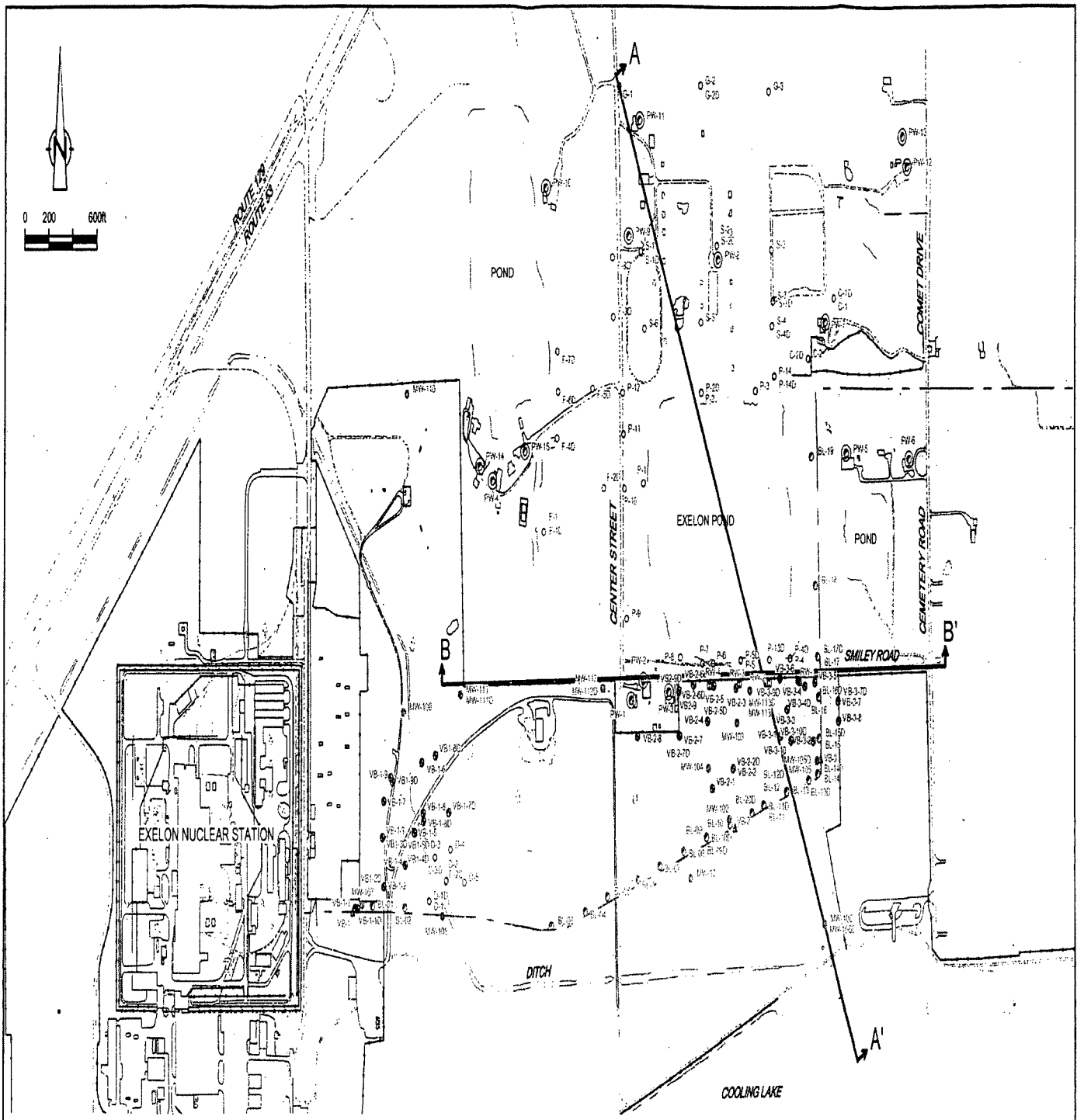


figure 6.4

MAXIMUM DETECTIONS OF TRITIUM IN THE DEEP GROUNDWATER ZONE THROUGH JANUARY 2006
EXELON GENERATION BRAIDWOOD STATION
Braceville, Illinois

16841-11(012)GN-WA026 MAR 21/2006



LEGEND

EXISTING FENCE LINE	SHALLOW MONITORING WELL LOCATION
BLOWDOWN LINE	DEEP MONITORING WELL LOCATION
PLANT PROPERTY LINE	PRIVATE WELL LOCATION
SHALLOW BLOWDOWN LINE SAMPLING LOCATION	SHALLOW TEMPORARY WELL LOCATION
DEEP BLOWDOWN LINE SAMPLING LOCATION	DEEP TEMPORARY WELL LOCATION
VACUUM BREAKER LOCATION	SHALLOW RECOVERY WELL LOCATION
VACUUM BREAKER SAMPLING LOCATION	DEEP RECOVERY WELL LOCATION

figure 6.5

HYDROGEOLOGIC PROFILE LOCATIONS
EXELON GENERATION BRAIDWOOD STATION
Braceville, Illinois

16841-11(612)GN-WA006 MAR 21/2006

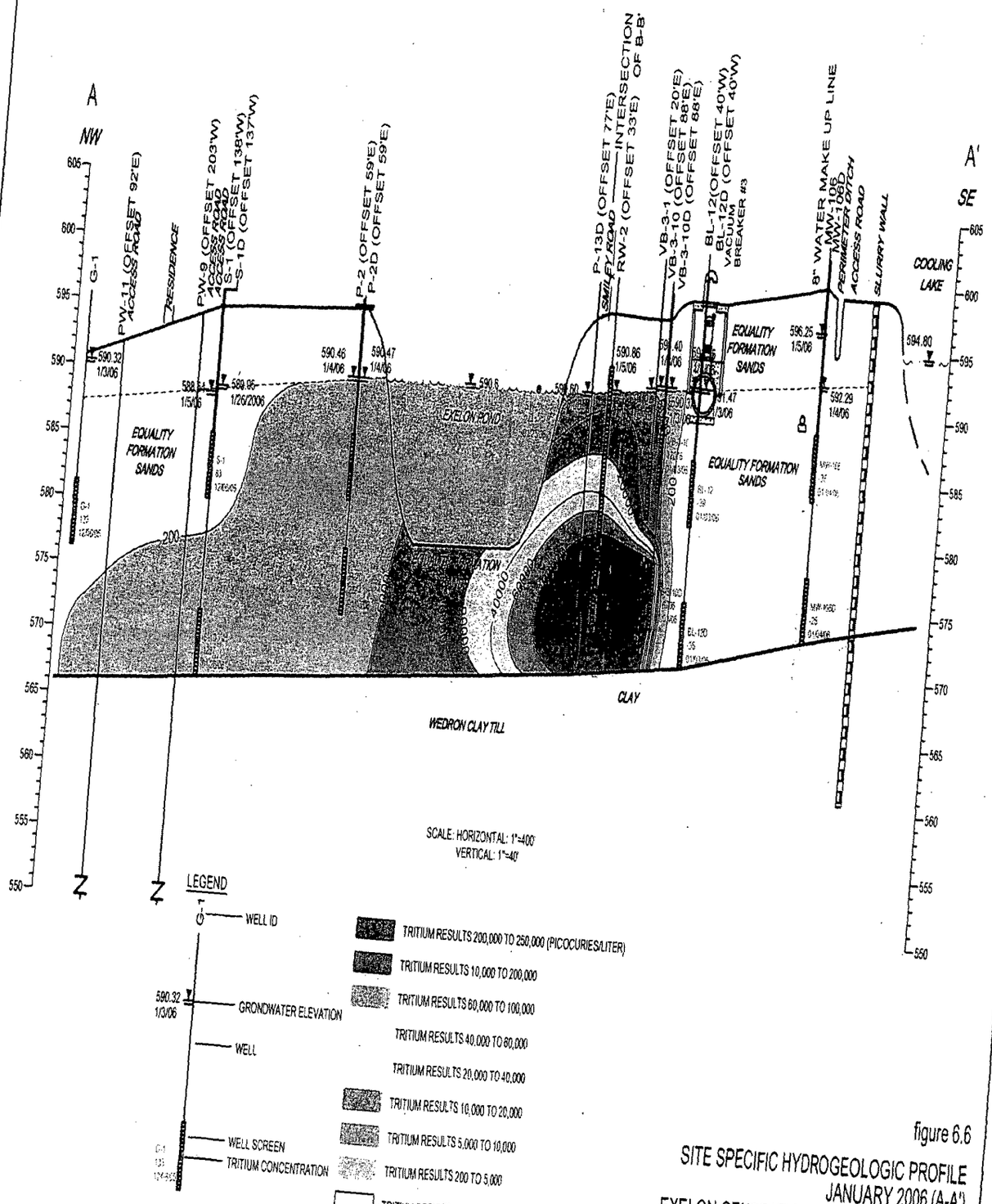


figure 6.6

SITE SPECIFIC HYDROGEOLOGIC PROFILE
JANUARY 2006 (A-A')
EXELON GENERATION BRAIDWOOD STATION
Braceville, Illinois

16841-11(012)GN-WA006 MAR 21/2006

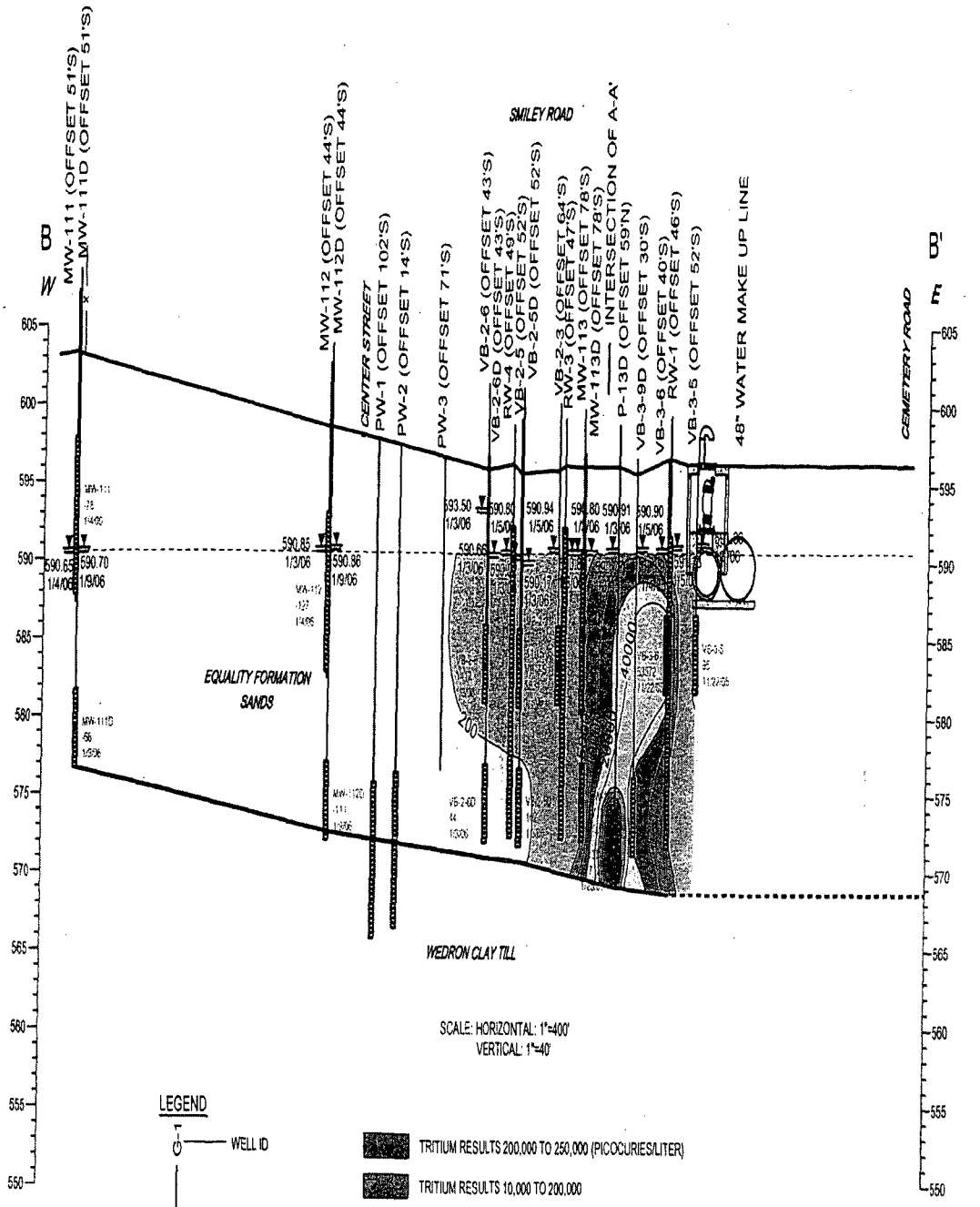


figure 6.7

SITE SPECIFIC HYDROGEOLOGIC PROFILE
JANUARY 2006 (B-B')
EXELON GENERATION BRAIDWOOD STATION
Braceville, Illinois

16841-11(012)GN-WA006 MAR 21/2006

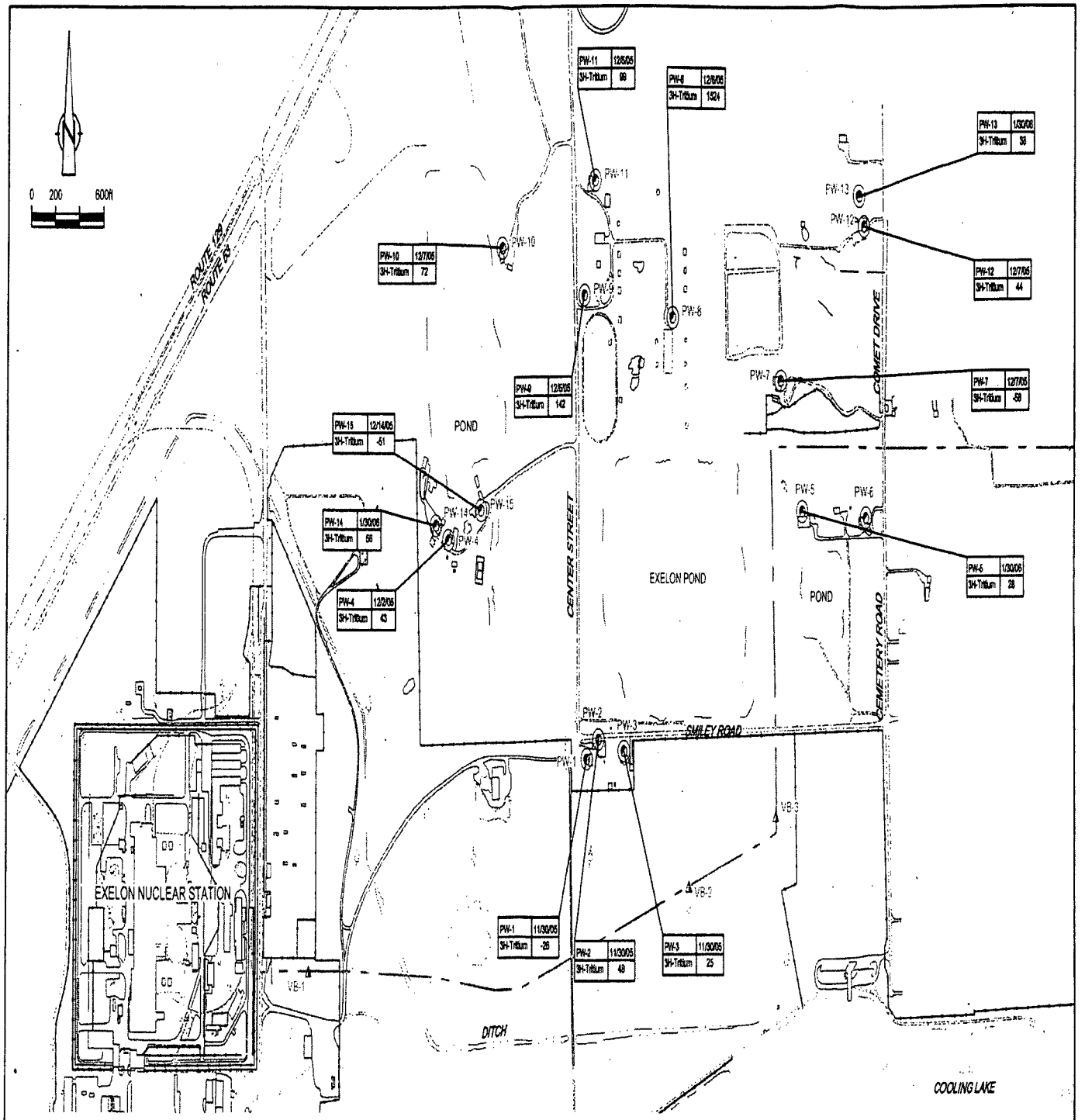
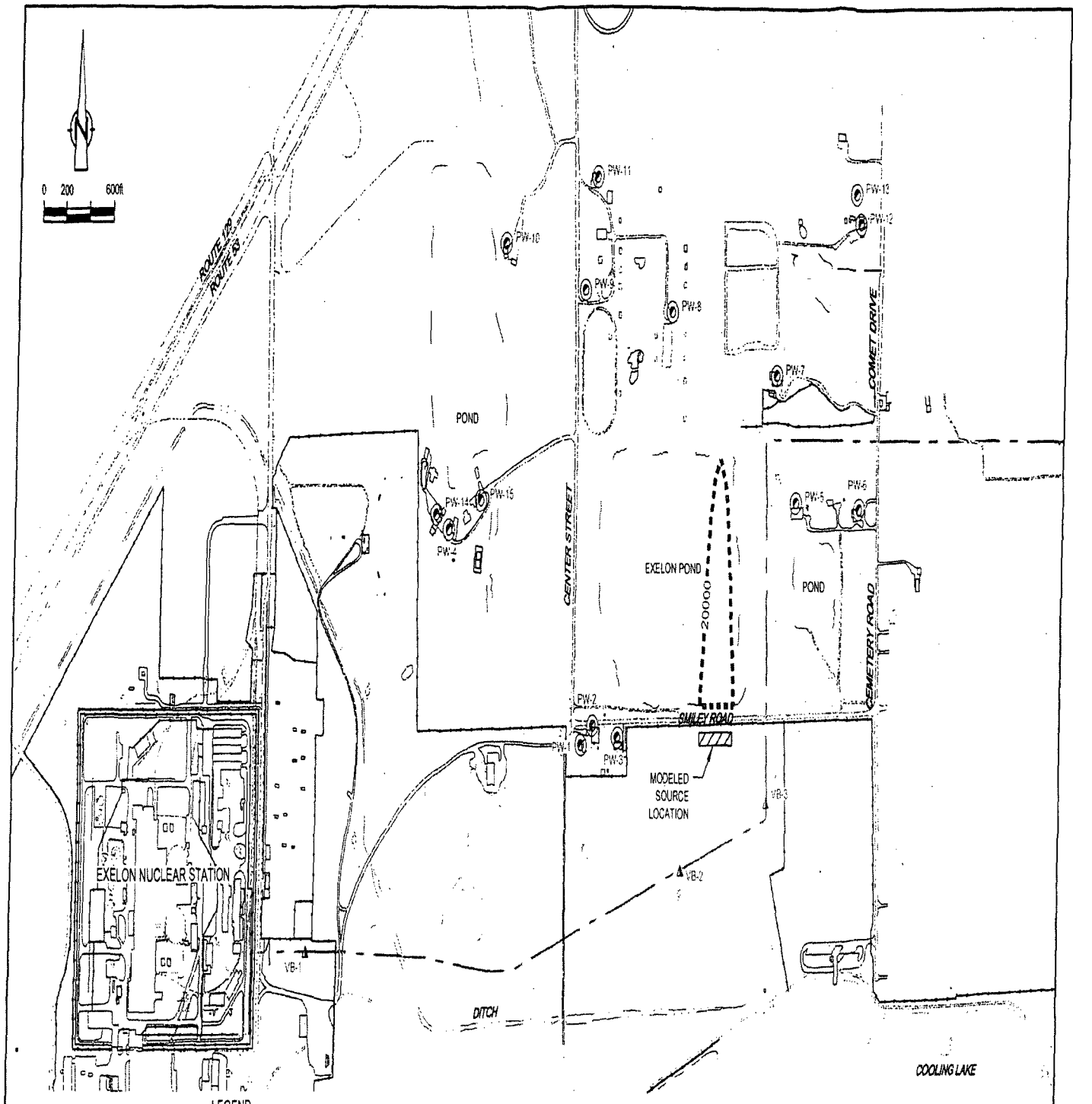


figure 6.8

MAXIMUM DETECTIONS OF TRITIUM THROUGH JANUARY 2006 IN PRIVATE WELLS
EXELON GENERATION BRAIDWOOD STATION
Braceville, Illinois

16841-11(012)GN-WA024 MAR 21/2006



LEGEND

- EXISTING FENCE LINE
- BLOWDOWN LINE
- PLANT PROPERTY LINE
- VB-5 ▲ VACUUM BREAKER LOCATION
- PW-5 PRIVATE WELL LOCATION
- MAXIMUM EXTENT OF TRITIUM PLUME AT DRINKING WATER STANDARD (20000 pCi/L)

NOTE: PLUME REACHES STEADY STATE IN 30 YEARS (2036).

figure 7.1

GRAPHICAL PRESENTATION OF BIOSCREEN MODELING RESULTS AND LOCATION OF WATER SUPPLY WELLS
EXELON GENERATION BRAIDWOOD STATION
Braceville, Illinois

16841-11(012)GN-WA029 MAR 21/2006

TABLES

SUMMARY OF PERMANENT AND TEMPORARY MONITORING WELL SPECIFICATIONS
EXELON GENERATION
BRAIDWOOD STATION

Well Number	Ground Surface (NGVD)[1]	Top of Riser Elevation (NGVD)	Boring Total Depth (ft BGS)[2]	Screen Interval (ft BGS)	Screen Top Elevation (NGVD)	Screen Bottom Elevation (NGVD)	Well Diameter (inches)	Well Material	Stickup Height (ft AGS)[3]
A-1	594.28	597.00	15.0	10 to 15	584.28	579.28	1	PVC[4]	2.72
A-1D	594.32	597.34	25.0	20 to 25	574.32	569.32	1	PVC	3.02
B-01	594.58	598.65	15.0	10 to 15	584.58	579.58	1	PVC	4.07
B-01D	594.69	596.53	28.0	23 to 28	571.69	566.69	1	PVC	1.84
BL-01	600.38	605.58	17.0	12 to 17	588.38	583.38	1	PVC	5.20
BL-02	600.16	604.84	14.5	9.5 to 14.5	590.66	585.66	1	PVC	4.68
BL-03	600.60	604.50	23.0	18 to 23	582.60	577.60	1	PVC	3.90
BL-04	599.76	601.91	14.5	10 to 15	589.76	584.76	1	PVC	2.15
BL-05	599.76	602.60	21.0	16 to 21	583.76	578.76	1	PVC	2.84
BL-06	597.74	601.83	15.0	10 to 15	587.74	582.74	1	PVC	4.09
BL-07	597.57	601.08	15.0	10 to 15	587.57	582.57	1	PVC	3.51
BL-08	598.53	602.29	15.0	10 to 15	588.53	583.53	1	PVC	3.76
BL-09[5]	599.75	602.75	12.5	7.5 to 12.5	592.25	587.25	1	PVC	3.00
BL-09	599.60	602.49	22.0	16 to 21	583.60	578.60	1	PVC	2.89
BL-09D	599.65	600.36	29.0	24 to 29	575.65	570.65	1	PVC	0.71
BL-10	602.49	605.37	15.0	10 to 15	592.49	587.49	1	PVC	2.88
BL-10D	602.43	605.16	32.0	27 to 32	575.43	570.43	1	PVC	2.73
BL-11	597.47	600.65	15.0	10 to 15	587.47	582.47	1	PVC	3.18
BL-11D	597.34	599.09	28.0	23 to 28	574.34	569.34	1	PVC	1.75
BL-12	598.03	601.60	15.0	10 to 15	588.03	583.03	1	PVC	3.57
BL-12D	598.10	599.87	28.0	23 to 28	575.10	570.10	1	PVC	1.77
BL-13	598.07	601.37	15.0	10 to 15	588.07	583.07	1	PVC	3.30
BL-13D	598.05	600.82	24.5	19.5 to 24.5	578.55	573.55	1	PVC	2.77
BL-14	597.34	601.26	15.0	10 to 15	587.34	582.34	1	PVC	3.92
BL-14D	597.46	599.90	26.5	21.5 to 26.5	575.96	570.96	1	PVC	2.44
BL-15	597.29	600.98	15.0	10 to 15	587.29	582.29	1	PVC	3.69
BL-15D	597.54	598.50	24.0	19 to 24	578.54	573.54	1	PVC	0.96
BL-16	597.12	600.30	15.0	10 to 15	587.12	582.12	1	PVC	3.18
BL-16D	597.28	598.17	24.0	19 to 24	578.28	573.28	1	PVC	0.89
BL-17	597.01	597.62	14.5	9.5 to 14.5	587.51	582.51	1	PVC	0.61
BL-17D	597.01	598.11	25.0	19 to 24	578.01	573.01	1	PVC	1.10
BL-18	596.82	597.59	14.5	9.5 to 14.5	587.32	582.32	1	PVC	0.77
BL-18D	596.66	598.57	27.0	22 to 27	574.66	569.66	1	PVC	1.91
BL-19	594.94	595.55	9.0	4 to 9	590.94	585.94	1	PVC	0.61
BL-19D	595.06	596.93	28.2	23.2 to 28.2	571.86	566.86	1	PVC	1.87
BL-20D	596.89	600.45	29.0	23 to 28	573.89	568.89	1	PVC	3.56

TABLE 4.1

SUMMARY OF PERMANENT AND TEMPORARY MONITORING WELL SPECIFICATIONS
EXELON GENERATION
BRAIDWOOD STATION

Well Number	Ground Surface (NGVD)[1]	Top of Riser Elevation (NGVD)	Boring Total Depth (ft BGS)[2]	Screen Interval (ft BGS)	Screen Top Elevation (NGVD)	Screen Bottom Elevation (NGVD)	Well Diameter (inches)	Well Material	Stickup Height (ft AGS)[3]
C-1	595.00	595.78	14.0	9 to 14	586.00	581.00	1	PVC	0.78
C-1D	595.00	595.87	25.0	19 to 24	576.00	571.00	1	PVC	0.87
C-2	606.94	610.91	15.5	10.5 to 15.5	596.44	591.44	1	PVC	3.97
C-2D	606.82	609.03	27.5	22.5 to 27.5	584.32	579.32	1	PVC	2.21
D-1	599.64	603.69	15.0	10 to 15	589.64	584.64	1	PVC	4.05
D-1D	599.82	603.77	27.0	22 to 27	577.82	572.82	1	PVC	3.95
D-2	598.78	601.92	12.0	7 to 12	591.78	586.78	1	PVC	3.14
D-2D	598.65	601.47	28.0	22 to 27	576.65	571.65	1	PVC	2.82
D-3	599.00	602.48	12.0	7 to 12	592.00	587.00	1	PVC	3.48
D-3D	598.91	602.22	28.0	22 to 27	576.91	571.91	1	PVC	3.31
D-4	598.48	602.55	15.0	10 to 15	588.48	583.48	1	PVC	4.07
D-5	598.58	602.27	12.0	7 to 12	591.58	586.58	1	PVC	3.69
F-1	595.27	596.25	14.0	9 to 14	586.27	581.27	1	PVC	0.98
F-1D	595.27	596.19	25.0	19 to 24	576.27	571.27	1	PVC	0.92
F-2D	594.05	597.26	25.0	20 to 25	574.05	569.05	1	PVC	3.21
F-3D	594.59	597.36	25.0	20 to 25	574.59	569.59	1	PVC	2.77
F-4D	595.57	599.59	29.5	24.5 to 29.5	571.07	566.07	1	PVC	4.02
F-5D	593.38	595.96	27.0	22 to 27	571.38	566.38	1	PVC	2.58
F-6D	595.05	597.28	27.5	22.5 to 27.5	572.55	567.55	1	PVC	2.23
F-7D	594.38	596.37	28.0	23 to 28	571.38	566.38	1	PVC	1.99
F-8D	594.60	598.42	26.0	21 to 26	573.60	568.60	1	PVC	3.82
G-1	590.70	595.35	14.5	9.5 to 14.5	581.20	576.20	1	PVC	4.65
G-2	590.24	590.82	14.5	9.5 to 14.5	580.74	575.74	1	PVC	0.58
G-2D	590.05	590.65	25.0	19 to 24	571.05	566.05	1	PVC	0.60
G-3	592.34	592.93	14.5	9.5 to 14.5	582.84	577.84	1	PVC	0.59
MW-101	599.49	602.77	10.0	5 to 10	594.49	589.49	2	PVC	3.28
MW-102	602.42	605.70	11.0	6 to 11	596.42	591.42	2	PVC	3.28
MW-103	595.72	598.84	8.0	3 to 8	592.72	587.72	2	PVC	3.12
MW-104	596.60	598.80	8.0	3 to 8	593.60	588.60	2	PVC	2.20
MW-105	597.29	600.74	16.0	5 to 15	592.29	582.29	2	PVC	3.45
MW-105D	597.22	598.20	24.0	19 to 24	578.22	573.22	1	PVC	0.98
MW-106	599.60	602.73	16.0	5 to 15	594.60	584.60	2	PVC	3.13
MW-106D	599.70	601.81	27.0	22 to 27	577.70	572.70	1	PVC	2.11
MW-107	599.85	603.24	16.0	5 to 15	594.85	584.85	2	PVC	3.39
MW-108	599.76	603.10	16.0	5 to 15	594.76	584.76	2	PVC	3.34
MW-109	598.81	601.23	16.0	5 to 15	593.81	583.81	2	PVC	2.42

TABLE 4.1

SUMMARY OF PERMANENT AND TEMPORARY MONITORING WELL SPECIFICATIONS
EXELON GENERATION
BRAIDWOOD STATION

Well Number	Ground Surface (NGVD)[1]	Top of Riser Elevation (NGVD)	Boring Total Depth (ft BGS)[2]	Screen Interval (ft BGS)	Screen Top Elevation (NGVD)	Screen Bottom Elevation (NGVD)	Well Diameter (inches)	Well Material	Stickup Height (ft AGS)[3]
MW-110	604.01	607.27	20.0	9.5 to 19.5	594.51	584.51	2	PVC	3.26
MW-111	603.29	607.20	16.0	5.5 to 15.5	597.79	587.79	2	PVC	3.91
MW-111D	603.17	605.05	26.5	21.5 to 26.5	581.67	576.67	1	PVC	1.88
MW-112	598.57	602.62	16.0	5.5 to 15.5	593.07	583.07	2	PVC	4.05
MW-112D	598.61	600.85	26.0	21 to 26	577.61	572.61	1	PVC	2.24
MW-113	596.10	599.77	16.0	5.5 to 15.5	590.60	580.60	2	PVC	3.67
MW-113D	596.14	596.90	25.0	19 to 24	577.14	572.14	1	PVC	0.76
P-1	594.90	595.59	14.5	9.5 to 14.5	585.40	580.40	1	PVC	0.69
P-2	595.65	596.27	14.5	9.5 to 14.5	586.15	581.15	1	PVC	0.62
P-2D	595.88	596.55	24.0	18.5 to 23.5	577.38	572.38	1	PVC	0.67
P-3	595.69	596.26	14.5	9.5 to 14.5	586.19	581.19	1	PVC	0.57
P-4	595.69	597.14	14.5	9.5 to 14.5	586.19	581.19	1	PVC	1.45
P-4D	596.46	599.22	27.0	22 to 27	574.46	569.46	1	PVC	2.76
P-5	596.34	597.06	15.0	10 to 15	586.34	581.34	1	PVC	0.72
P-5D	596.34	599.37	27.0	22 to 27	574.34	569.34	1	PVC	3.03
P-6	597.57	597.85	14.5	9.5 to 14.5	588.07	583.07	1	PVC	0.28
P-7	599.77	600.24	14.5	9.5 to 14.5	590.27	585.27	1	PVC	0.47
P-8	595.49	596.24	14.5	9.5 to 14.5	585.99	580.99	1	PVC	0.75
P-9	598.55	599.19	14.5	9.5 to 14.5	589.05	584.05	1	PVC	0.64
P-10	596.08	596.58	14.5	9.5 to 14.5	586.58	581.58	1	PVC	0.50
P-11	595.19	596.23	14.5	9.5 to 14.5	585.69	580.69	1	PVC	1.04
P-12	595.56	596.13	14.5	9.5 to 14.5	586.06	581.06	1	PVC	0.57
P-13D	596.11	598.76	27.0	22 to 27	574.11	569.11	1	PVC	2.65
P-14	596.52	599.14	15.5	10.5 to 15.5	586.02	581.02	1	PVC	2.62
P-14D	596.65	598.50	28.0	23 to 28	573.65	568.65	1	PVC	1.85
PS-1	543.95	546.13	12.0	6 to 11	537.95	532.95	1	PVC	2.18
PS-2	542.12	546.76	11.0	5 to 10	537.12	532.12	1	PVC	4.64
PS-3	547.16	550.09	12.0	6 to 11	541.16	536.16	1	PVC	2.93
PS-4	547.78	548.90	13.75	8.75 to 13.75	539.03	534.03	1	PVC	1.12
PS-5	548.41	550.24	13.0	8 to 13	540.41	535.41	1	PVC	1.83
PS-6	543.94	547.40	12.0	7 to 12	536.94	531.94	1	PVC	3.46
RW-1	596.68	599.36	28.0	5 to 25	591.68	571.68	4	PVC	2.68
RW-2	596.59	599.30	25.0	4 to 24	592.59	572.59	4	PVC	2.71
RW-3	596.24	599.19	24.0	4 to 24	592.24	572.24	4	PVC	2.95
RW-4	596.31	598.77	24.0	4 to 24	592.31	572.31	4	PVC	2.46
S-1	594.99	595.60	14.5	9.5 to 14.5	585.49	580.49	1	PVC	0.61

TABLE 4.1

SUMMARY OF PERMANENT AND TEMPORARY MONITORING WELL SPECIFICATIONS
EXELON GENERATION
BRAIDWOOD STATION

Well Number	Ground Surface (NGVD)[1]	Top of Riser Elevation (NGVD)	Boring Total Depth (ft BGS)[2]	Screen Interval (ft BGS)	Screen Top Elevation (NGVD)	Screen Bottom Elevation (NGVD)	Well Diameter (inches)	Well Material	Stickup Height (ft AGS)[3]
S-1D	594.94	596.92	28.0	22 to 27	572.94	567.94	1	PVC	1.98
S-2	592.72	593.32	14.5	9.5 to 14.5	583.22	578.22	1	PVC	0.60
S-2D	592.72	593.98	24.0	18.5 to 23.5	574.22	569.22	1	PVC	1.26
S-3	592.65	593.37	14.5	9.5 to 14.5	583.15	578.15	1	PVC	0.72
S-4	594.23	594.63	14.5	9.5 to 14.5	584.73	579.73	1	PVC	0.40
S-4D	593.91	596.67	25.5	19.5 to 24.5	574.41	569.41	1	PVC	2.76
S-5	592.76	593.44	14.5	9.5 to 14.5	583.26	578.26	1	PVC	0.68
S-6	594.99	595.57	14.5	9.5 to 14.5	585.49	580.49	1	PVC	0.58
S-7	593.54	594.73	13.6	8.6 to 13.6	584.94	579.94	1	PVC	1.19
S-7D	593.50	596.53	27.5	22.5 to 27.5	571.00	566.00	1	PVC	3.03
VB-1-1	602.14	605.62	15.0	10 to 15	592.14	587.14	1	PVC	3.48
VB-1-1D	602.14	604.52	32.0	27 to 32	575.14	570.14	1	PVC	2.38
VB-1-2	599.94	604.65	15.0	10 to 15	589.94	584.94	1	PVC	4.71
VB-1-2D	600.02	601.89	28.0	23 to 28	577.02	572.02	1	PVC	1.87
VB-1-3	599.64	603.61	15.0	10 to 15	589.64	584.64	1	PVC	3.97
VB-1-3D	599.55	601.95	27.5	22.5 to 27.5	577.05	572.05	1	PVC	2.40
VB-1-4	599.32	601.50	15.0	10 to 15	589.32	584.32	1	PVC	2.18
VB-1-4D	599.93	602.01	28.0	23 to 28	576.93	571.93	1	PVC	2.08
VB-1-5	600.17	603.85	15.0	10 to 15	590.17	585.17	1	PVC	3.68
VB-1-5D	600.26	602.29	28.0	23 to 28	577.26	572.26	1	PVC	2.03
VB-1-6	602.16	605.34	15.0	10 to 15	592.16	587.16	1	PVC	3.18
VB-1-6D	601.86	605.53	28.0	22 to 27	579.86	574.86	1	PVC	3.67
VB-1-7	600.60	603.62	15.0	10 to 15	590.60	585.60	1	PVC	3.02
VB-1-7D	600.48	602.80	26.2	21.2 to 26.2	579.28	574.28	1	PVC	2.32
VB-1-8	600.32	603.36	15.0	10 to 15	590.32	585.32	1	PVC	3.04
VB-1-8D	600.15	602.49	26.0	21 to 26	579.15	574.15	1	PVC	2.34
VB-1-9	598.92	601.86	15.0	10 to 15	588.92	583.92	1	PVC	2.94
VB-1-9D	598.69	601.61	27.0	22 to 27	576.69	571.69	1	PVC	2.92
VB-2-1	601.27	605.71	15.0	10 to 15	591.27	586.27	1	PVC	4.44
VB-2-2	596.82	600.16	15.0	10 to 15	586.82	581.82	1	PVC	3.34
VB-2-2D	596.49	598.95	30.5	24.5 to 29.5	571.99	566.99	1	PVC	2.46
VB-2-3	595.95	600.16	15.0	10 to 15	585.95	580.95	1	PVC	4.21
VB-2-4	596.08	600.82	15.0	10 to 15	586.08	581.08	1	PVC	4.74
VB-2-5	595.76	599.82	15.0	10 to 15	585.76	580.76	1	PVC	4.06
VB-2-5D	595.76	596.78	25.0	19 to 24	576.76	571.76	1	PVC	1.02
VB-2-6	596.01	601.44	15.0	10 to 15	586.01	581.01	1	PVC	5.43

SUMMARY OF PERMANENT AND TEMPORARY MONITORING WELL SPECIFICATIONS
EXELON GENERATION
BRAIDWOOD STATION

Well Number	Ground Surface (NGVD)[1]	Top of Riser Elevation (NGVD)	Boring Total Depth (ft BGS)[2]	Screen Interval (ft BGS)	Screen Top Elevation (NGVD)	Screen Bottom Elevation (NGVD)	Well Diameter (inches)	Well Material	Stickup Height (ft AGS)[3]
VB-2-6D	596.01	596.77	25.0	19 to 24	577.01	572.01	1	PVC	0.76
VB-2-7	600.51	602.04	15.0	10 to 15	590.51	585.51	1	PVC	1.53
VB-2-7D	600.51	602.28	26.0	20 to 25	580.51	575.51	1	PVC	1.77
VB-2-8	598.18	599.05	15.0	10 to 15	588.18	583.18	1	PVC	0.87
VB-2-9	596.31	599.48	14.0	9 to 14	587.31	582.31	1	PVC	3.17
VB-2-9D	596.26	599.93	28.0	21 to 26	575.26	570.26	1	PVC	3.67
VB-3-1	596.38	600.99	15.0	10 to 15	586.38	581.38	1	PVC	4.61
VB-3-2	596.49	601.51	15.0	10 to 15	586.49	581.49	1	PVC	5.02
VB-3-3	596.27	600.03	15.0	10 to 15	586.27	581.27	1	PVC	3.76
VB-3-4	596.18	601.37	15.0	10 to 15	586.18	581.18	1	PVC	5.19
VB-3-4D	596.18	600.82	25.0	20 to 25	576.18	571.18	1	PVC	4.64
VB-3-5	595.94	599.24	15.0	10 to 15	585.94	580.94	1	PVC	3.30
VB-3-6	595.89	599.18	15.0	10 to 15	585.89	580.89	1	PVC	3.29
VB-3-7	596.24	599.49	12.0	7 to 12	589.24	584.24	1	PVC	3.25
VB-3-7D	596.24	597.04	25.0	19 to 24	577.24	572.24	1	PVC	0.80
VB-3-8	596.44	599.51	12.0	7 to 12	589.44	584.44	1	PVC	3.07
VB-3-9D	595.68	596.62	25.0	19.5 to 24.5	576.18	571.18	1	PVC	0.94
VB-3-10	596.43	599.28	13.0	8 to 13	588.43	583.43	1	PVC	2.85
VB-3-10D	596.49	598.44	23.5	18.5 to 23.5	577.99	572.99	1	PVC	1.95

[1] NGVD - National Geodetic Vertical datum

[2] ft BGS - feet below ground surface

[3] FT AGS - feet above ground surface

[4] PVC - polyvinyl chloride

[5] Well was abandoned and replaced

[6] Survey data incomplete

TABLE 4.2

SUMMARY OF GROUNDWATER ELEVATIONS [1]
EXELON GENERATION
BRAIDWOOD STATION

Monitoring Location	*Date*	*Top of Casing (ft amsl)* [2]	*Depth to Water (ft btoc)* [3]	*Groundwater Elevation (ft amsl)*
A-1	1/10/2006	597.00	9.01	587.99
A-1	1/11/2006	597.00	9.01	587.99
A-1D	1/10/2006	597.34	9.33	588.01
A-1D	1/11/2006	597.34	9.33	588.01
BL-01	11/15/2005	605.58	13.43	592.15
BL-01	1/5/2006	605.58	13.09	592.49
BL-02	11/15/2005	604.84	12.92	591.92
BL-02	1/5/2006	604.84	12.59	592.25
BL-03	11/15/2005	604.50	13.34	591.16
BL-03	1/5/2006	604.50	12.91	591.59
BL-04	11/15/2005	601.91	10.93	590.98
BL-04	1/5/2006	601.91	10.50	591.41
BL-05	11/15/2005	602.60	11.77	590.83
BL-05	1/5/2006	602.60	11.39	591.21
BL-06	11/15/2005	601.83	11.00	590.83
BL-06	1/5/2006	601.83	10.63	591.20
BL-07	11/15/2005	601.08	10.28	590.80
BL-07	1/5/2006	601.08	10.11	590.97
BL-08	11/15/2005	602.29	11.40	590.89
BL-08	1/5/2006	602.29	11.13	591.16
BL-09	11/15/2005	602.49	11.82	590.67
BL-09	12/21/2005	602.49	11.40	591.09
BL-09	12/23/2005	602.49	11.31	591.18
BL-09	1/5/2006	602.49	11.18	591.31
BL-09	1/11/2006	602.49	11.01	591.48
BL-09	2/1/2006	602.49	10.65	591.84
BL-09	2/10/2006	602.49	10.44	592.05
BL-09	2/15/2006	602.49	10.35	592.14
BL-09D	12/21/2005	600.36	9.40	590.96
BL-09D	12/23/2005	600.36	9.35	591.01
BL-09D	1/5/2006	600.36	9.21	591.15
BL-09D	1/11/2006	600.36	9.08	591.28
BL-09D	2/1/2006	600.36	8.68	591.68
BL-09D	2/10/2006	600.36	8.48	591.88
BL-09D	2/15/2006	600.36	8.37	591.99
BL-10	11/15/2005	605.37	14.29	591.08
BL-10	1/4/2006	605.37	14.03	591.34
BL-10D	12/15/2005	605.16	14.89	590.27
BL-10D	1/4/2006	605.16	13.81	591.35
BL-11	11/15/2005	600.65	9.70	590.95
BL-11	1/3/2006	600.65	9.41	591.24
BL-11D	12/15/2005	599.09	7.82	591.27
BL-11D	1/3/2006	599.09	7.56	591.53
BL-12	11/15/2005	601.60	10.41	591.19
BL-12	1/3/2006	601.60	10.05	591.55
BL-12D	12/15/2005	599.87	8.54	591.33

TABLE 4.2

SUMMARY OF GROUNDWATER ELEVATIONS [1]
EXELON GENERATION
BRAIDWOOD STATION

Monitoring Location	*Date*	*Top of Casing (ft amsl)* [2]	*Depth to Water (ft btoc)* [3]	*Groundwater Elevation (ft amsl)*
BL-12D	1/3/2006	599.87	8.40	591.47
BL-13	11/15/2005	601.37	10.27	591.10
BL-13	1/3/2006	601.37	9.94	591.43
BL-13D	12/15/2005	600.82	9.39	591.43
BL-13D	1/3/2006	600.82	9.17	591.65
BL-14	11/15/2005	601.26	9.91	591.35
BL-14	1/3/2006	601.26	9.65	591.61
BL-14D	12/15/2005	597.46	8.49	588.97
BL-14D	1/3/2006	597.46	8.26	589.20
BL-15	11/15/2005	600.98	9.98	591.00
BL-15	1/3/2006	600.98	9.57	591.41
BL-15D	12/16/2005	598.50	6.20	592.30
BL-15D	1/3/2006	598.50	6.92	591.58
BL-16	11/15/2005	600.30	9.40	590.90
BL-16	1/3/2006	600.30	9.05	591.25
BL-16D	12/16/2005	598.17	7.10	591.07
BL-16D	1/3/2006	598.17	6.92	591.25
BL-17	12/1/2005	597.62	6.47	591.15
BL-17	12/5/2005	597.62	6.50	591.12
BL-17	1/3/2006	597.62	6.37	591.25
BL-17D	12/12/2005	598.11	7.21	590.90
BL-17D	1/3/2006	598.11	6.80	591.31
BL-18	12/1/2005	597.59	6.71	590.88
BL-18	1/3/2006	597.59	6.52	591.07
BL-19	12/1/2005	595.55	5.04	590.51
BL-19	1/3/2006	595.55	4.93	590.62
BL-20D	12/21/2005	600.45	9.40	591.05
BL-20D	12/23/2005	600.45	9.56	590.89
BL-20D	1/4/2006	600.45	9.16	591.29
C-1	12/12/2005	595.78	7.21	588.57
C-1	1/3/2006	595.78	6.78	589.00
C-1D	12/12/2005	595.87	7.35	588.52
C-1D	1/3/2006	595.87	6.79	589.08
C-2	1/24/2006	610.91	9.00	601.91
C-2	2/1/2006	610.91	8.50	602.41
C-2	2/10/2006	610.91	8.56	602.35
C-2	2/15/2006	610.91	8.70	602.21
C-2D	1/24/2006	609.03	7.09	601.94
C-2D	2/1/2006	609.03	6.75	602.28
C-2D	2/10/2006	609.03	6.76	602.27
C-2D	2/15/2006	609.03	6.90	602.13
D-1	12/6/2005	603.69	12.10	591.59
D-1	1/4/2006	603.69	11.90	591.79
D-1D	12/22/2005	603.77	12.10	591.67
D-1D	12/23/2005	603.77	12.04	591.73
D-1D	1/4/2006	603.77	12.00	591.77

TABLE 4.2

SUMMARY OF GROUNDWATER ELEVATIONS [1]
EXELON GENERATION
BRAIDWOOD STATION

Monitoring Location	*Date*	*Top of Casing (ft amsl)* [2]	*Depth to Water (ft btoc)* [3]	*Groundwater Elevation (ft amsl)*
D-2	12/5/2005	601.92	10.52	591.40
D-2	1/4/2006	601.92	10.31	591.61
D-2D	12/22/2005	601.47	9.95	591.52
D-2D	1/4/2006	601.47	9.76	591.71
D-3	12/2/2005	602.48	11.05	591.43
D-3	1/4/2006	602.48	10.85	591.63
D-3D	12/23/2005	602.22	10.71	591.51
D-3D	1/4/2006	602.22	10.60	591.62
D-4	1/5/2006	602.55	11.09	591.46
D-5	12/2/2005	602.27	10.86	591.41
D-5	1/5/2006	602.27	10.57	591.70
F-1	12/12/2005	596.25	7.40	588.85
F-1	1/3/2006	596.25	7.19	589.06
F-1D	12/12/2005	596.19	7.35	588.84
F-1D	1/3/2006	596.19	7.10	589.09
F-2D	1/9/2006	597.26	7.26	590.00
F-3D	1/9/2006	597.36	8.57	588.79
F-3D	1/12/2006	597.36	8.67	588.69
F-4D	1/24/2006	599.59	10.87	588.72
F-5D	1/24/2006	595.96	6.65	589.31
F-6D	1/24/2006	597.28	9.26	588.02
F-7D	1/24/2006	596.37	8.48	587.89
F-8D	1/24/2006	598.42	9.70	588.72
G-1	12/6/2005	595.35	5.55	589.80
G-1	1/5/2006	595.35	5.03	590.32
G-2	12/6/2005	590.83	5.31	585.52
G-2	1/5/2006	590.83	4.81	586.02
G-2D	1/26/2006	590.65	3.65	587.00
G-3	12/6/2005	592.93	7.25	585.68
G-3	1/5/2006	592.93	6.85	586.08
MW-101	7/28/2005	602.77	12.25	590.52
MW-101	8/15/2005	602.77	11.01	591.76
MW-101	9/30/2005	602.77	11.49	591.28
MW-101	11/11/2005	602.77	11.67	591.10
MW-101	11/15/2005	602.77	11.60	591.17
MW-101	1/5/2006	602.77	11.35	591.42
MW-102	7/28/2005	605.70	13.17	592.53
MW-102	8/15/2005	605.70	13.78	591.92
MW-102	11/11/2005	605.70	13.79	591.91
MW-102	11/18/2005	605.70	13.79	591.91
MW-102	1/5/2006	605.70	13.78	591.92
MW-103	8/15/2005	598.84	6.90	591.94
MW-103	10/17/2005	598.84	7.78	591.06
MW-103	11/11/2005	598.84	7.81	591.03
MW-103	11/15/2005	598.84	7.70	591.14
MW-103	1/5/2006	598.84	7.75	591.09

TABLE 4.2

SUMMARY OF GROUNDWATER ELEVATIONS [1]
EXELON GENERATION
BRAIDWOOD STATION

Monitoring Location	*Date*	*Top of Casing (ft amsl)* [2]	*Depth to Water (ft btoc)* [3]	*Groundwater Elevation (ft amsl)*
MW-104	7/28/2005	598.80	7.67	591.13
MW-104	8/15/2005	598.80	9.72	589.08
MW-104	11/11/2005	598.80	8.77	590.03
MW-104	11/18/2005	598.80	8.75	590.05
MW-104	1/5/2006	598.80	8.59	590.21
MW-105	7/28/2005	600.74	7.82	592.92
MW-105	8/15/2005	600.74	8.38	592.36
MW-105	9/30/2005	600.74	9.50	591.24
MW-105	10/17/2005	600.74	9.19	591.55
MW-105	11/11/2005	600.74	9.41	591.33
MW-105	11/15/2005	600.74	9.30	591.44
MW-105	1/4/2006	600.74	6.05	594.69
MW-105	1/5/2006	600.74	6.05	594.69
MW-105D	12/15/2005	598.20	6.76	591.44
MW-105D	12/16/2005	598.20	6.81	591.39
MW-105D	1/4/2006	598.20	6.48	591.72
MW-106	7/28/2005	602.73	9.13	593.60
MW-106	8/15/2005	602.73	9.66	593.07
MW-106	11/11/2005	602.73	10.71	592.02
MW-106	11/14/2005	602.73	10.82	592.31
MW-106	1/4/2006	602.73	10.42	591.91
MW-106	1/5/2006	602.73	6.48	596.25
MW-106D	12/16/2005	601.81	9.84	591.97
MW-106D	1/4/2006	601.81	9.52	592.29
MW-107	7/28/2005	603.24	9.62	593.62
MW-107	8/15/2005	603.24	9.93	593.31
MW-107	9/30/2005	603.24	10.41	592.83
MW-107	10/17/2005	603.24	10.55	592.69
MW-107	11/11/2005	603.24	10.70	592.54
MW-107	11/15/2005	603.24	10.71	592.53
MW-107	1/5/2006	603.24	10.42	592.82
MW-108	7/28/2005	603.10	10.72	592.38
MW-108	8/15/2005	603.10	10.89	592.21
MW-108	9/30/2005	603.10	11.31	591.79
MW-108	10/17/2005	603.10	11.42	591.68
MW-108	11/11/2005	603.10	11.24	591.86
MW-108	11/15/2005	603.10	11.18	591.92
MW-108	1/5/2006	603.10	12.90	590.20
MW-109	7/28/2005	601.23	9.70	591.53
MW-109	8/15/2005	601.23	9.91	591.32
MW-109	11/11/2005	601.23	10.58	590.65
MW-109	1/5/2006	601.23	10.41	590.82
MW-110	11/11/2005	607.27	19.16	588.11
MW-110	11/14/2005	607.27	19.28	587.99
MW-110	11/15/2005	607.27	19.19	588.08
MW-110	1/3/2006	607.27	19.46	587.81

TABLE 4.2

SUMMARY OF GROUNDWATER ELEVATIONS [1]
EXELON GENERATION
BRAIDWOOD STATION

Monitoring Location	*Date*	*Top of Casing (ft amsl)* [2]	*Depth to Water (ft btoc)* [3]	*Groundwater Elevation (ft amsl)*
MW-110	1/4/2006	607.27	19.46	587.81
MW-111	11/11/2005	607.20	16.78	590.42
MW-111	11/15/2005	607.20	16.74	590.46
MW-111	1/4/2006	607.20	16.55	590.65
MW-111D	1/9/2006	605.05	14.35	590.70
MW-112	11/11/2005	602.62	12.19	590.43
MW-112	11/15/2005	602.62	12.13	590.49
MW-112	1/3/2006	602.62	11.77	590.85
MW-112	1/4/2006	602.62	11.77	590.85
MW-112D	1/9/2006	600.85	9.89	590.96
MW-113	11/11/2005	599.77	8.87	590.90
MW-113	11/15/2005	599.77	8.75	591.02
MW-113	12/5/2005	599.77	8.89	590.88
MW-113	1/3/2006	599.77	8.97	590.80
MW-113D	12/14/2005	596.90	6.12	590.78
MW-113D	1/3/2006	596.90	6.13	590.77
P-1	12/1/2005	595.59	5.08	590.51
P-1	1/5/2006	595.59	5.02	590.57
P-2	12/2/2005	596.27	5.95	590.32
P-2	1/3/2006	596.27	5.81	590.46
P-2	1/4/2006	596.27	5.81	590.46
P-2D	12/12/2005	596.55	6.26	590.29
P-2D	1/3/2006	596.55	6.08	590.47
P-2D	1/4/2006	596.55	6.08	590.47
P-3	12/2/2005	596.26	6.08	590.18
P-3	1/5/2006	596.26	5.91	590.35
P-4	12/1/2005	597.14	6.41	590.73
P-4	12/6/2005	597.14	6.50	590.64
P-4	1/3/2006	597.14	6.41	590.73
P-4	1/11/2006	597.14	6.31	590.83
P-4	1/18/2006	597.14	6.28	590.86
P-4	1/25/2006	597.14	6.21	590.93
P-4	2/1/2006	597.14	5.95	591.19
P-4	2/10/2006	597.14	5.98	591.16
P-4	2/15/2006	597.14	6.00	591.14
P-4D	12/23/2005	599.22	8.68	590.54
P-4D	1/3/2006	599.22	8.63	590.59
P-4D	1/11/2006	599.22	8.55	590.67
P-4D	1/18/2006	599.22	8.50	590.72
P-4D	1/25/2006	599.22	8.48	590.74
P-4D	2/1/2006	599.22	8.06	591.16
P-4D	2/10/2006	599.22	8.20	591.02
P-4D	2/15/2006	599.22	8.28	590.94
P-4D	2/22/2006	599.22	8.16	591.06
P-5	12/1/2005	597.06	6.48	590.58
P-5	1/3/2006	597.06	6.45	590.61

TABLE 4.2

SUMMARY OF GROUNDWATER ELEVATIONS [1]
EXELON GENERATION
BRAIDWOOD STATION

Monitoring Location	*Date*	*Top of Casing (ft amsl)* [2]	*Depth to Water (ft btoc)* [3]	*Groundwater Elevation (ft amsl)*
P-5D	12/23/2005	599.37	10.22	589.15
P-5D	1/3/2006	599.37	8.91	590.46
P-6	12/1/2005	597.85	7.30	590.55
P-6	1/5/2006	597.85	7.41	590.44
P-6	1/18/2006	597.85	6.18	591.67
P-7	12/1/2005	600.24	9.58	590.66
P-7	1/5/2006	600.24	9.52	590.72
P-8	12/1/2005	596.24	5.63	590.61
P-8	12/6/2005	596.24	5.74	590.50
P-8	1/5/2006	596.24	5.59	590.65
P-9	12/5/2005	599.19	8.75	590.44
P-9	1/5/2006	599.19	8.44	590.75
P-10	12/5/2005	596.58	6.54	590.04
P-10	1/5/2006	596.58	6.23	590.35
P-11	12/5/2005	596.23	6.55	589.68
P-11	1/5/2006	596.23	6.20	590.03
P-12	12/5/2005	596.13	6.79	589.34
P-12	1/5/2006	596.13	6.49	589.64
P-13D	12/23/2005	598.76	8.34	590.42
P-13D	1/3/2006	598.76	8.25	590.51
P-13D	1/11/2006	598.76	5.26	593.50
P-13D	1/18/2006	598.76	5.20	593.56
P-13D	1/25/2006	598.76	8.16	590.60
P-13D	2/1/2006	598.76	7.90	590.86
P-13D	2/10/2006	598.76	7.98	590.78
P-13D	2/15/2006	598.76	8.00	590.76
P-13D	2/22/2006	598.76	8.02	590.74
P-14	1/24/2006	599.14	6.40	592.74
P-14D	1/24/2006	598.50	7.89	590.61
PS-1	12/22/2005	546.13	6.77	539.36
PS-1	1/4/2006	546.13	7.88	538.25
PS-2	12/22/2005	546.76	10.21	536.55
PS-2	1/4/2006	546.76	9.65	537.11
PS-3	12/22/2005	550.09	10.65	539.44
PS-3	12/23/2005	550.09	14.15	535.94
PS-3	1/4/2006	550.09	14.06	536.03
PS-4	1/9/2006	548.90	10.90	538.00
PS-5	1/10/2006	550.24	10.91	539.33
PS-6	1/10/2006	547.40	7.51	539.89
RW-1	12/1/2005	599.36	7.42	591.94
RW-1	1/5/2006	599.36	8.23	591.13
RW-2	12/1/2005	599.30	8.68	590.62
RW-2	1/5/2006	599.30	8.44	590.86
RW-3	12/2/2005	599.19	8.48	590.71
RW-3	1/5/2006	599.19	8.37	590.82
RW-4	12/2/2005	598.77	8.12	590.65

TABLE 4.2

SUMMARY OF GROUNDWATER ELEVATIONS [1]
EXELON GENERATION
BRAIDWOOD STATION

Monitoring Location	*Date*	*Top of Casing (ft amsl)* [2]	*Depth to Water (ft btoc)* [3]	*Groundwater Elevation (ft amsl)*
RW-4	1/5/2006	598.77	7.97	590.80
S-1	12/5/2005	595.60	7.50	588.10
S-1	1/5/2006	595.60	7.06	588.54
S-1D	1/26/2006	596.92	7.87	589.05
S-2	12/5/2005	593.32	5.22	588.10
S-2	1/3/2006	593.32	4.68	588.64
S-2	1/5/2006	593.32	4.70	588.62
S-2	2/1/2006	593.32	3.80	589.52
S-2	2/10/2006	593.32	3.98	589.34
S-2	2/15/2006	593.32	4.04	589.28
S-2	2/22/2006	593.32	4.08	589.24
S-2D	12/12/2005	593.98	6.14	587.84
S-2D	1/3/2006	593.98	5.30	588.68
S-2D	1/5/2006	593.98	5.35	588.62
S-2D	2/1/2006	593.98	4.37	589.61
S-2D	2/10/2006	593.98	4.56	589.42
S-2D	2/15/2006	593.98	4.62	589.36
S-2D	2/22/2006	593.98	4.65	589.33
S-3	12/5/2005	593.37	5.29	588.08
S-3	1/5/2006	593.37	4.78	588.59
S-4	12/5/2005	594.63	5.69	588.94
S-4	1/5/2006	594.63	5.25	589.38
S-4D	1/26/2006	596.67	7.75	588.92
S-5	12/5/2005	593.44	4.25	589.19
S-5	1/5/2006	593.44	3.85	589.59
S-6	12/5/2005	595.57	6.72	588.85
S-6	1/5/2006	595.57	6.31	589.26
S-7	1/24/2006	594.73	4.98	589.75
S-7D	1/24/2006	596.53	6.80	589.73
SG-1	8/15/2005	594.08	0.19	593.89
SG-2	8/15/2005	594.85	0.15	594.70
SG-3	8/15/2005	594.51	0.00	594.51
SG-A	2/1/2006	589.78	1.39	591.17
SG-A	2/10/2006	589.78	1.40	591.18
SG-A	2/15/2006	589.78	1.20	590.98
SG-B	1/25/2006	589.75	1.00	590.75
SG-B	2/1/2006	589.75	1.10	590.85
SG-B	2/10/2006	589.75	1.19	590.94
SG-B	2/15/2006	589.75	1.19	590.94
SG-C	1/25/2006	585.93	1.01	586.94
SG-C	2/1/2006	585.93	1.11	587.04
SG-C	2/10/2006	585.93	1.21	587.14
SG-C	2/15/2006	585.93	1.50	587.43
VB-1-1D	12/16/2005	604.52	12.34	592.18
VB-1-1D	1/4/2006	604.52	12.30	592.22
VB-1-2	11/15/2005	604.65	12.75	591.90

TABLE 4.2

SUMMARY OF GROUNDWATER ELEVATIONS [1]
EXELON GENERATION
BRAIDWOOD STATION

Monitoring Location	*Date*	*Top of Casing (ft amsl)* [2]	*Depth to Water (ft btoc)* [3]	*Groundwater Elevation (ft amsl)*
VB-1-2	1/5/2006	604.65	12.39	592.26
VB-1-2D	1/10/2006	601.89	9.40	592.49
VB-1-2D	1/13/2006	601.89	9.40	592.49
VB-1-3	11/15/2005	603.61	11.97	591.64
VB-1-3	1/5/2006	603.61	11.72	591.89
VB-1-3D	1/10/2006	601.95	9.67	592.28
VB-1-3D	1/13/2006	601.95	9.65	592.30
VB-1-4	11/15/2005	601.50	10.62	590.88
VB-1-4	1/5/2006	601.50	10.31	591.19
VB-1-4D	1/13/2006	602.01	8.90	593.11
VB-1-5	11/15/2005	603.85	12.52	591.33
VB-1-5	1/5/2006	603.85	12.21	591.64
VB-1-5D	1/10/2006	602.29	10.30	593.55
VB-1-5D	1/13/2006	602.29	10.29	592.00
VB-1-6	11/22/2005	605.34	14.38	590.96
VB-1-6	1/5/2006	605.34	14.11	591.23
VB-1-6D	1/10/2006	605.53	14.20	591.33
VB-1-6D	1/13/2006	605.53	14.30	591.23
VB-1-7	11/22/2005	603.62	12.44	591.18
VB-1-7	1/5/2006	603.62	12.15	591.47
VB-1-7D	1/9/2006	602.80	11.20	591.60
VB-1-8	11/22/2005	603.36	12.15	591.21
VB-1-8	1/5/2006	603.36	11.75	591.61
VB-1-8D	1/9/2006	602.49	10.52	591.97
VB-1-9	11/22/2005	601.86	10.76	591.10
VB-1-9	1/5/2006	601.86	10.37	591.49
VB-1-9D	1/10/2006	601.61	9.84	591.77
VB-1-9D	1/13/2006	601.61	10.91	590.70
VB-2-1	11/15/2005	605.71	14.87	590.84
VB-2-1	1/5/2006	605.71	14.57	591.14
VB-2-2	11/15/2005	600.16	8.80	591.36
VB-2-2	12/5/2005	600.16	8.89	591.27
VB-2-2	1/4/2006	600.16	8.60	591.56
VB-2-2D	12/21/2005	598.95	8.05	590.90
VB-2-2D	12/23/2005	598.95	8.00	590.95
VB-2-2D	1/4/2006	598.95	7.83	591.12
VB-2-3	11/15/2005	600.16	9.03	591.13
VB-2-3	1/5/2006	600.16	9.22	590.94
VB-2-4	11/15/2005	600.82	10.00	590.82
VB-2-4	1/5/2006	600.82	9.95	590.87
VB-2-5	11/15/2005	599.82	9.20	590.62
VB-2-5	1/3/2006	599.82	9.30	590.52
VB-2-5D	12/14/2005	596.78	6.02	590.76
VB-2-5D	1/3/2006	596.78	6.61	590.17
VB-2-6	11/15/2005	601.44	10.80	590.64
VB-2-6	12/5/2005	601.44	10.93	590.51

TABLE 4.2

SUMMARY OF GROUNDWATER ELEVATIONS [1]
EXELON GENERATION
BRAIDWOOD STATION

Monitoring Location	*Date*	*Top of Casing (ft amsl)* [2]	*Depth to Water (ft btoc)* [3]	*Groundwater Elevation (ft amsl)*
VB-2-6	1/3/2006	601.44	7.94	593.50
VB-2-6D	12/14/2005	596.77	6.12	590.65
VB-2-6D	1/3/2006	596.77	6.11	590.66
VB-2-7	12/14/2005	602.04	11.19	590.85
VB-2-7	1/4/2006	602.04	10.99	591.05
VB-2-7D	12/14/2005	602.28	11.39	590.89
VB-2-7D	1/4/2006	602.28	11.26	591.02
VB-2-8	12/14/2005	599.05	8.27	590.78
VB-2-8	1/5/2006	599.05	8.02	591.03
VB-2-9	1/10/2006	599.48	8.49	590.99
VB-2-9	1/12/2006	599.48	8.49	590.99
VB-2-9D	1/10/2006	599.93	9.69	590.24
VB-2-9D	1/12/2006	599.93	9.69	590.24
VB-3-1	11/15/2005	600.99	9.83	591.16
VB-3-1	1/5/2006	600.99	9.75	591.24
VB-3-2	11/15/2005	601.51	10.22	591.29
VB-3-2	1/5/2006	601.51	9.98	591.53
VB-3-3	11/15/2005	600.03	9.05	590.98
VB-3-3	1/5/2006	600.03	8.79	591.24
VB-3-4	11/15/2005	601.37	10.58	590.79
VB-3-4	12/5/2005	601.37	10.43	590.94
VB-3-4	1/3/2006	601.37	10.33	591.04
VB-3-4D	12/14/2005	600.82	9.79	591.03
VB-3-4D	1/3/2006	600.82	9.57	591.25
VB-3-5	11/22/2005	599.24	9.44	589.80
VB-3-5	1/5/2006	599.24	7.94	591.30
VB-3-6	11/22/2005	599.18	8.60	590.58
VB-3-6	1/5/2006	599.18	8.28	590.90
VB-3-7	12/2/2005	599.49	8.19	591.30
VB-3-7	12/14/2005	599.49	5.72	593.77
VB-3-7	1/3/2006	599.49	7.91	591.58
VB-3-7D	12/14/2005	597.04	5.72	591.32
VB-3-7D	1/3/2006	597.04	5.45	591.59
VB-3-8	12/2/2005	599.51	8.20	591.31
VB-3-8	1/5/2006	599.51	7.82	591.69
VB-3-9D	12/13/2005	596.62	6.37	590.25
VB-3-9D	1/4/2006	596.62	5.64	590.98
VB-3-10	12/16/2005	599.28	8.22	591.06
VB-3-10	1/3/2006	599.28	7.88	591.40
VB-3-10D	12/16/2005	598.44	7.28	591.16
VB-3-10D	1/3/2006	598.44	7.07	591.37

[1] Water level data through March 1, 2006

[2] ft amsl - feet above mean sea level

[3] ft btoc - feet below top of casing

TABLE 4.3

SUMMARY OF MONITORING WELL PURGING PARAMETERS
EXELON GENERATION
BRAIDWOOD STATION

Well Identifier	*Date*	*Water Level*	*Minutes Purged*	*pH (Std. Units)*	*Conductivity (µS/cm)* [1]	*Temperature (°C)*	*Turbidity (ntu)* [2]	*Observations*	*Pump Type*
A-1	1/11/06	9.01	10	7.11	766	11.67	*	slightly cloudy	peristaltic
A-1	1/11/06		12	7.06	802	11.61	*	slightly cloudy	peristaltic
A-1	1/11/06		14	7.01	814	11.48	*	clear	peristaltic
A-1D	1/11/06	9.33	10	6.64	555	10.22	*	slightly cloudy	peristaltic
A-1D	1/11/06		13	7.15	559	10.86	*	slightly cloudy	peristaltic
A-1D	1/11/06		16	7.20	560	10.89	*	slightly cloudy	peristaltic
BL-01	11/17/05	13.43	5	6.59	345	15.74	*	cloudy	peristaltic
BL-01	11/17/05		10	6.62	348	15.61	*	slightly cloudy	peristaltic
BL-01	11/17/05		15	6.64	339	15.60	*	slightly cloudy	peristaltic
BL-02	11/17/05	12.92	5	6.48	425	13.36	*	cloudy	peristaltic
BL-02	11/17/05		10	6.43	421	13.20	*	slightly cloudy	peristaltic
BL-02	11/17/05		15	6.39	416	13.17	*	clear	peristaltic
BL-02	11/17/05		20	6.40	415	13.21	*	clear	peristaltic
BL-03	11/18/05	13.34	5	7.25	280	17.73	*	cloudy	peristaltic
BL-03	11/18/05		10	7.06	296	17.75	*	slightly cloudy	peristaltic
BL-03	11/18/05		15	7.01	294	17.78	*	clear	peristaltic
BL-04	11/18/05	10.93	5	6.70	499	17.42	*	clear	peristaltic
BL-04	11/18/05		10	6.62	524	17.41	*	clear	peristaltic
BL-04	11/18/05		15	6.60	520	17.44	*	clear	peristaltic
BL-05	11/18/05	11.77	5	6.73	694	15.57	*	cloudy	peristaltic
BL-05	11/18/05		10	6.59	697	15.58	*	cloudy	peristaltic
BL-05	11/18/05		15	6.54	687	15.46	*	slightly cloudy	peristaltic
BL-06	11/18/05	11.00	5	6.70	435	15.33	*	slightly cloudy	peristaltic
BL-06	11/18/05		10	6.61	436	15.38	*	slightly cloudy	peristaltic
BL-06	11/18/05		15	6.57	437	15.37	*	slightly cloudy	peristaltic

TABLE 4.3

SUMMARY OF MONITORING WELL PURGING PARAMETERS
EXELON GENERATION
BRAIDWOOD STATION

Well Identifier	Date	Water Level	Minutes Purged	pH (Std. Units)	Conductivity (µS/cm) [1]	Temperature (°C)	Turbidity (ntu) [2]	Observations	Pump Type
BL-07	11/18/05	10.28	5	6.97	656	15.75	*	slightly cloudy	peristaltic
BL-07	11/18/05		10	6.77	648	15.77	*	clear	peristaltic
BL-07	11/18/05		15	6.71	643	15.76	*	clear	peristaltic
BL-08	11/18/05	11.40	5	7.40	220	14.91	*	slightly cloudy	peristaltic
BL-08	11/18/05		10	7.32	217	14.92	*	slightly cloudy	peristaltic
BL-08	11/18/05		15	7.28	215	14.92	*	slightly cloudy	peristaltic
BL-09	11/18/05	11.82	1	*	*	*	*	sand filled well screen- DRY	*
BL-9	12/23/05	11.31	10	8.50	335	13.90	*	slightly cloudy	peristaltic
BL-9	12/23/05		13	8.50	346	14.20	*	slightly cloudy	peristaltic
BL-9	12/23/05		16	8.50	346	14.20	*	clear	peristaltic
BL-9	1/11/06	11.01	10	8.38	369	14.20	*	clear	peristaltic
BL-9	1/11/06		13	8.40	362	13.90	*	clear	peristaltic
BL-9	1/11/06		16	8.40	361	13.80	*	clear	peristaltic
BL-9	1/18/06	*	10	7.00	467	12.39	*	clear	peristaltic
BL-9	1/18/06		13	7.18	466	12.37	*	clear	peristaltic
BL-9	1/18/06		16	7.31	466	12.30	*	clear	peristaltic
BL-9	2/15/06	10.35	10	7.25	307	13.50	*	clear	peristaltic
BL-9	2/15/06		13	7.26	307	13.60	*	clear	peristaltic
BL-9	2/15/06		16	7.27	307	13.70	*	clear	peristaltic
BL-09	1/25/06	*	10	8.33	359	9.90	51.7	clear	peristaltic
BL-09	1/25/06		15	8.38	346	10.40	36.2	clear	peristaltic
BL-09	1/25/06		20	8.37	348	10.50	19.6	clear	peristaltic
BL-09	2/1/06	10.65	10	7.22	319	14.20	*	clear	peristaltic
BL-09	2/1/06		13	7.24	313	14.50	*	clear	peristaltic
BL-09	2/1/06		16	7.26	312	14.70	*	clear	peristaltic

TABLE 4.3

SUMMARY OF MONITORING WELL PURGING PARAMETERS
EXELON GENERATION
BRAIDWOOD STATION

Well Identifier	Date	Water Level	Minutes Purged	pH (Std. Units)	Conductivity (µS/cm) [1]	Temperature (°C)	Turbidity (ntu) [2]	Observations	Pump Type
BL-09	2/9/06	10.44	5	6.61	414	12.18	*	clear	peristaltic
BL-09	2/9/06		10	6.51	413	12.21	*	clear	peristaltic
BL-09	2/9/06		15	6.52	413	12.29	*	clear	peristaltic
BL-09	2/22/06	10.23	10	7.34	278	11.90	*	clear	peristaltic
BL-09	2/22/06		13	7.23	186	12.30	*	clear	peristaltic
BL-09	2/22/06		16	7.20	186	12.30	*	clear	peristaltic
BL-09	3/1/06	8.21	10	8.01	192	13.80	*	clear	peristaltic
BL-09	3/1/06		13	8.01	192	13.80	*	clear	peristaltic.
BL-09	3/1/06		16	8.01	192	13.80	*	clear	peristaltic
BL-09	3/7/06	10.20	10	8.00	190	13.00	*	clear	peristaltic
BL-09	3/7/06		13	7.99	190	13.10	*	clear	peristaltic
BL-09	3/7/06		16	7.99	190	13.10	*	clear	peristaltic
BL-9D	12/23/05	9.35	10	7.95	560	13.02	*	slightly cloudy	peristaltic
BL-9D	12/23/05		13	7.70	569	13.28	*	clear	peristaltic
BL-9D	12/23/05		16	7.57	569	13.32	*	clear	peristaltic
BL-9D	1/11/06	9.08	10	8.05	515	13.90	*	clear	peristaltic
BL-9D	1/11/06		13	7.97	519	13.90	*	clear	peristaltic
BL-9D	1/11/06		16	7.95	519	13.90	*	clear	peristaltic
BL-9D	1/18/06	*	10	6.76	651	12.51	*	clear	peristaltic
BL-9D	1/18/06		12	6.70	640	12.09	*	clear	peristaltic
BL-9D	1/18/06		14	6.72	641	12.09	*	clear	peristaltic
BL-9D	2/15/06	8.37	10	7.18	443	14.10	*	clear	peristaltic
BL-9D	2/15/06		13	7.18	444	14.30	*	clear	peristaltic
BL-9D	2/15/06		16	7.18	444	14.30	*	clear	peristaltic
BL-09D	1/25/06	*	10	8.30	485	10.20	51	clear	peristaltic
BL-09D	1/25/06		15	8.28	491	10.70	32.8	clear	peristaltic
BL-09D	1/25/06		20	8.27	499	11.20	26.7	clear	peristaltic

TABLE 4.3

SUMMARY OF MONITORING WELL PURGING PARAMETERS
EXELON GENERATION
BRAIDWOOD STATION

Well Identifier	Date	Water Level	Minutes Purged	pH (Std. Units)	Conductivity (µS/cm) [1]	Temperature (°C)	Turbidity (ntu) [2]	Observations	Pump Type
BL-09D	2/1/06	8.68	10	7.07	450	14.90	*	clear	peristaltic
BL-09D	2/1/06		13	7.11	451	15.00	*	clear	peristaltic
BL-09D	2/1/06		16	7.13	450	15.10	*	clear	peristaltic
BL-09D	2/9/06	8.48	5	6.22	632	13.06	*	clear	peristaltic
BL-09D	2/9/06		10	6.18	635	13.17	*	clear	peristaltic
BL-09D	2/9/06		15	6.18	636	13.20	*	clear	peristaltic
BL-09D	2/22/06	8.27	12	6.95	377	12.60	*	clear	peristaltic
BL-09D	2/22/06		15	6.88	377	12.60	*	clear	peristaltic
BL-09D	2/22/06		18	6.86	379	12.70	*	clear	peristaltic
BL-09D	3/1/06	8.21	10	7.81	478	14.20	*	clear	peristaltic
BL-09D	3/1/06		13	7.78	478	14.20	*	clear	peristaltic
BL-09D	3/1/06		16	7.75	478	14.20	*	clear	peristaltic
BL-09D	3/7/06	8.25	12	7.72	464	13.40	*	clear	peristaltic
BL-09D	3/7/06		15	7.68	466	13.50	*	clear	peristaltic
BL-09D	3/7/06		18	7.61	466	13.50	*	clear	peristaltic
BL-10	11/17/05	14.29	5	7.21	210	15.74	*	slightly cloudy	peristaltic
BL-10	11/17/05		10	7.20	208	15.70	*	clear	peristaltic
BL-10	11/17/05		15	7.22	207	15.66	*	clear	peristaltic
BL-10	1/4/06	14.03	10	7.11	414	12.19	*	clear	peristaltic
BL-10	1/4/06		13	7.32	236	13.55	*	clear	peristaltic
BL-10	1/4/06		16	7.39	235	13.50	*	clear	peristaltic
BL-10D	1/4/06	13.81	10	7.01	670	13.94	*	slightly cloudy	peristaltic
BL-10D	1/4/06		13	7.04	668	14.00	*	clear	peristaltic
BL-10D	1/4/06		16	7.06	669	14.03	*	clear	peristaltic
BL-11	11/17/05	9.70	5	6.80	425	16.64	*	slightly cloudy	peristaltic
BL-11	11/17/05		10	6.66	423	16.75	*	clear	peristaltic
BL-11	11/17/05		15	6.61	422	16.70	*	clear	peristaltic

TABLE 4.3

SUMMARY OF MONITORING WELL PURGING PARAMETERS
EXELON GENERATION
BRAIDWOOD STATION

Well Identifier	Date	Water Level	Minutes Purged	pH (Std. Units)	Conductivity (µS/cm) [1]	Temperature (°C)	Turbidity (ntu) [2]	Observations	Pump Type
BL-11	1/3/06	9.41	5	7.21	371	13.80	36.9	clear	peristaltic
BL-11	1/3/06		8	7.21	373	14.10	28.2	clear	peristaltic
BL-11	1/3/06		11	7.19	375	14.30	19.9	clear	peristaltic
BL-11D	12/15/05	7.82	30	7.60	414	14.70	*	clear	peristaltic
BL-11D	12/15/05		33	7.50	411	14.80	*	clear	peristaltic
BL-11D	12/15/05		36	7.39	412	14.39	*	clear	peristaltic
BL-11D	1/3/06	7.56	5	7.18	364	14.70	56.8	cloudy	peristaltic
BL-11D	1/3/06		8	7.17	366	14.60	47.9	cloudy	peristaltic
BL-11D	1/3/06		11	7.17	361	14.70	36.2	clear	peristaltic
BL-12	11/17/05	10.41	5	6.89	360	16.73	*	cloudy	peristaltic
BL-12	11/17/05		10	6.78	357	16.74	*	slightly cloudy	peristaltic
BL-12	11/17/05		15	6.73	355	16.72	*	clear	peristaltic
BL-12	1/3/06	10.05	10	6.81	335	14.23	*	slightly cloudy	peristaltic
BL-12	1/3/06		13	6.83	329	14.22	*	slightly cloudy	peristaltic
BL-12	1/3/06		16	6.82	315	14.25	*	clear	peristaltic
BL-12D	12/15/05	8.54	24	7.35	418	14.89	*	clear	peristaltic
BL-12D	12/15/05		27	7.35	419	14.73	*	clear	peristaltic
BL-12D	12/15/05		30	7.34	418	14.85	*	clear	peristaltic
BL-12D	1/3/06	8.40	10	6.88	429	14.65	*	clear	peristaltic
BL-12D	1/3/06		13	6.82	427	14.68	*	clear	peristaltic
BL-12D	1/3/06		16	6.77	418	14.70	*	clear	peristaltic
BL-13	11/17/05	10.27	5	6.87	515	18.12	*	cloudy	peristaltic
BL-13	11/17/05		10	6.68	505	17.95	*	slightly cloudy	peristaltic
BL-13	11/17/05		15	6.62	502	18.08	*	slightly cloudy	peristaltic
BL-13	1/3/06	9.94	10	7.24	423	13.10	32.7	clear	peristaltic
BL-13	1/3/06		13	7.21	415	13.60	24.2	clear	peristaltic
BL-13	1/3/06		16	7.19	415	13.90	17.8	clear	peristaltic

TABLE 4.3

SUMMARY OF MONITORING WELL PURGING PARAMETERS
EXELON GENERATION
BRAIDWOOD STATION

Well Identifier	*Date*	*Water Level*	*Minutes Purged*	*pH (Std. Units)*	*Conductivity (µS/cm)* [1]	*Temperature (°C)*	*Turbidity (ntu)* [2]	*Observations*	*Pump Type*
BI-13D	12/15/05	9.39	42	7.07	470	15.28	*	clear	peristaltic
BI-13D	12/15/05		45	7.10	471	15.24	*	clear	peristaltic
BI-13D	12/15/05		48	7.12	472	15.18	*	clear	peristaltic
BL-13D	1/3/06	9.17	5	7.17	399	14.80	47.1	cloudy	peristaltic
BL-13D	1/3/06		8	7.16	400	14.70	34.3	clear	peristaltic
BL-13D	1/3/06		11	7.15	403	14.50	26.7	clear	peristaltic
BL-14	11/17/05	9.91	5	7.01	235	17.53	*	cloudy	peristaltic
BL-14	11/17/05		10	6.97	231	17.62	*	cloudy	peristaltic
BL-14	11/17/05		15	6.94	289	17.42	*	cloudy	peristaltic
BL-14	11/17/05		20	6.93	287	17.44	*	slightly cloudy	peristaltic
BL-14	1/3/06	9.65	10	6.93	301	14.58	*	clear	peristaltic
BL-14	1/3/06		13	6.99	302	14.62	*	clear	peristaltic
BL-14	1/3/06		16	6.99	303	14.62	*	clear	peristaltic
BL-14D	12/15/05	28.71	45	7.07	463	14.77	*	clear	peristaltic
BL-14D	12/15/05		48	7.07	464	14.77	*	clear	peristaltic
BL-14D	12/15/05		51	7.08	465	14.86	*	clear	peristaltic
BL-14D	1/3/06	8.26	10	6.53	519	15.04	*	slightly cloudy	peristaltic
BL-14D	1/3/06		13	6.63	520	15.21	*	slightly cloudy	peristaltic
BL-14D	1/3/06		16	6.61	520	15.35	*	clear	peristaltic
BL-15	11/17/05	9.98	5	7.08	350	17.20	*	slightly cloudy	peristaltic
BL-15	11/17/05		10	6.99	347	17.37	*	clear	peristaltic
BL-15	11/17/05		15	6.95	354	17.25	*	clear	peristaltic
BL-15	1/3/06	9.57	10	7.26	271	13.50	33.6	clear	peristaltic
BL-15	1/3/06		13	7.26	262	14.10	22.6	clear	peristaltic
BL-15	1/3/06		16	7.26	265	14.20	16.8	clear	peristaltic

TABLE 4.3

SUMMARY OF MONITORING WELL PURGING PARAMETERS
EXELON GENERATION
BRAIDWOOD STATION

Well Identifier	Date	Water Level	Minutes Purged	pH (Std. Units)	Conductivity (µS/cm) [1]	Temperature (°C)	Turbidity (ntu) [2]	Observations	Pump Type
BL-15D	12/16/05	6.20	10	8.20	309	14.60	*	clear	peristaltic
BL-15D	12/16/05		13	8.15	310	15.20	*	clear	peristaltic
BL-15D	12/16/05		16	8.12	312	15.20	*	clear	peristaltic
BL-15D	1/3/06	6.92	5	7.24	299	14.70	18.2	clear	peristaltic
BL-15D	1/3/06		8	7.23	316	14.80	15.6	clear	peristaltic
BL-15D	1/3/06		11	7.22	302	15.20	11.4	clear	peristaltic
BL-16	11/17/05	9.40	5	6.57	580	17.47	*	slightly cloudy	peristaltic
BL-16	11/17/05		10	6.45	571	17.50	*	clear	peristaltic
BL-16	11/17/05		15	6.47	570	17.46	*	clear	peristaltic
BL-16	1/3/06	9.05	10	6.70	655	13.28	*	clear	peristaltic
BL-16	1/3/06		13	6.64	653	13.33	*	clear	peristaltic
BL-16	1/3/06		16	6.61	652	13.35	*	clear	peristaltic
BL-16D	12/16/05	7.60	10	8.39	256	13.00	*	clear	peristaltic
BL-16D	12/16/05		13	8.35	251	14.20	*	clear	peristaltic
BL-16D	12/16/05		16	8.33	250	14.70	*	clear	peristaltic
BL-16D	1/3/06	6.92	10	6.75	301	14.53	*	slightly cloudy	peristaltic
BL-16D	1/3/06		13	6.91	301	14.63	*	clear	peristaltic
BL-16D	1/3/06		16	6.93	303	14.62	*	clear	peristaltic
BL-17	12/1/05	6.47	10	7.43	412	14.30	*	slightly cloudy, gray	peristaltic
BL-17	12/1/05		15	7.37	409	14.80	*	slightly cloudy, gray	peristaltic
BL-17	12/1/05		20	7.32	407	15.20	*	slightly cloudy, gray	peristaltic
BL-17	12/5/05	6.50	5	7.28	355	14.40	*	*	peristaltic
BL-17	12/5/05		10	7.23	350	14.20	*	*	peristaltic
BL-17	12/5/05		15	7.26	360	14.20	*	*	peristaltic
BL-17	1/3/06	6.37	10	7.65	275	14.00	*	clear	peristaltic
BL-17	1/3/06		15	7.61	275	14.20	*	clear	peristaltic
BL-17	1/3/06		20	7.61	274	14.20	*	clear	peristaltic

TABLE 4.3

SUMMARY OF MONITORING WELL PURGING PARAMETERS
EXELON GENERATION
BRAIDWOOD STATION

Well Identifier	Date	Water Level	Minutes Purged	pH (Std. Units)	Conductivity (µS/cm) [1]	Temperature (°C)	Turbidity (ntu) [2]	Observations	Pump Type
BL-17D	12/12/05	7.21	10	8.37	222	14.60	*	cloudy	peristaltic
BL-17D	12/12/05		13	8.29	215	15.10	*	cloudy	peristaltic
BL-17D	1/3/06	6.80	10	8.11	209	14.60	*	clear	peristaltic
BL-17D	1/3/06		15	8.15	207	14.70	*	clear	peristaltic
BL-17D	1/3/06		20	8.16	207	14.80	*	clear	peristaltic
BL-18	12/1/05	6.71	10	6.94	529	14.10	*	cloudy, gray	peristaltic
BL-18	12/1/05		15	7.28	519	14.70	*	cloudy, gray	peristaltic
BL-18	12/1/05		20	7.40	521	14.70	*	slightly cloudy, gray	peristaltic
BL-18D	2/7/06	7.07	10	7.52	244	17.40	*	cloudy	peristaltic
BL-18D	2/7/06		13	7.42	179	18.40	*	slightly cloudy	peristaltic
BL-18D	2/7/06		16	7.39	177	18.40	*	clear	peristaltic
BL-19	12/1/05	5.04	10	7.44	565	12.30	*	cloudy, gray	peristaltic
BL-19	12/1/05		15	7.37	556	12.20	*	slightly cloudy, gray	peristaltic
BL-19	12/1/05		20	7.36	555	12.00	*	slightly cloudy, gray	peristaltic
BL-19D	2/7/06	4.90	10	7.50	270	14.60	*	cloudy	peristaltic
BL-19D	2/7/06		13	7.39	261	14.50	*	slightly cloudy	peristaltic
BL-19D	2/7/06		16	7.35	256	15.10	*	slightly cloudy	peristaltic
BL-20D	12/23/05	9.56	10	7.54	411	14.33	*	clear	peristaltic
BL-20D	12/23/05		12	7.50	398	14.48	*	clear	peristaltic
BL-20D	12/23/05		14	7.45	390	14.50	*	clear	peristaltic
BL-20D	1/4/06	9.16	10	7.36	320	13.10	28.1	clear	peristaltic
BL-20D	1/4/06		13	7.31	296	13.60	21.7	clear	peristaltic
BL-20D	1/4/06		16	7.26	310	13.90	17.2	clear	peristaltic
C-1	12/12/05	7.21	10	7.46	584	13.60	*	slightly cloudy	peristaltic
C-1	12/12/05		13	7.45	584	13.40	*	clear	peristaltic
C-1	12/12/05		16	7.41	585	13.53	*	clear	peristaltic

TABLE 4.3

SUMMARY OF MONITORING WELL PURGING PARAMETERS
EXELON GENERATION
BRAIDWOOD STATION

Well Identifier	Date	Water Level	Minutes Purged	pH (Std. Units)	Conductivity (µS/cm) [1]	Temperature (°C)	Turbidity (ntu) [2]	Observations	Pump Type
C-1D	12/12/05	7.35	10	7.83	551	13.30	*	cloudy	peristaltic
C-1D	12/12/05		13	7.81	556	13.20	*	cloudy	peristaltic
C-1D	12/12/05		16	7.73	563	12.50	*	cloudy	peristaltic
C-1D	1/3/06	6.79	5	7.70	584	13.10	*	clear	peristaltic
C-1D	1/3/06		10	7.71	578	13.10	*	clear	peristaltic
C-1D	1/3/06		15	7.73	578	13.10	*	clear	peristaltic
C-2	1/24/06	9.00	7	6.31	456	10.87	*	clear	peristaltic
C-2	1/24/06		10	6.31	450	10.93	*	clear	peristaltic
C-2	1/24/06		13	5.97	449	10.93	*	clear	peristaltic
C-2	2/1/06	8.50	10	6.73	305	12.80	*	clear	peristaltic
C-2	2/1/06		13	6.58	302	12.80	*	clear	peristaltic
C-2	2/1/06		16	6.49	306	12.80	*	clear	peristaltic
C-2	2/9/06	8.56	5	5.48	392	10.11	*	slightly cloudy	peristaltic
C-2	2/9/06		10	5.42	394	10.05	*	slightly cloudy	peristaltic
C-2	2/9/06		15	5.37	395	9.95	*	clear	peristaltic
C-2	2/15/06	8.70	10	6.55	294	11.50	*	clear	peristaltic
C-2	2/15/06		12	6.53	294	11.60	*	clear	peristaltic
C-2	2/15/06		14	6.52	294	11.60	*	clear	peristaltic
C-2	2/22/06	8.63	12	5.96	193	11.00	*	clear	peristaltic
C-2	2/22/06		15	5.95	194	10.90	*	clear	peristaltic
C-2	2/22/06		18	5.93	196	10.90	*	clear	peristaltic
C-2	3/2/06	*	10	6.86	191	11.10	*	clear	peristaltic
C-2	3/2/06		13	6.80	192	11.10	*	clear	peristaltic
C-2	3/2/06		16	6.77	193	11.10	*	clear	peristaltic
C-2	3/7/06	8.60	5	6.64	420	9.70	*	*	peristaltic
C-2	3/7/06		10	6.29	417	9.47	*	*	peristaltic
C-2	3/7/06		15	6.25	417	9.53	*	*	peristaltic

SUMMARY OF MONITORING WELL PURGING PARAMETERS
EXELON GENERATION
BRAIDWOOD STATION

Well Identifier	*Date*	*Water Level*	*Minutes Purged*	*pH (Std. Units)*	*Conductivity (µS/cm)* [1]	*Temperature (°C)*	*Turbidity (ntu)* [2]	*Observations*	*Pump Type*
C-2D	1/24/06	7.09	10	6.84	657	12.13	*	clear	peristaltic
C-2D	1/24/06		13	6.76	665	12.13	*	clear	peristaltic
C-2D	1/24/06		16	6.70	664	12.10	*	clear	peristaltic
C-2D	2/1/06	6.75	10	7.15	443	13.30	*	slightly cloudy	peristaltic
C-2D	2/1/06		13	7.11	442	13.30	*	slightly cloudy	peristaltic
C-2D	2/1/06		16	7.10	441	13.50	*	clear	peristaltic
C-2D	2/9/06	6.76	5	6.26	621	10.80	*	very cloudy	peristaltic
C-2D	2/9/06		10	6.08	618	11.11	*	slightly cloudy	peristaltic
C-2D	2/9/06		15	6.03	620	10.88	*	clear	peristaltic
C-2D	2/15/06	6.90	10	7.14	432	12.70	*	clear	peristaltic
C-2D	2/15/06		13	7.11	436	12.70	*	clear	peristaltic
C-2D	2/15/06		16	7.11	436	12.70	*	clear	peristaltic
C-2D	2/22/06	6.85	10	6.64	372	11.60	*	clear	peristaltic
C-2D	2/22/06		13	6.56	371	11.80	*	clear	peristaltic
C-2D	2/22/06		16	6.54	370	11.90	*	clear	peristaltic
C-2D	3/2/06	*	10	7.22	185	12.20	*	clear	peristaltic
C-2D	3/2/06		13	7.01	185	12.20	*	clear	peristaltic
C-2D	3/2/06		16	7.00	185	12.20	*	clear	peristaltic
C-2D	3/7/06	6.82	10	6.53	654	10.42	*	*	peristaltic
C-2D	3/7/06		15	6.81	664	10.71	*	*	peristaltic
C-2D	3/7/06		20	6.82	665	10.76	*	*	peristaltic
C-2D	3/7/06		25	6.84	665	10.80	*	*	peristaltic
D-1	12/6/05	12.10	10	6.96	480	13.10	*	*	peristaltic
D-1	12/6/05		15	6.95	486	13.10	*	*	peristaltic
D-1	12/6/05		20	6.95	482	12.90	*	*	peristaltic

TABLE 4.3

SUMMARY OF MONITORING WELL PURGING PARAMETERS
EXELON GENERATION
BRAIDWOOD STATION

Well Identifier	Date	Water Level	Minutes Purged	pH (Std. Units)	Conductivity (µS/cm) [1]	Temperature (°C)	Turbidity (ntu) [2]	Observations	Pump Type
D-1	1/4/06	11.90	10	7.71	513	12.00	104	*	peristaltic
D-1	1/4/06		15	7.63	512	12.00	19.7	*	peristaltic
D-1	1/4/06		20	7.61	512	12.00	*	*	peristaltic
D1-1D	1/4/06	12.00	10	6.83	1053	11.45	*	clear	peristaltic
D1-1D	1/4/06		12	6.81	1057	11.55	*	clear	peristaltic
D1-1D	1/4/06		14	6.75	1058	11.64	*	clear	peristaltic
D-1D	12/23/05	12.04	10	7.70	770	13.20	*	slightly cloudy	peristaltic
D-1D	12/23/05		13	7.65	776	13.10	*	slightly cloudy	peristaltic
D-1D	12/23/05		16	7.64	780	13.00	*	clear	peristaltic
D-1D	12/23/05								
D-2	12/5/05	10.52	10	6.95	764	10.20	*	*	peristaltic
D-2	12/5/05		15	7.13	460	10.10	*	*	peristaltic
D-2	12/5/05		17	7.28	684	10.20	*	*	peristaltic
D-2	1/4/06	10.31	7	6.35	935	9.90	*	clear	peristaltic
D-2	1/4/06		9	6.33	932	9.94	*	clear	peristaltic
D-2	1/4/06		11	6.31	932	9.96	*	clear	peristaltic
D-2D	1/4/06	9.76	10	6.87	1414	12.17	*	clear	peristaltic
D-2D	1/4/06		13	6.71	1412	12.21	*	clear	peristaltic
D-2D	1/4/06		16	6.62	1413	12.24	*	clear	peristaltic
D-3	12/2/05	11.05	10	7.58	653	13.10	*	cloudy	peristaltic
D-3	12/2/05		15	7.36	656	14.00	*	slightly cloudy	peristaltic
D-3	12/2/05		20	7.36	659	14.10	*	slightly cloudy	peristaltic
D-3	1/4/06	10.85	10	6.49	329	11.75	*	slightly cloudy	peristaltic
D-3	1/4/06		13	6.38	399	11.70	*	slightly cloudy	peristaltic
D-3	1/4/06		16	6.39	386	11.74	*	clear	peristaltic
D-3D	12/23/05	10.71	10	7.22	756	13.16	*	slightly cloudy	peristaltic
D-3D	12/23/05		12	7.13	772	13.23	*	clear	peristaltic
D-3D	12/23/05		14	7.11	778	13.14	*	clear	peristaltic

TABLE 4.3

SUMMARY OF MONITORING WELL PURGING PARAMETERS
EXELON GENERATION
BRAIDWOOD STATION

Well Identifier	*Date*	*Water Level*	*Minutes Purged*	*pH (Std. Units)*	*Conductivity (µS/cm)* [1]	*Temperature (°C)*	*Turbidity (ntu)* [2]	*Observations*	*Pump Type*
D-3D	1/4/06	10.60	10	6.73	728	12.62	*	slightly cloudy	peristaltic
D-3D	1/4/06		13	6.69	802	12.68	*	clear	peristaltic
D-3D	1/4/06		16	6.69	812	12.69	*	clear	peristaltic
D-5	12/2/05	10.86	10	7.81	635	12.00	*	cloudy	peristaltic
D-5	12/2/05		15	7.60	651	12.20	*	cloudy	peristaltic
D-5	12/2/05		20	7.57	652	12.30	*	cloudy	peristaltic
F-1	12/12/05	7.40	10	7.33	766	14.40	*	cloudy	peristaltic
F-1	12/12/05		13	7.29	759	14.50	*	slightly cloudy	peristaltic
F-1	12/12/05		16	7.30	763	14.30	*	slightly cloudy	peristaltic
F-1	1/3/06	7.19	10	7.05	839	12.92	*	slightly cloudy	peristaltic
F-1	1/3/06		13	7.28	837	12.98	*	slightly cloudy	peristaltic
F-1	1/3/06		16	7.32	826	12.97	*	clear	peristaltic
F-1D	12/12/05	7.35	10	8.07	594	14.80	*	slightly cloudy	peristaltic
F-1D	12/12/05		13	7.80	592	14.50	*	slightly cloudy	peristaltic
F-1D	12/12/05		16	7.59	589	14.30	*	clear	peristaltic
F-1D	1/3/06	7.10	10	7.95	652	13.57	*	slightly cloudy	peristaltic
F-1D	1/3/06		13	7.92	652	13.59	*	clear	peristaltic
F-1D	1/3/06		16	7.87	651	13.60	*	clear	peristaltic
F-2D	1/9/06	7.26	10	7.01	501	12.77	*	clear	peristaltic
F-2D	1/9/06		13	6.98	501	12.70	*	clear	peristaltic
F-2D	1/9/06		16	6.93	500	12.54	*	clear	peristaltic
F-3D	1/9/06	8.57	10	7.57	357	14.65	*	slightly cloudy	peristaltic
F-3D	1/9/06		12	7.60	347	14.22	*	clear	peristaltic
F-3D	1/9/06		14	7.61	346	14.14	*	clear	peristaltic
F-3D	1/12/06	8.67	10	7.42	289	12.80	*	clear	peristaltic
F-3D	1/12/06		12	7.38	275	12.77	*	clear	peristaltic
F-3D	1/12/06		14	7.35	278	12.85	*	clear	peristaltic

TABLE 4.3

SUMMARY OF MONITORING WELL PURGING PARAMETERS
EXELON GENERATION
BRAIDWOOD STATION

Well Identifier	*Date*	*Water Level*	*Minutes Purged*	*pH (Std. Units)*	*Conductivity (µS/cm)* [1]	*Temperature (°C)*	*Turbidity (ntu)* [2]	*Observations*	*Pump Type*
F-4D	1/24/06	10.87	15	6.77	567	11.09	*	cloudy	peristaltic
F-4D	1/24/06		18	6.70	569	10.91	*	slightly cloudy	peristaltic
F-4D	1/24/06		21	6.71	570	10.98	*	slightly cloudy	peristaltic
F-5D	1/24/06	6.65	10	7.41	619	12.00	*	clear	peristaltic
F-5D	1/24/06		13	7.09	637	12.27	*	clear	peristaltic
F-5D	1/24/06		16	6.95	626	12.26	*	clear	peristaltic
F-6D	1/24/06	9.26	10	6.41	592	13.51	*	cloudy	peristaltic
F-6D	1/24/06		13	6.86	589	13.68	*	cloudy	peristaltic
F-6D	1/24/06		16	6.82	587	13.49	*	slightly cloudy	peristaltic
F-7D	1/24/06	8.48	10	6.89	761	12.39	*	clear	peristaltic
F-7D	1/24/06		12	6.88	813	12.21	*	clear	peristaltic
F-7D	1/24/06		14	6.82	856	12.21	*	clear	peristaltic
F-8D	1/24/06	9.70	10	7.14	557	13.12	*	slightly cloudy	peristaltic
F-8D	1/24/06		13	6.48	554	13.03	*	clear	peristaltic
F-8D	1/24/06		16	6.95	556	12.99	*	clear	peristaltic
G-1	12/6/05	5.55	10	7.71	614	13.00	*	cloudy	peristaltic
G-1	12/6/05		15	7.51	618	13.40	*	slightly cloudy	peristaltic
G-1	12/6/05		20	7.36	624	12.80	*	slightly cloudy	peristaltic
G-2	12/6/05	5.31	10	7.78	487	12.60	*	slightly cloudy	peristaltic
G-2	12/6/05		15	7.78	481	13.10	*	slightly cloudy	peristaltic
G-2	12/6/05		20	7.63	491	12.30	*	slightly cloudy	peristaltic
G-2D	1/26/06	3.65	10	7.89	493	11.70	*	*	peristaltic
G-2D	1/26/06		15	7.86	502	10.90	*	*	peristaltic
G-2D	1/26/06		20	7.83	511	11.10	*	*	peristaltic
G-3	12/6/05	7.25	10	7.56	525	14.30	*	slightly cloudy	peristaltic
G-3	12/6/05		15	7.63	495	13.90	*	clear	peristaltic
G-3	12/6/05		20	7.35	490	13.20	*	clear	peristaltic

TABLE 4.3

SUMMARY OF MONITORING WELL PURGING PARAMETERS
EXELON GENERATION
BRAIDWOOD STATION

Well Identifier	*Date*	*Water Level*	*Minutes Purged*	*pH (Std. Units)*	*Conductivity (µS/cm)* [1]	*Temperature (°C)*	*Turbidity (ntu)* [2]	*Observations*	*Pump Type*
MW-101	11/15/05	11.60	5	6.96	151	13.70	38.8	clear with suspended particles	peristaltic
MW-101	11/15/05		6					DRY	
MW-103	11/15/05	7.70	5	7.17	340	12.20	100	cloudy with suspended particles	peristaltic
MW-103	11/15/05		15	7.23	341	12.20	64.3	slightly cloudy with suspended particles	peristaltic
MW-103	11/15/05		20	7.19	340	12.60	21.2	clear with suspended particles	peristaltic
MW-103	11/15/05		25	7.22	341	12.20	13.1	clear	peristaltic
MW-105	11/15/05	9.30	5	7.06	554	15.30	117	cloudy	peristaltic
MW-105	11/15/05		10	7.15	475	15.50	63.2	slightly cloudy	peristaltic
MW-105	11/15/05		15	7.17	464	15.50	36.4	clear with suspended particles	peristaltic
MW-105	11/15/05		20	7.17	457	15.50	20.5	clear	peristaltic
MW-105	1/4/06	6.05	10	7.34	354	12.60	18.1	clear	peristaltic
MW-105	1/4/06		13	7.27	357	12.80	11.3	clear	peristaltic
MW-105	1/4/06		16	7.24	360	12.80	8.4	clear	peristaltic
MW-105D	12/16/05	6.81	10	8.18	378	14.20	*	clear	peristaltic
MW-105D	12/16/05		13	8.02	382	14.50	*	clear	peristaltic
MW-105D	12/16/05		16	7.92	382	14.30	*	clear	peristaltic
MW-105D	1/4/06	6.48	10	7.17	366	13.80	22.6	clear	peristaltic
MW-105D	1/4/06		13	7.14	368	14.20	17.5	clear	peristaltic
MW-105D	1/4/06		16	7.14	368	14.30	15.2	clear	peristaltic
MW-106	11/14/05	10.82	10	8.14	323	13.70	7.17	clear	peristaltic
MW-106	11/14/05		15	7.87	316	14.60	7.74	clear	peristaltic
MW-106	11/14/05		20	7.73	318	14.70	8.95	clear	peristaltic
MW-106	11/14/05		25	7.73	323	14.60	5.17	clear	peristaltic
MW-106	1/4/06	10.42	10	7.27	317	10.40	16.7	clear	peristaltic
MW-106	1/4/06		13	7.27	309	10.30	12.2	clear	peristaltic
MW-106	1/4/06		16	7.25	309	10.40	9.8	clear	peristaltic

TABLE 4.3

SUMMARY OF MONITORING WELL PURGING PARAMETERS
EXELON GENERATION
BRAIDWOOD STATION

Well Identifier	Date	Water Level	Minutes Purged	pH (Std. Units)	Conductivity (µS/cm) [1]	Temperature (°C)	Turbidity (ntu) [2]	Observations	Pump Type
MW-106D	12/16/05	9.84	10	7.94	467	12.20	*	clear	peristaltic
MW-106D	12/16/05		13	7.81	471	12.60	*	clear	peristaltic
MW-106D	12/16/05		16	7.76	473	12.90	*	clear	peristaltic
MW-106D	1/4/06	9.52	10	7.18	435	11.30	20.1	clear	peristaltic
MW-106D	1/4/06		13	7.14	438	11.60	16.8	clear	peristaltic
MW-106D	1/4/06		16	7.13	442	11.70	12.5	clear	peristaltic
MW-107	11/16/05	10.71	5.00	7.41	415	14.00	29.8	clear with suspended particles	peristaltic
MW-107	11/16/05		10.00	7.46	405	14.80	12.6	clear	peristaltic
MW-107	11/16/05		15.00	7.48	402	14.30	8.73	clear	peristaltic
MW-107	11/16/05		20.00	7.50	401	14.20	5.75	clear	peristaltic
MW-108	11/16/05	11.18	5.00	6.98	782	14.30	2.74	clear	peristaltic
MW-108	11/16/05		10.00	7.02	773	13.80	2.52	clear	peristaltic
MW-108	11/16/05		15.00	7.03	773	13.70	3.16	clear	peristaltic
MW-110	11/14/05	19.28	10	7.14	950	13.60	11	clear	peristaltic
MW-110	11/14/05		20	7.24	878	13.60	5.03	clear	peristaltic
MW-110	11/14/05		25	7.31	866	13.30	3.6	clear	peristaltic
MW-110	11/14/05	19.26	30	7.33	860	13.80	3.18	clear	peristaltic
MW-110	11/16/05	19.19	5.00	7.06	1024	13.20	6.05	clear	peristaltic
MW-110	11/16/05		10.00	7.09	1011	12.50	3.24	clear	peristaltic
MW-110	11/16/05		15.00	7.09	1008	12.50	2.53	clear	peristaltic
MW-110	11/16/05		20.00	7.12	1002	12.60	2.42	clear	peristaltic
MW-110	1/4/06	19.46	5	7.08	1105	11.27	*	clear	peristaltic
MW-110	1/4/06		10	7.07	1105	11.23	*	clear	peristaltic
MW-110	1/4/06		15	7.06	1105	11.22	*	clear	peristaltic

TABLE 4.3

SUMMARY OF MONITORING WELL PURGING PARAMETERS
EXELON GENERATION
BRAIDWOOD STATION

Well Identifier	Date	Water Level	Minutes Purged	pH (Std. Units)	Conductivity (µS/cm) [1]	Temperature (°C)	Turbidity (ntu) [2]	Observations	Pump Type
MW-111	11/15/05	16.74	5	7.12	300	13.90	5.89	clear	peristaltic
MW-111	11/15/05		10	7.59	181	13.80	2.96	clear	peristaltic
MW-111	11/15/05		15	7.64	160	13.80	1.87	clear	peristaltic
MW-111	11/15/05		20	7.66	159	13.80	1.55	clear	peristaltic
MW-111	11/15/05								
MW-111	1/4/06	16.55	10	7.30	118	11.80	11.3	clear	peristaltic
MW-111	1/4/06		13	7.33	116	12.20	9.5	clear	peristaltic
MW-111	1/4/06		16	7.33	116	12.20	7.8	clear	peristaltic
MW-111	1/4/06								
MW-111D	1/9/06	14.35	10	7.69	345	15.36	*	slightly cloudy	peristaltic
MW-111D	1/9/06		13	7.85	346	14.90	*	slightly cloudy	peristaltic
MW-111D	1/9/06		16	7.88	345	14.83	*	clear	peristaltic
MW-111D	1/9/06								
MW-112	11/15/05	12.13	5	7.11	402	15.00	65.3	slightly cloudy	peristaltic
MW-112	11/15/05		10	7.15	386	15.10	28.7	clear	peristaltic
MW-112	11/15/05		15	7.16	384	15.10	20.5	clear	peristaltic
MW-112	11/15/05								
MW-112	1/4/06	11.77	5	7.26	335	10.80	18.7	clear	peristaltic
MW-112	1/4/06		8	7.23	339	10.90	16.4	clear	peristaltic
MW-112	1/4/06		11	7.20	340	11.20	13.8	clear	peristaltic
MW-112	1/4/06								
MW-112D	1/9/06	9.87	15	7.19	678	14.97	*	cloudy	peristaltic
MW-112D	1/9/06		18	7.12	683	14.66	*	slightly cloudy	peristaltic
MW-112D	1/9/06		21	7.06	686	14.41	*	slightly cloudy	peristaltic
MW-112D	1/9/06								
MW-113	11/15/05	8.75	5	6.95	615	12.60	17.5	clear	peristaltic
MW-113	11/15/05		10	6.96	586	12.60	10.4	clear	peristaltic
MW-113	11/15/05		15	6.95	568	12.80	7.53	clear	peristaltic
MW-113	11/15/05		20	6.95	571	12.80	4.76	clear	peristaltic
MW-113	11/15/05								

TABLE 4.3

SUMMARY OF MONITORING WELL PURGING PARAMETERS
EXELON GENERATION
BRAIDWOOD STATION

Well Identifier	*Date*	*Water Level*	*Minutes Purged*	*pH (Std. Units)*	*Conductivity (µS/cm)* [1]	*Temperature (°C)*	*Turbidity (ntu)* [2]	*Observations*	*Pump Type*
MW-113	12/5/05	8.89	5	7.14	484	11.70	*	*	peristaltic
MW-113	12/5/05		10	7.13	477	11.70	*	*	peristaltic
MW-113	12/5/05		15	7.13	483	11.50	*	*	peristaltic
MW-113	12/5/05								
MW-113	1/3/06	8.97	15	7.52	556	10.90	35.2	clear	peristaltic
MW-113	1/3/06		18	7.48	509	11.20	24.1	clear	peristaltic
MW-113	1/3/06		21	7.45	509	11.50	19.2	clear	peristaltic
MW-113	1/3/06		24	7.44	505	11.40	17.8	clear	peristaltic
MW-113	1/3/06								
MW-113D	12/14/05	6.12	10	7.90	432	12.70	*	clear	peristaltic
MW-113D	12/14/05		13	7.90	431	12.10	*	clear	peristaltic
MW-113D	12/14/05		16	7.77	429	12.20	*	clear	peristaltic
MW-113D	12/14/05								
MW-113D	1/3/06	6.13	10	7.40	422	12.20	51.7	cloudy	peristaltic
MW-113D	1/3/06		13	7.39	418	12.40	39.3	clear	peristaltic
MW-113D	1/3/06		16	7.38	418	12.40	26.7	clear	peristaltic
P-1	12/1/05	5.08	10	7.21	432	15.70	*	cloudy, gray	peristaltic
P-1	12/1/05		15	7.46	427	16.40	*	cloudy, gray	peristaltic
P-1	12/1/05		20	7.54	424	16.70	*	cloudy, gray	peristaltic
P-1	12/1/05								
P-2	12/2/05	5.95	15	8.47	478	15.60	*	cloudy	peristaltic
P-2	12/2/05		20	8.56	363	17.50	*	slightly cloudy	peristaltic
P-2	12/2/05		25	8.55	352	18.00	*	slightly cloudy	peristaltic
P-2	1/3/06	5.81	10	8.41	391	15.65	*	slightly cloudy	peristaltic
P-2	1/3/06		13	8.63	393	15.67	*	slightly cloudy	peristaltic
P-2	1/3/06		16	8.75	395	15.70	*	clear	peristaltic

TABLE 4.3

SUMMARY OF MONITORING WELL PURGING PARAMETERS
EXELON GENERATION
BRAIDWOOD STATION

Well Identifier	*Date*	*Water Level*	*Minutes Purged*	*pH (Std. Units)*	*Conductivity (µS/cm)* [1]	*Temperature (°C)*	*Turbidity (ntu)* [2]	*Observations*	*Pump Type*
P-2D	12/12/05	6.26	10	8.02	369	17.80	*	slightly cloudy	peristaltic
P-2D	12/12/05		13	7.93	364	17.90	*	clear	peristaltic
P-2D	12/12/05		16	7.89	381	16.90	*	clear	peristaltic
P-2D	1/3/06	6.08	10	8.23	412	17.73	*	slightly cloudy	peristaltic
P-2D	1/3/06		13	8.15	412	17.76	*	clear	peristaltic
P-2D	1/3/06		16	8.07	412	17.78	*	clear	peristaltic
P-3	12/2/05	6.08	10	7.25	742	16.40	*	cloudy, dark	peristaltic
P-3	12/2/05		15	7.24	760	17.80	*	cloudy	peristaltic
P-3	12/2/05		20	7.17	762	17.70	*	cloudy	peristaltic
P-4	12/1/05	6.41	10	6.55	923	14.20	*	slightly cloudy, gray	peristaltic
P-4	12/1/05		15	6.50	931	14.80	*	slightly cloudy, gray	peristaltic
P-4	12/1/05		20	6.50	922	15.00	*	clear	peristaltic
P-4	12/6/05	6.50	10	5.78	665	12.00	*	*	peristaltic
P-4	12/6/05		15	5.95	714	13.80	*	*	peristaltic
P-4	12/6/05		20	5.97	716	13.60	*	*	peristaltic
P-4	1/3/06	6.41	10	7.22	727	11.90	*	clear	peristaltic
P-4	1/3/06		15	7.07	723	12.30	*	clear	peristaltic
P-4	1/3/06		20	6.94	754	12.60	*	clear	peristaltic
P-4	1/3/06		25	6.89	761	12.70	*	clear	peristaltic
P-4	1/3/06		30	6.88	761	12.70	*	clear	peristaltic
P-4	1/11/06	6.31	10	7.16	760	12.40	*	clear	peristaltic
P-4	1/11/06		13	7.04	762	12.30	*	clear	peristaltic
P-4	1/11/06		16	7.00	763	12.20	*	clear	peristaltic
P-4	1/18/06	6.28	10	5.83	1043	10.29	*	clear	peristaltic
P-4	1/18/06		13	5.75	1044	10.31	*	clear	peristaltic
P-4	1/18/06		16	5.69	1047	10.20	*	clear	peristaltic

TABLE 4.3

SUMMARY OF MONITORING WELL PURGING PARAMETERS
EXELON GENERATION
BRAIDWOOD STATION

Well Identifier	Date	Water Level	Minutes Purged	pH (Std. Units)	Conductivity (µS/cm) [1]	Temperature (°C)	Turbidity (ntu) [2]	Observations	Pump Type
P-4	1/25/06	6.21	10	7.37	753	9.20	195	slightly cloudy	peristaltic
P-4	1/25/06		15	7.04	775	9.30	122	clear	peristaltic
P-4	1/25/06		20	7.06	769	10.00	78.3	clear	peristaltic
P-4	1/25/06		25	7.00	772	9.80	56.4	clear	peristaltic
P-4	2/1/06	5.95	10	6.99	674	12.20	*	clear	peristaltic
P-4	2/1/06		13	6.66	682	12.40	*	clear	peristaltic
P-4	2/1/06		16	6.46	683	12.40	*	clear	peristaltic
P-4	2/9/06	5.98	5	5.49	1131	10.11	*	clear with yellow tint	peristaltic
P-4	2/9/06		10	5.43	1130	10.15	*	clear with yellow tint	peristaltic
P-4	2/9/06		15	5.38	1132	10.16	*	clear with yellow tint	peristaltic
P-4	2/15/06	6.00	10	7.14	748	11.20	*	clear, yellow tint	peristaltic
P-4	2/15/06		13	6.90	747	11.40	*	clear, yellow tint	peristaltic
P-4	2/15/06		16	6.75	752	11.40	*	clear, yellow tint	peristaltic
P-4	2/22/06	6.06	10	7.24	1043	9.50	*	clear	peristaltic
P-4	2/22/06		13	6.88	1064	10.00	*	clear	peristaltic
P-4	2/22/06		16	6.80	1068	1.00	*	clear	peristaltic
P-4	2/22/06		19	6.72	1079	10.10	*	clear	peristaltic
P-4	3/1/06	5.95	10	7.57	793	11.40	*	clear, yellow tint	peristaltic
P-4	3/1/06		13	7.49	802	10.60	*	clear, yellow tint	peristaltic
P-4	3/1/06		16	7.45	796	10.80	*	clear, yellow tint	peristaltic
P-4	3/7/06	6.00	10	7.22	762	10.50	*	clear, yellow tint	peristaltic
P-4	3/7/06		13	6.86	760	10.70	*	clear, yellow tint	peristaltic
P-4	3/7/06		16	6.83	760	10.70	*	clear, yellow tint	peristaltic
P-4D	12/23/05	8.68	10	7.93	671	12.80	*	cloudy	peristaltic
P-4D	12/23/05		13	7.86	673	13.20	*	slightly cloudy	peristaltic
P-4D	12/23/05		16	7.82	681	13.20	*	clear	peristaltic

TABLE 4.3

SUMMARY OF MONITORING WELL PURGING PARAMETERS
EXELON GENERATION
BRAIDWOOD STATION

Well Identifier	Date	Water Level	Minutes Purged	pH (Std. Units)	Conductivity (µS/cm) [1]	Temperature (°C)	Turbidity (ntu) [2]	Observations	Pump Type
P-4D	1/3/06	8.63	12	7.70	691	13.00	*	slightly cloudy	peristaltic
P-4D	1/3/06		17	7.69	691	13.00	*	slightly cloudy	peristaltic
P-4D	1/3/06		22	7.69	688	13.00	*	clear	peristaltic
P-4D	1/11/06	8.55	10	7.67	672	12.90	*	slightly cloudy	peristaltic
P-4D	1/11/06		13	7.71	672	12.70	*	slightly cloudy	peristaltic
P-4D	1/11/06		16	7.72	670	12.70	*	clear	peristaltic
P-4D	1/18/06	8.50	10	6.48	947	11.40	*	clear	peristaltic
P-4D	1/18/06		13	6.48	945	11.57	*	clear	peristaltic
P-4D	1/18/06		16	6.48	943	11.60	*	clear	peristaltic
P-4D	1/25/06	8.48	10	7.94	336	9.90	*	cloudy	peristaltic
P-4D	1/25/06		15	7.86	264	10.10	*	slightly cloudy	peristaltic
P-4D	1/25/06		20	7.84	208	10.00	*	slightly cloudy	peristaltic
P-4D	2/1/06	8.06	10	7.28	551	13.30	*	clear	peristaltic
P-4D	2/1/06		13	7.20	539	13.70	*	clear	peristaltic
P-4D	2/1/06		16	7.16	536	13.80	*	clear	peristaltic
P-4D	2/9/06	8.20	5	6.45	789	11.60	*	cloudy	peristaltic
P-4D	2/9/06		10	6.27	789	11.81	*	slightly cloudy	peristaltic
P-4D	2/9/06		15	6.24	788	11.68	*	clear	peristaltic
P-4D	2/15/06	8.28	10	7.31	562	11.90	*	clear	peristaltic
P-4D	2/15/06		13	7.26	561	12.20	*	clear	peristaltic
P-4D	2/15/06		16	7.22	564	12.30	*	clear	peristaltic
P-4D	2/22/06	8.16	10	6.85	821	11.30	*	cloudy	peristaltic
P-4D	2/22/06		13	7.25	794	11.90	*	cloudy	peristaltic
P-4D	2/22/06		16	7.29	782	11.80	*	cloudy	peristaltic
P-4D	2/22/06		19	7.30	784	12.10	*	cloudy	peristaltic

TABLE 4.3

SUMMARY OF MONITORING WELL PURGING PARAMETERS
EXELON GENERATION
BRAIDWOOD STATION

Well Identifier	*Date*	*Water Level*	*Minutes Purged*	*pH (Std. Units)*	*Conductivity (µS/cm)* [1]	*Temperature (°C)*	*Turbidity (ntu)* [2]	*Observations*	*Pump Type*
P-4D	3/1/06	8.19	12	7.98	648	12.90	*	clear	peristaltic
P-4D	3/1/06		15	7.92	643	12.90	*	clear	peristaltic
P-4D	3/1/06		18	7.82	641	12.90	*	clear	peristaltic
P-4D	3/7/06	8.23	15	7.18	605	12.90	*	clear	peristaltic
P-4D	3/7/06		18	7.19	603	13.00	*	clear	peristaltic
P-4D	3/7/06		21	7.20	602	13.00	*	clear	peristaltic
P-5	12/1/05	6.48	10	6.79	845	14.30	*	clear	peristaltic
P-5	12/1/05		15	6.67	800	14.90	*	clear	peristaltic
P-5	12/1/05		22	6.65	804	15.40	*	clear	peristaltic
P-5	1/3/06	6.45	10	7.38	675	12.60	*	clear	peristaltic
P-5	1/3/06		15	6.96	679	13.20	*	clear	peristaltic
P-5	1/3/06		20	6.95	686	13.20	*	clear	peristaltic
P-5	1/3/06		25	6.94	686	13.20	*	clear	peristaltic
P-5D	12/23/05	10.22	10	7.65	453	12.86	*	clear	peristaltic
P-5D	12/23/05		12	7.22	457	13.11	*	clear	peristaltic
P-5D	12/23/05		14	7.15	458	13.13	*	clear	peristaltic
P-5D	1/3/06	8.91	15	7.71	514	13.60	*	clear	peristaltic
P-5D	1/3/06		20	7.71	515	13.60	*	clear	peristaltic
P-5D	1/3/06		25	7.70	520	13.60	*	clear	peristaltic
P-6	12/1/05	7.30	10	7.15	655	13.70	*	cloudy, gray	peristaltic
P-6	12/1/05		15	7.13	659	13.90	*	slightly cloudy, gray	peristaltic
P-6	12/1/05		20	7.11	669	14.30	*	slightly cloudy, gray	peristaltic
P-6	1/18/06	6.18	10	6.37	234	9.97	*	clear	peristaltic
P-6	1/18/06		12	6.20	237	10.34	*	clear	peristaltic
P-6	1/18/06		14	6.10	235	10.33	*	clear	peristaltic

TABLE 4.3

SUMMARY OF MONITORING WELL PURGING PARAMETERS
EXELON GENERATION
BRAIDWOOD STATION

Well Identifier	Date	Water Level	Minutes Purged	pH (Std. Units)	Conductivity (µS/cm) [1]	Temperature (°C)	Turbidity (ntu) [2]	Observations	Pump Type
P-7	12/1/05	9.58	10	6.80	1257	13.70	*	cloudy, gray	peristaltic
P-7	12/1/05		15	6.71	1272	13.90	*	slightly cloudy, gray	peristaltic
P-7	12/1/05		20	6.74	1268	14.20	*	slightly cloudy, gray	peristaltic
P-8	12/1/05	5.63	10	6.90	644	13.90	*	slightly cloudy, gray	peristaltic
P-8	12/1/05		15	6.96	627	14.90	*	slightly cloudy, gray	peristaltic
P-8	12/1/05		20	6.95	623	14.60	*	slightly cloudy, gray	peristaltic
P-8	12/6/05	5.74	10	6.43	498	14.00	*	*	peristaltic
P-8	12/6/05		15	6.45	503	14.60	*	*	peristaltic
P-8	12/6/05		20	6.43	518	14.40	*	*	peristaltic
P-9	12/5/05	8.75	10	7.07	229	12.70	*	slightly cloudy	peristaltic
P-9	12/5/05		15	6.68	229	12.10	*	clear	peristaltic
P-9	12/5/05		20	6.64	227	12.30	*	clear	peristaltic
P-9	12/13/05	*	10	7.04	221	13.40	*	clear	peristaltic
P-9	12/13/05		13	6.75	220	13.30	*	clear	peristaltic
P-9	12/13/05		16	6.51	223	12.90	*	clear	peristaltic
P-10	12/5/05	6.54	10	8.04	466	13.90	*	cloudy	peristaltic
P-10	12/5/05		15	8.07	451	14.10	*	clear	peristaltic
P-10	12/5/05		20	7.96	458	13.70	*	clear	peristaltic
P-11	12/5/05	6.55	10	7.90	645	12.60	*	cloudy	peristaltic
P-11	12/5/05		15	7.84	640	14.10	*	clear	peristaltic
P-11	12/5/05		20	7.74	637	13.90	*	clear	peristaltic
P-11	12/5/05								
P-12	12/5/05	6.79	10	7.90	554	12.60	*	slightly cloudy	peristaltic
P-12	12/5/05		15	7.66	557	14.30	*	clear	peristaltic
P-12	12/5/05		20	7.49	569	13.70	*	clear	peristaltic

TABLE 4.3

SUMMARY OF MONITORING WELL PURGING PARAMETERS
EXELON GENERATION
BRAIDWOOD STATION

Well Identifier	*Date*	*Water Level*	*Minutes Purged*	*pH (Std. Units)*	*Conductivity (µS/cm)* [1]	*Temperature (°C)*	*Turbidity (ntu)* [2]	*Observations*	*Pump Type*
P-13D	12/23/05	8.34	10	8.09	812	14.10	*	slightly cloudy	peristaltic
P-13D	12/23/05		13	7.89	809	13.90	*	clear	peristaltic
P-13D	12/23/05		16	7.82	809	13.90	*	clear	peristaltic
P-13D	1/3/06	8.25	10	7.70	825	14.00	*	clear	peristaltic
P-13D	1/3/06		15	7.68	827	14.00	*	clear	peristaltic
P-13D	1/3/06		20	7.67	827	14.00	*	clear	peristaltic
P-13D	1/11/06	5.26	10	7.81	863	13.50	*	clear	peristaltic
P-13D	1/11/06		13	7.72	821	13.60	*	clear	peristaltic
P-13D	1/11/06		16	7.71	818	13.70	*	clear	peristaltic
P-13D	1/18/06	5.20	17	6.56	1114	9.61	*	clear	peristaltic
P-13D	1/18/06		20	6.40	1113	11.63	*	clear	peristaltic
P-13D	1/18/06		23	6.45	1113	11.67	*	clear	peristaltic
P-13D	1/25/06	8.16	10	7.47	790	11.70	132	slightly cloudy	peristaltic
P-13D	1/25/06		15	7.68	789	11.20	82.1	clear	peristaltic
P-13D	1/25/06		20	7.71	788	10.90	57.2	clear	peristaltic
P-13D	1/25/06		25	7.70	786	11.00	42.5	clear	peristaltic
P-13D	2/1/06	7.90	10	7.39	775	13.70	*	clear	peristaltic
P-13D	2/1/06		13	7.20	692	14.30	*	clear	peristaltic
P-13D	2/1/06		16	7.12	689	14.40	*	clear	peristaltic
P-13D	2/9/06	7.98	5	6.21	1045	11.69	*	clear	peristaltic
P-13D	2/9/06		10	6.07	1043	11.77	*	clear	peristaltic
P-13D	2/9/06		15	6.04	1043	11.60	*	clear	peristaltic
P-13D	2/15/06	7.99	10	7.45	664	13.00	*	clear	peristaltic
P-13D	2/15/06		13	7.34	664	13.20	*	clear	peristaltic
P-13D	2/15/06		16	7.26	667	13.20	*	clear	peristaltic

TABLE 4.3

SUMMARY OF MONITORING WELL PURGING PARAMETERS
EXELON GENERATION
BRAIDWOOD STATION

Well Identifier	*Date*	*Water Level*	*Minutes Purged*	*pH (Std. Units)*	*Conductivity (µS/cm)* [1]	*Temperature (°C)*	*Turbidity (ntu)* [2]	*Observations*	*Pump Type*
P-13D	2/22/06	8.02	10	7.54	915	10.00	*	slightly cloudy	peristaltic
P-13D	2/22/06		13	7.57	905	10.50	*	clear	peristaltic
P-13D	2/22/06		16	7.46	919	10.70	*	clear	peristaltic
P-13D	3/1/06	7.90	12	8.81	768	13.20	*	clear	peristaltic
P-13D	3/1/06		15	8.36	769	12.50	*	clear	peristaltic
P-13D	3/1/06		18	8.27	763	12.80	*	clear	peristaltic
P-13D	3/7/06	7.93	10	7.90	770	13.00	*	clear	peristaltic
P-13D	3/7/06		13	7.61	715	13.40	*	clear	peristaltic
P-13D	3/7/06		16	7.46	708	13.10	*	clear	peristaltic
P-13D	3/7/06		19	7.44	705	13.10	*	clear	peristaltic
P-14	1/24/06	6.40	10	6.76	514	12.26	*	clear	peristaltic
P-14	1/24/06		13	6.70	515	12.41	*	clear	peristaltic
P-14	1/24/06		16	6.69	515	12.26	*	clear	peristaltic
P-14D	1/24/06	7.89	10	7.02	509	14.48	*	clear	peristaltic
P-14D	1/24/06		13	6.86	512	14.46	*	clear	peristaltic
P-14D	1/24/06		16	6.79	511	14.36	*	clear	peristaltic
S-1	12/5/05	7.50	10	7.52	377	13.10	*	slightly cloudy	peristaltic
S-1	12/5/05		15	7.86	380	13.50	*	clear	peristaltic
S-1	12/5/05		20	8.01	383	13.80	*	clear	peristaltic
S-1D	1/26/06	7.87	10	8.54	306	13.80	537	cloudy	peristaltic
S-1D	1/26/06		15	8.45	304	13.50	521	cloudy	peristaltic
S-1D	1/26/06		20	8.39	307	13.20	507	cloudy	peristaltic
S-1D	1/26/06		25	8.36	306	13.00	503	cloudy	peristaltic
S-2	12/5/05	5.22	10	7.81	546	12.50	*	slightly cloudy	peristaltic
S-2	12/5/05		15	7.62	553	12.50	*	clear	peristaltic
S-2	12/5/05		20	7.68	553	12.50	*	clear	peristaltic

TABLE 4.3

SUMMARY OF MONITORING WELL PURGING PARAMETERS
EXELON GENERATION
BRAIDWOOD STATION

Well Identifier	Date	Water Level	Minutes Purged	pH (Std. Units)	Conductivity (µS/cm) [1]	Temperature (°C)	Turbidity (ntu) [2]	Observations	Pump Type
S-2	1/3/06	4.68	10	7.27	630	12.15	*	clear	peristaltic
S-2	1/3/06		13	7.25	629	12.18	*	clear	peristaltic
S-2	1/3/06		16	7.10	628	12.20	*	clear	peristaltic
S-2	2/1/06	3.80	10	7.10	496	12.20	*	clear	peristaltic
S-2	2/1/06		13	7.03	497	12.20	*	clear	peristaltic
S-2	2/1/06		16	7.01	495	12.30	*	clear	peristaltic
S-2	2/9/06	3.98	5	10.37	689	10.37	*	clear	peristaltic
S-2	2/9/06		10	10.36	688	10.36	*	clear	peristaltic
S-2	2/9/06		15	10.37	688	10.37	*	clear	peristaltic
S-2	2/15/06	4.04	10	7.09	483	11.60	*	clear	peristaltic
S-2	2/15/06		13	7.08	483	11.60	*	clear	peristaltic
S-2	2/15/06		16	7.07	482	11.70	*	clear	peristaltic
S-2	2/22/06	4.08	10	7.49	649	10.20	*	cloudy	peristaltic
S-2	2/22/06		13	7.42	642	10.20	*	clear	peristaltic
S-2	2/22/06		16	7.43	630	10.40	*	clear	peristaltic
S-2	3/1/06	3.91	10	7.35	532	10.60	*	clear	peristaltic
S-2	3/1/06		13	7.34	537	10.60	*	clear	peristaltic
S-2	3/1/06		16	7.34	535	10.70	*	clear	peristaltic
S-2D	12/12/05	6.14	10	7.98	403	12.90	*	slightly cloudy	peristaltic
S-2D	12/12/05		13	7.87	388	13.40	*	slightly cloudy	peristaltic
S-2D	12/12/05		16	7.86	389	13.10	*	slightly cloudy	peristaltic
S-2D	1/3/06	5.30	10	6.90	406	12.90	*	slightly cloudy	peristaltic
S-2D	1/3/06		13	7.08	406	12.94	*	clear	peristaltic
S-2D	1/3/06		16	6.98	407	12.96	*	clear	peristaltic
S-2D	2/1/06	4.37	10	7.10	326	13.70	*	clear	peristaltic
S-2D	2/1/06		13	7.10	325	13.80	*	clear	peristaltic
S-2D	2/1/06		16	7.11	326	13.70	*	clear	peristaltic

TABLE 4.3

SUMMARY OF MONITORING WELL PURGING PARAMETERS
EXELON GENERATION
BRAIDWOOD STATION

Well Identifier	Date	Water Level	Minutes Purged	pH (Std. Units)	Conductivity (µS/cm) [1]	Temperature (°C)	Turbidity (ntu) [2]	Observations	Pump Type
S-2D	2/9/06	4.56	5	6.11	427	11.88	*	clear	peristaltic
S-2D	2/9/06		10	6.13	428	11.87	*	clear	peristaltic
S-2D	2/9/06		15	6.13	428	11.98	*	clear	peristaltic
S-2D	2/15/06	4.62	10	7.24	317	13.00	*	clear	peristaltic
S-2D	2/15/06		13	7.20	318	13.20	*	clear	peristaltic
S-2D	2/15/06		16	7.19	318	13.20	*	clear	peristaltic
S-2D	2/22/06	4.65	10	7.62	397	11.70	*	cloudy	peristaltic
S-2D	2/22/06		13	7.58	393	11.70	*	cloudy	peristaltic
S-2D	2/22/06		16	7.57	398	11.80	*	cloudy	peristaltic
S-2D	3/1/06	4.50	10	8.01	383	12.90	*	clear	peristaltic
S-2D	3/1/06		13	8.10	362	12.00	*	clear	peristaltic
S-2D	3/1/06		16	7.87	365	12.00	*	clear	peristaltic
S-3	12/5/05	5.29	10	7.90	450	12.90	*	clear	peristaltic
S-3	12/5/05		15	7.80	447	13.30	*	clear	peristaltic
S-3	12/5/05		20	7.65	447	13.30	*	clear	peristaltic
S-4	12/5/05	5.69	10	7.98	597	11.80	*	cloudy	peristaltic
S-4	12/5/05		15	7.86	599	12.40	*	cloudy	peristaltic
S-4	12/5/05		20	7.76	598	12.20	*	clear	peristaltic
S-4D	1/26/06	7.75	10	8.10	419	12.80	63.8	slightly cloudy	peristaltic
S-4D	1/26/06		15	8.05	402	12.50	48.7	clear	peristaltic
S-4D	1/26/06		20	8.00	403	12.40	32.4	clear	peristaltic
S-5	12/5/05	4.25	10	8.20	392	11.10	*	slightly cloudy	peristaltic
S-5	12/5/05		15	8.14	377	12.10	*	slightly cloudy	peristaltic
S-5	12/5/05		20	8.07	389	12.20	*	slightly cloudy	peristaltic
S-6	12/5/05	6.72	10	7.90	449	11.70	*	slightly cloudy	peristaltic
S-6	12/5/05		15	7.79	454	12.40	*	clear	peristaltic
S-6	12/5/05		20	7.75	452	12.10	*	clear	peristaltic

TABLE 4.3

SUMMARY OF MONITORING WELL PURGING PARAMETERS
EXELON GENERATION
BRAIDWOOD STATION

Well Identifier	Date	Water Level	Minutes Purged	pH (Std. Units)	Conductivity (µS/cm) [1]	Temperature (°C)	Turbidity (ntu) [2]	Observations	Pump Type
S-7	1/24/06	4.98	10	6.64	693	9.28	*	clear	peristaltic
S-7	1/24/06		13	6.62	698	9.26	*	clear	peristaltic
S-7	1/24/06		16	6.61	698	9.21	*	clear	peristaltic
S-7D	1/24/06	6.80	10	7.71	469	10.87	*	clear	peristaltic
S-7D	1/24/06		13	7.19	471	11.05	*	clear	peristaltic
S-7D	1/24/06		16	7.12	473	10.70	*	clear	peristaltic
VB-1-1	11/16/05	13.30	10	7.77	1061	17.72	*	clear	peristaltic
VB-1-1	11/16/05		12	7.68	1057	17.62	*	clear	peristaltic
VB-1-1	11/16/05		14	7.63	1054	17.74	*	clear	peristaltic
VB-1-1	1/4/06	13.00	5	8.06	835	13.30	*	*	peristaltic
VB-1-1	1/4/06		10	8.05	831	13.20	*	*	peristaltic
VB-1-1	1/4/06		15	8.02	827	13.40	845	*	peristaltic
VB-1-1D	12/16/05	12.34	13	7.47	545	13.77	*	clear	peristaltic
VB-1-1D	12/16/05		16	7.55	554	14.20	*	clear	peristaltic
VB-1-1D	12/16/05		19	7.56	559	14.24	*	clear	peristaltic
VB-1-1D	1/4/06	12.30	10	7.02	644	13.62	*	slightly cloudy	peristaltic
VB-1-1D	1/4/06		13	7.01	644	13.85	*	slightly cloudy	peristaltic
VB-1-1D	1/4/06		16	7.00	645	13.87	*	clear	peristaltic
VB-1-2D	1/13/06	9.40	10	7.16	636	12.72	*	slightly cloudy	peristaltic
VB-1-2D	1/13/06		13	7.18	643	12.80	*	clear	peristaltic
VB-1-2D	1/13/06		16	7.14	651	12.83	*	clear	peristaltic
VB-1-3	11/16/05	11.97	10	7.33	313	13.24	*	clear	peristaltic
VB-1-3	11/16/05		12	7.24	311	13.40	*	clear	peristaltic
VB-1-3	11/16/05		14	7.27	312	13.43	*	clear	peristaltic
VB-1-3D	1/13/06	9.65	10	7.20	661	12.65	*	clear	peristaltic
VB-1-3D	1/13/06		12	7.21	654	12.60	*	clear	peristaltic
VB-1-3D	1/13/06		15	7.21	660	12.59	*	clear	peristaltic

TABLE 4.3

SUMMARY OF MONITORING WELL PURGING PARAMETERS
EXELON GENERATION
BRAIDWOOD STATION

Well Identifier	*Date*	*Water Level*	*Minutes Purged*	*pH (Std. Units)*	*Conductivity (µS/cm)* [1]	*Temperature (°C)*	*Turbidity (ntu)* [2]	*Observations*	*Pump Type*
VB-1-4	11/16/05	10.62	10	7.44	458	13.40	*	clear	peristaltic
VB-1-4	11/16/05		12	7.42	456	13.42	*	clear	peristaltic
VB-1-4	11/16/05		14	7.42	454	13.22	*	clear	peristaltic
VB-1-4D	1/13/06	8.90	25	7.07	924	10.40	*	slightly cloudy	peristaltic
VB-1-4D	1/13/06		30	7.01	929	10.71	*	clear	peristaltic
VB-1-4D	1/13/06		35	7.10	931	10.92	*	clear	peristaltic
VB-1-5	11/16/05	12.52	10	6.96	770	13.52	*	clear	peristaltic
VB-1-5	11/16/05		12	6.92	765	13.15	*	clear	peristaltic
VB-1-5	11/16/05		14	6.92	769	13.14	*	clear	peristaltic
VB-1-5D	1/13/06	10.29	10	8.02	562	13.20	*	slightly cloudy	peristaltic
VB-1-5D	1/13/06		13	7.95	558	13.20	*	slightly cloudy	peristaltic
VB-1-5D	1/13/06		16	7.92	562	13.20	*	clear	peristaltic
VB-1-6	11/22/05	14.38	10	7.97	191	13.88	*	slightly cloudy	peristaltic
VB-1-6	11/22/05		13	8.05	175	13.69	*	clear	peristaltic
VB-1-6	11/22/05		16	8.07	172	13.54	*	clear	peristaltic
VB-1-6D	1/13/06	14.30	10	8.49	271	13.80	*	clear	peristaltic
VB-1-6D	1/13/06		13	8.49	268	13.10	*	clear	peristaltic
VB-1-6D	1/13/06		16	8.40	267	13.10	*	clear	peristaltic
VB-1-7	11/22/05	12.44	10	8.16	267	14.01	*	slightly cloudy	peristaltic
VB-1-7	11/22/05		13	8.04	264	13.99	*	slightly cloudy	peristaltic
VB-1-7	11/22/05		16	7.97	264	13.71	*	clear	peristaltic
VB-1-7D	1/9/06	11.00	10	7.32	658	14.50	*	slightly cloudy	peristaltic
VB-1-7D	1/9/06		13	7.19	702	14.77	*	slightly cloudy	peristaltic
VB-1-7D	1/9/06		16	7.14	719	13.98	*	clear	peristaltic
VB-1-8	11/22/05	12.15	10	7.05	731	12.72	*	cloudy	peristaltic
VB-1-8	11/22/05		13	7.19	739	12.86	*	cloudy	peristaltic
VB-1-8	11/22/05		16	7.09	744	12.84	*	slightly cloudy	peristaltic

TABLE 4.3

SUMMARY OF MONITORING WELL PURGING PARAMETERS
EXELON GENERATION
BRAIDWOOD STATION

Well Identifier	Date	Water Level	Minutes Purged	pH (Std. Units)	Conductivity (µS/cm) [1]	Temperature (°C)	Turbidity (ntu) [2]	Observations	Pump Type
VB-1-8D	1/9/06	10.52	10	7.13	788	14.36	*	slightly cloudy	peristaltic
VB-1-8D	1/9/06		13	7.07	803	14.76	*	clear	peristaltic
VB-1-8D	1/9/06		16	7.01	801	14.05	*	clear	peristaltic
VB-1-9	11/22/05	10.76	10	7.13	582	12.06	*	cloudy	peristaltic
VB-1-9	11/22/05		13	7.18	572	12.37	*	clear	peristaltic
VB-1-9	11/22/05		16	7.12	566	12.46	*	clear	peristaltic
VB-1-9D	1/13/06	10.91	10	7.42	423	11.20	*	clear	peristaltic
VB-1-9D	1/13/06		13	7.42	440	11.35	*	clear	peristaltic
VB-1-9D	1/13/06		16	7.39	442	11.30	*	clear	peristaltic
VB-2-1	11/15/05	14.87	10	7.94	146	13.90	*	slightly cloudy	peristaltic
VB-2-1	11/15/05		12	8.49	142	14.13	*	clear	peristaltic
VB-2-1	11/15/05		14	8.51	140	14.11	*	clear	peristaltic
VB-2-2	11/15/05	8.80	10	7.32	593	14.07	*	clear	peristaltic
VB-2-2	11/15/05		12	7.28	593	13.83	*	clear	peristaltic
VB-2-2	11/15/05		14	7.27	593	13.79	*	clear	peristaltic
VB-2-2	12/5/05	8.89	10	7.24	472	11.60	*	*	peristaltic
VB-2-2	12/5/05		15	7.31	480	11.70	*	*	peristaltic
VB-2-2	12/5/05		20	7.32	488	11.90	*	*	peristaltic
VB-2-2	1/4/06	8.60	15	7.47	468	10.60	17.2	clear	peristaltic
VB-2-2	1/4/06		18	7.38	476	10.70	12.8	clear	peristaltic
VB-2-2	1/4/06		21	7.32	473	10.60	9.5	clear	peristaltic
VB-2-2	1/4/06		24	7.28	477	10.70	8.6	clear	peristaltic
VB-2-2D	12/23/05	8.00	10	7.41	429	11.33	*	clear	peristaltic
VB-2-2D	12/23/05		12	7.37	430	11.33	*	clear	peristaltic
VB-2-2D	12/23/05		14	7.40	431	11.33	*	clear	peristaltic

TABLE 4.3

SUMMARY OF MONITORING WELL PURGING PARAMETERS
EXELON GENERATION
BRAIDWOOD STATION

Well Identifier	*Date*	*Water Level*	*Minutes Purged*	*pH (Std. Units)*	*Conductivity (µS/cm)* [1]	*Temperature (°C)*	*Turbidity (ntu)* [2]	*Observations*	*Pump Type*
VB-2-2D	1/4/06	7.83	5	7.21	355	11.50	42.8	cloudy	peristaltic
VB-2-2D	1/4/06		8	7.20	357	11.60	36.4	cloudy	peristaltic
VB-2-2D	1/4/06		11	7.19	353	11.80	29.1	cloudy	peristaltic
VB-2-3	11/15/05	9.03	10	6.80	574	13.22	*	clear	peristaltic
VB-2-3	11/15/05		12	6.82	572	13.23	*	clear	peristaltic
VB-2-3	11/15/05		14	6.83	569	13.23	*	clear	peristaltic
VB-2-4	11/15/05	10.00	10	7.61	455	13.42	*	slightly cloudy	peristaltic
VB-2-4	11/15/05		12	7.57	458	13.45	*	slightly cloudy	peristaltic
VB-2-4	11/15/05		14	7.50	456	13.16	*	clear	peristaltic
VB-2-5	11/15/05	9.20	10	6.65	585	12.99	*	clear	peristaltic
VB-2-5	11/15/05		12	6.66	585	13.27	*	clear	peristaltic
VB-2-5	11/15/05		14	6.65	584	13.28	*	clear	peristaltic
VB-2-5	1/3/06	9.30	10	6.44	657	9.09	*	clear	peristaltic
VB-2-5	1/3/06		12	6.42	656	9.10	*	clear	peristaltic
VB-2-5	1/3/06		14	6.42	657	9.06	*	clear	peristaltic
VB-2-5D	12/14/05	6.02	27	7.29	443	11.00	*	clear	peristaltic
VB-2-5D	12/14/05		30	7.27	444	10.75	*	clear	peristaltic
VB-2-5D	12/14/05		33	7.27	444	10.49	*	clear	peristaltic
VB-2-5D	1/3/06	6.61	10	6.70	495	11.80	*	clear	peristaltic
VB-2-5D	1/3/06		12	6.72	495	11.81	*	clear	peristaltic
VB-2-5D	1/3/06		14	6.76	497	11.81	*	clear	peristaltic
VB-2-6	11/15/05	10.80	10	6.42	472	13.67	*	clear	peristaltic
VB-2-6	11/15/05		12	6.17	470	13.66	*	clear	peristaltic
VB-2-6	11/15/05		14	6.14	470	13.65	*	clear	peristaltic
VB-2-6	12/5/05	10.93	10	6.50	430	12.20	*	*	peristaltic
VB-2-6	12/5/05		15	6.48	430	11.90	*	*	peristaltic
VB-2-6	12/5/05		20	6.51	420	12.10	*	*	peristaltic

TABLE 4.3

SUMMARY OF MONITORING WELL PURGING PARAMETERS
EXELON GENERATION
BRAIDWOOD STATION

Well Identifier	*Date*	*Water Level*	*Minutes Purged*	*pH (Std. Units)*	*Conductivity (µS/cm)* [1]	*Temperature (°C)*	*Turbidity (ntu)* [2]	*Observations*	*Pump Type*
VB-2-6	1/3/06	7.94	5	7.47	433	11.10	48.4	cloudy	peristaltic
VB-2-6	1/3/06		8	7.10	279	11.10	39.8	clear	peristaltic
VB-2-6	1/3/06		11	6.91	416	11.10	26.2	clear	peristaltic
VB-2-6	1/3/06		14	7.18	426	11.20	20.9	clear	peristaltic
VB-2-6	1/3/06		17	7.14	420	11.10	18.5	clear	peristaltic
VB-2-6	1/3/06		20	7.11	408	11.20	16.7	clear	peristaltic
VB-2-6D	12/14/05	6.12	30	7.62	263	11.43	*	slightly cloudy	peristaltic
VB-2-6D	12/14/05		33	7.61	265	11.65	*	slightly cloudy	peristaltic
VB-2-6D	12/14/05		36	7.63	264	11.65	*	clear	peristaltic
VB-2-6D	1/3/06	6.11	5	6.92	252	12.30	33.8	clear	peristaltic
VB-2-6D	1/3/06		8	7.02	242	12.40	27.4	clear	peristaltic
VB-2-6D	1/3/06		11	7.11	244	12.70	23.6	clear	peristaltic
VB-2-6D	1/3/06		14	7.12	238	12.80	20.1	clear	peristaltic
VB-2-7	12/14/05	11.19	2	8.55	170	12.65	*	clear	peristaltic
VB-2-7	12/14/05		5	8.20	175	12.70	*	clear	peristaltic
VB-2-7	12/14/05		8	8.20	175	12.63	*	clear	peristaltic
VB-2-7	1/4/06	10.99	15	7.36	144	12.40	13.6	clear	peristaltic
VB-2-7	1/4/06		18	7.41	139	12.70	10.8	clear	peristaltic
VB-2-7	1/4/06		21	7.41	142	12.80	8.2	clear	peristaltic
VB-2-7D	12/14/05	11.39	33	8.09	212	12.18	*	clear	peristaltic
VB-2-7D	12/14/05		36	8.01	211	12.21	*	clear	peristaltic
VB-2-7D	12/14/05		39	7.95	214	12.34	*	clear	peristaltic
VB-2-7D	1/4/06	11.26	5	7.43	148	13.00	29.3	clear	peristaltic
VB-2-7D	1/4/06		8	7.41	149	13.30	22.7	clear	peristaltic
VB-2-7D	1/4/06		11	7.40	149	13.20	16.9	clear	peristaltic
VB-2-8	12/14/05	8.27	12	7.95	262	13.41	*	clear	peristaltic
VB-2-8	12/14/05		15	7.82	262	12.69	*	clear	peristaltic
VB-2-8	12/14/05		18	7.85	262	12.42	*	clear	peristaltic

TABLE 4.3

SUMMARY OF MONITORING WELL PURGING PARAMETERS
EXELON GENERATION
BRAIDWOOD STATION

Well Identifier	*Date*	*Water Level*	*Minutes Purged*	*pH (Std. Units)*	*Conductivity (µS/cm)* [1]	*Temperature (°C)*	*Turbidity (ntu)* [2]	*Observations*	*Pump Type*
VB-2-9	1/12/06	8.49	10	6.70	501	13.01	*	slightly cloudy	peristaltic
VB-2-9	1/12/06		13	6.39	509	12.93	*	slightly cloudy	peristaltic
VB-2-9	1/12/06		16	6.22	509	12.31	*	clear	peristaltic
VB-2-9D	1/12/06	9.69	10	7.17	313	14.10	*	cloudy	peristaltic
VB-2-9D	1/12/06		13	7.18	313	14.07	*	cloudy	peristaltic
VB-2-9D	1/12/06		16	7.16	310	14.07	*	cloudy	peristaltic
VB-3-1	11/15/05	9.83	10	7.29	608	14.10	*	clear	peristaltic
VB-3-1	11/15/05		12	7.24	607	14.02	*	clear	peristaltic
VB-3-1	11/15/05		14.00	7.23	608	14.01	*	clear	peristaltic
VB-3-2	11/15/05	10.22	10	7.04	1002	14.69	*	clear	peristaltic
VB-3-2	11/15/05		12	7.02	997	14.66	*	clear	peristaltic
VB-3-2	11/15/05		14	6.99	994	14.68	*	clear	peristaltic
VB-3-3	11/16/05	9.05	10	6.44	951	12.43	*	clear	peristaltic
VB-3-3	11/16/05		12	6.39	949	12.54	*	clear	peristaltic
VB-3-3	11/16/05		14	6.30	936	12.45	*	clear	peristaltic
VB-3-4	11/16/05	10.58	10	5.94	907	12.13	*	clear	peristaltic
VB-3-4	11/16/05		12	5.84	900	12.13	*	clear	peristaltic
VB-3-4	11/16/05		14	5.80	898	12.16	*	clear	peristaltic
VB-3-4	11/16/05								
VB-3-4	11/16/05								
VB-3-4	12/5/05	10.43	10	6.34	680	9.50	*	*	peristaltic
VB-3-4	12/5/05		15	6.36	670	9.70	*	*	peristaltic
VB-3-4	12/5/05		20	6.29	684	9.80	*	*	peristaltic
VB-3-4	1/3/06	10.33	10	5.96	875	8.51	*	clear	peristaltic
VB-3-4	1/3/06		13	5.82	880	8.47	*	clear	peristaltic
VB-3-4	1/3/06		16	5.73	886	8.49	*	clear	peristaltic

TABLE 4.3

SUMMARY OF MONITORING WELL PURGING PARAMETERS
EXELON GENERATION
BRAIDWOOD STATION

Well Identifier	Date	Water Level	Minutes Purged	pH (Std. Units)	Conductivity (µS/cm) [1]	Temperature (°C)	Turbidity (ntu) [2]	Observations	Pump Type
VB-3-4D	12/14/05	9.79	40	7.62	333	12.03	*	clear	peristaltic
VB-3-4D	12/14/05		43	7.60	334	11.97	*	clear	peristaltic
VB-3-4D	12/14/05		47	7.60	334	11.97	*	clear	peristaltic
VB-3-4D	1/3/06	9.57	10	7.05	357	11.82	*	clear	peristaltic
VB-3-4D	1/3/06		13	7.06	358	11.87	*	clear	peristaltic
VB-3-4D	1/3/06		16	7.05	358	11.79	*	clear	peristaltic
VB-3-5	11/22/05	9.44	10	7.28	272	13.43	*	cloudy	peristaltic
VB-3-5	11/22/05		13	7.27	146	13.72	*	cloudy	peristaltic
VB-3-5	11/22/05		16	7.33	261	13.73	*	slightly cloudy	peristaltic
VB-3-6	11/22/05	8.60	10	7.24	757	12.38	*	cloudy	peristaltic
VB-3-6	11/22/05		13	7.12	777	12.75	*	slightly cloudy	peristaltic
VB-3-6	11/22/05		16	6.93	779	12.79	*	clear	peristaltic
VB-3-7	12/2/05	8.19	10	7.66	203	11.30	*	cloudy	peristaltic
VB-3-7	12/2/05		15	7.09	195	11.40	*	cloudy	peristaltic
VB-3-7	12/2/05		20	6.94	194	11.50	*	cloudy	peristaltic
VB-3-7	12/14/05	5.72	15	7.74	232	11.72	*	clear	peristaltic
VB-3-7	12/14/05		18	7.71	231	11.66	*	slightly cloudy	peristaltic
VB-3-7	12/14/05		21	7.68	231	11.62	*	slightly cloudy	peristaltic
VB-3-7	1/3/06	7.91	10	6.76	243	9.27	*	clear	peristaltic
VB-3-7	1/3/06		13	6.25	242	9.10	*	clear	peristaltic
VB-3-7	1/3/06		16	6.12	241	9.09	*	clear	peristaltic
VB-3-7D	1/3/06	5.45	10	7.34	252	11.56	*	clear	peristaltic
VB-3-7D	1/3/06		13	7.27	251	11.58	*	clear	peristaltic
VB-3-7D	1/3/06		16	7.23	250	11.60	*	clear	peristaltic
VB-3-8	12/2/05	8.20	10	8.09	313	11.80	*	cloudy	peristaltic
VB-3-8	12/2/05		15	8.15	318	11.10	*	cloudy	peristaltic
VB-3-8	12/2/05		20	8.15	304	12.30	*	cloudy	peristaltic

TABLE 4.3

SUMMARY OF MONITORING WELL PURGING PARAMETERS
EXELON GENERATION
BRAIDWOOD STATION

Well Identifier	*Date*	*Water Level*	*Minutes Purged*	*pH (Std. Units)*	*Conductivity (µS/cm)* [1]	*Temperature (°C)*	*Turbidity (ntu)* [2]	*Observations*	*Pump Type*
VB-3-9D	12/13/05	6.37	35	7.64	700	10.70	*	cloudy	peristaltic
VB-3-9D	12/13/05		38	7.50	710	10.30	*	cloudy	peristaltic
VB-3-9D	12/13/05		41	7.39	726	10.36	*	cloudy	peristaltic
VB-3-9D	1/4/06	5.64	10	7.27	550	11.90	36.2	cloudy	peristaltic
VB-3-9D	1/4/06		13	7.22	549	12.20	28.4	cloudy	peristaltic
VB-3-9D	1/4/06		16	7.17	550	12.40	21.5	cloudy	peristaltic
VB-3-10	12/16/05	8.22	15	7.42	258	10.03	*	cloudy	peristaltic
VB-3-10	12/16/05		20	7.39	154	10.10	*	cloudy	peristaltic
VB-3-10	12/16/05		24	7.25	172	9.37	*	cloudy	peristaltic
VB-3-10	1/3/06	7.88	15	7.17	683	10.90	24.4	clear	peristaltic
VB-3-10	1/3/06		18	7.18	684	11.00	20.7	clear	peristaltic
VB-3-10	1/3/06		21	7.16	686	11.00	17.2	clear	peristaltic
VB-3-10D	12/16/05	7.28	20	7.35	579	10.51	*	clear	peristaltic
VB-3-10D	12/16/05		23	7.37	585	10.83	*	clear	peristaltic
VB-3-10D	12/16/05		25	7.32	574	*	*	clear	peristaltic
VB-3-10D	1/3/06	7.07	10	7.19	540	12.40	57.1	cloudy	peristaltic
VB-3-10D	1/3/06		13	7.18	543	12.50	42.3	cloudy	peristaltic
VB-3-10D	1/3/06		16	7.18	542	12.30	28.9	clear	peristaltic

[1] ft BTOC - feet below top of casing

[2] mS/cm - millisiemens per centimeter

[3] NTU - nephelometric turbidity units

[4] * - Not measured

Location Name / Record Number	Total Depth	Address	Status	Elev (Ft)	Elev Ref	Formation	Top	Bottom	Rate (gpm)
REC-222	14	281 Carol Lane, Braidwood	WATER	0	-	gravel	10	14	0
REC-237	14	270 Carol Lane	WATER	0	-	4 sand point	10	14	0
REC-191	19	300 Francis, Braidwood	WATER	0	-	sand	0	19	0
PW-3	20	W. Smiley	-	-	-	Shallow	-	-	-
REC-62	27	50' N line, 2650' W line Section 17, T. 3	WATER	0	-	-	0	0	-
PW-8	28	S. Center St.	-	-	-	Shallow bedrock	-	-	-
PW-2	31	25131 W. Smiley Rd., Braidwood	WATER	0	-	sand/gravel	21	31	15
PW-1	32	25141 W. Smiley Rd, Braidwood	WATER	0	-	sand & gravel	22	32	15
PW-13	33	34714 Comet Dr.	-	-	-	-	-	-	-
REC-314	38	160 Bobby Lane, COMET ESTES.	WATER	0	-	sand/gravel	33	38	10
REC-40	40	Route 113 and Park Road, Braidwood	WATER	0	-	limestone	10	40	20
REC-151	40	-	WATER	0	-	-	0	0	-
PW-15	40	S. Center St.	-	-	-	Shallow sand	-	-	-
PW-7	40	380 Comet Dr.	-	-	-	Shallow sand	-	-	-
REC-221	48	306 Comet Dr., Braidwood	WATER	0	-	sand rock	32	48	0
REC-239	50	34420S Charles Lane, Braidwood	WATER	0	-	shale	10	50	0
REC-65	56	330'S line, 330'W line section 17, T.32N	WATER	0	-	-	0	0	-
REC-180	60	Lot 27-28 Comet Estates Subd.	WATER	0	-	sandstone	38	60	10
PW-14	60	S. Center St.	-	-	-	-	-	-	-
-9	60	S. Center St.	-	-	-	-	-	-	-
REC-67	65	-	WATER	0	-	-	0	0	-
REC-158	65	Cemetery Road, Braidwood	WATER	0	-	sandstone	35	65	8
REC-201	65	-	WATER	593	GL	sandstone	38	65	10
REC-61	75	50' N line, 1300' W line Section 17, T.	WATER	0	-	-	0	0	-
REC-73	75	Route #1 Braceville	WATER	0	-	sandstone	43	75	10
REC-63	79	30' W line, 1800' N line Section 17, T.	WATER	0	-	-	0	0	-
REC-64	80	330'S line, 330'E line of NW NW secti	WATER	0	-	-			-
REC-99	80	311 W. Odell St.	WATER	0	-	limestone	50	80	10
REC-104	86	-	WATER	0	-	shale	61	86	4
REC-107	90	-	WATER	0	-	sandstone	46	90	10
REC-159	100	Cemetary Road, Braidwood	WATER	0	-	sandstone	40	65	10
REC-66	106	-	WATER	0	-	-	0	0	-
REC-241	110	LOT 57	WATER	0	-	shale	45	110	0
REC-277	125	360 Cemetary Rd, Braidwood	WATER	0	-	limestone - shale	60	125	0
REC-268	350	LOT 22 FAIR OAKS	WATER	0	-	shale & limestone	60	350	0
REC-275	470	LOT 21 FAIR OAKS SUBD.	WATER	0	-	limestone	260	470	0
PW-11	675	34711 S. Center St., Braidwood	WATER	0	-	sand	655	675	12
PW-10	680	38038 S. Center St., Braidwood	WATER	0	-	St. Peter	615	680	0
REC-2	1647	-	WATER	577	GL	-	0	0	-
PW-12	-	376 Comet Dr.	-	-	-	Shallow bedrock	-	-	-
PW-4	-	S. Center St.	-	-	-	-	-	-	-
PW-5	-	388 Comet Dr.	-	-	-	-	-	-	-
PW-6	-	-	-	-	-	Shallow sand	-	-	-
REC-37	-	-	WATER	0	-	limestone, shale	71	80	20

TABLE 5.1

SUMMARY OF VERTICAL GRADIENTS AT WELL CLUSTER LOCATIONS
EXELON GENERATION
BRAIDWOOD STATION

Monitoring Location	*Date*	*Groundwater Elevation (ft amsl)* [1]	*Screen Bottom Elevation (ft amsl)*	*Vertical Gradient (ft/ft)* [2]
BL-09	1/11/2006	591.48	587.25	
BL-09D	1/11/2006	591.28	570.65	-0.01
BL-10	1/4/2006	591.34	585.28	
BL-10D	1/4/2006	591.35	570.43	0.00
BL-11	1/3/2006	591.24	580.97	
BL-11D	1/3/2006	591.53	569.34	0.02
BL-12	1/3/2006	591.55	581.03	
BL-12D	1/3/2006	591.47	570.10	-0.01
BL-13	1/3/2006	591.43	583.07	
BL-13D	1/3/2006	591.65	564.55	0.01
BL-14	1/3/2006	591.61	579.34	
BL-14D	1/3/2006	589.20	570.96	-0.29
BL-15	1/3/2006	591.41	579.79	
BL-15D	1/3/2006	591.58	573.64	0.03
BL-16	1/3/2006	591.25	580.12	
BL-16D	1/3/2006	591.25	573.28	0.00
BL-17	1/3/2006	591.25	582.51	
BL-17D	1/3/2006	591.31	573.01	0.01
C-1	1/3/2006	589.00	581.00	
C-1D	1/3/2006	589.08	571.00	0.01
D-1	1/4/2006	591.79	584.64	
D-1D	1/4/2006	591.77	572.82	0.00
D-2	1/4/2006	591.61	583.78	
D-2D	1/4/2006	591.71	571.65	0.01
D-3	1/4/2006	591.63	584.00	
D-3D	1/4/2006	591.62	571.91	0.00
F-1	1/3/2006	589.06	581.27	
F-1D	1/3/2006	589.09	571.27	0.00
G-2	1/5/2006	586.02	575.74	
G-2D	1/26/2006	587.00	566.05	0.10
MW-105	1/5/2006	594.69	581.29	
MW-105D	1/4/2006	591.72	573.22	-0.37
MW-106	1/5/2006	596.25	583.60	
MW-106D	1/4/2006	592.29	572.70	-0.36
MW-111	1/4/2006	590.65	587.29	
MW-111D	1/9/2006	590.70	576.67	0.00
MW-112	1/4/2006	590.85	582.57	
MW-112D	1/9/2006	590.96	572.11	0.01
MW-113	1/3/2006	590.80	580.10	
MW-113D	1/3/2006	590.77	572.14	0.00
P-14	1/24/2006	592.74	581.02	
P-14D	1/24/2006	590.61	568.65	-0.17
P-2	1/4/2006	590.46	581.15	

TABLE 5.1

SUMMARY OF VERTICAL GRADIENTS AT WELL CLUSTER LOCATIONS
EXELON GENERATION
BRAIDWOOD STATION

Monitoring Location	*Date*	*Groundwater Elevation (ft amsl)* [1]	*Screen Bottom Elevation (ft amsl)*	*Vertical Gradient (ft/ft)* [2]
P-2D	1/4/2006	590.47	572.38	0.00
S-1	1/5/2006	588.54	580.49	
S-1D	1/26/2006	589.05	566.94	0.04
S-4	1/5/2006	589.38	579.73	
S-4D	1/26/2006	588.92	569.41	-0.04
S-7	1/24/2006	589.75	579.94	
S-7D	1/24/2006	589.73	566.00	0.00
VB-1-2	1/5/2006	592.26	584.94	
VB-1-2D	1/13/2006	592.49	572.02	0.02
VB-1-3	1/5/2006	591.89	584.64	
VB-1-3D	1/13/2006	592.30	572.05	0.03
VB-1-4	1/5/2006	591.19	584.32	
VB-1-4D	1/13/2006	593.11	571.93	0.15
VB-1-5	1/5/2006	591.64	585.17	
VB-1-5D	1/13/2006	592.00	572.26	0.03
VB-2-2	1/4/2006	591.56	581.82	
VB-2-2D	1/4/2006	591.12	566.99	-0.03
VB-2-5	1/3/2006	590.52	580.76	
VB-2-5D	1/3/2006	590.17	571.76	-0.04
VB-2-6	1/3/2006	593.50	581.01	
VB-2-6D	1/3/2006	590.66	572.01	-0.32
VB-2-7	1/4/2006	591.05	585.51	
VB-2-7D	1/4/2006	591.02	575.51	0.00
VB-2-9	1/12/2006	590.99	582.31	
VB-2-9D	1/12/2006	590.24	568.26	-0.05
VB-3-10	1/3/2006	591.40	583.43	
VB-3-10D	1/3/2006	591.37	572.99	0.00
VB-3-4	1/3/2006	591.04	581.18	
VB-3-4D	1/3/2006	591.25	571.18	0.02
VB-3-7	1/3/2006	591.58	581.74	
VB-3-7D	1/3/2006	591.59	572.24	0.00

[1] ft amsl - feet above mean sea level

[2] ft/ft - feet per feet; positive value denotes discharge area; negative value denotes recharge area

TABLE 6.1

SUMMARY OF GENERAL WATER QUALITY IN BLOWDOWN LINE AND BACKGROUND GROUNDWATER SAMPLES
EXELON GENERATION
BRAIDWOOD STATION

			Blowdown Line		*Unimpacted Groundwater*	
Sample Location:			*At River*	*Inside Plant*	*MW-106*	*MW-110*
Sample ID:			*GW-111405-DC-004*	*GW-111405-DC-001*	*GW-111405-DC-003*	*GW-111405-DC-002*
Sample Date:		*Illinois Standards*	*11/14/2005*	*11/14/2005*	*11/14/2005*	*11/14/2005*
	Units	*Class I*				
Wet						
Alkalinity	mg/L	-	320	300	170	570
Chloride	mg/L	200[c]	96	100	ND(5)	ND(5)
Nitrate	mg/L	10.0[c]	0.14	0.12	0.28	0.21
Phosphate (as PO_4)	mg/L	-	0.92	0.86	0.06	ND(0.01)
Phosphorous	mg/L	-	0.3	0.28	0.02	ND(0.01)
Sulfide	mg/L	-	ND(0.05)	ND(0.05)	ND(0.05)	ND(0.05)
Metals						
Aluminum	mg/L	-	0.21	0.018	0.015	0.1
Antimony	mg/L	0.006[c]	ND(0.006)	ND(0.006)	ND(0.006)	ND(0.006)
Arsenic	mg/L	0.05[c]	0.006	ND(0.002)	ND(0.002)	0.007
Barium	mg/L	2.0[c]	0.034	0.035	0.016	0.098
Beryllium	mg/L	0.004[c]	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Boron	mg/L	2.0[c]	0.36	0.35	0.03	0.26
Cadmium	mg/L	0.005[c]	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Calcium	mg/L	-	155	156	52.7	193
Chromium	mg/L	0.1[c]	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Cobalt	mg/L	1.0[c]	ND(0.001)	ND(0.001)	ND(0.001)	0.005
Copper	mg/L	0.65[c]	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Iron	mg/L	5.0[c]	0.17	0.17	0.01	6.31
Lead	mg/L	0.0075[c]	ND(0.002)	ND(0.002)	ND(0.002)	ND(0.002)
Magnesium	mg/L	-	78.5	77.7	18.8	30.9
Manganese	mg/L	0.15[c]	0.018	0.019	0.056	ND(0.001)
Molybdenum	mg/L	-	0.01	0.01	ND(0.01)	ND(0.01)
Nickel	mg/L	0.1[c]	0.007	ND(0.001)	ND(0.001)	0.003
Potassium	mg/L	-	9.5	9.5	1.9	25.3
Selenium	mg/L	0.05[c]	ND(0.002)	ND(0.002)	ND(0.002)	ND(0.002)
Silver	mg/L	0.05[c]	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Sodium	mg/L	-	48.4	48.1	2.70	4.9
Thallium	mg/L	0.002[c]	ND(0.002)	ND(0.002)	ND(0.002)	ND(0.002)
Vanadium	mg/L	0.049	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)
Zinc	mg/L	5.0[c]	ND(0.005)	ND(0.005)	0.029	0.017

[c] Value listed is also the Groundwater Quality Standard for this chemical pursuant to 35 Ill. Adm. Code 620.410 for Class I Groundwater or 35 Ill. Adm. Code 620.420 for Class II Groundwater.

[ ] Exceeds Illinois Standards Class I

TABLE 6.2

SUMMARY OF TRITIUM CONCENTRATIONS IN
MONITORING WELLS AND SURFACE WATER SAMPLES [1]
EXELON GENERATION
BRAIDWOOD STATION

Monitoring Location	*Sample Date*	*Tritium Result (pCi/L)*
A-1	1/11/2006	33
A-1D	1/11/2006	60
B-01	2/20/2006	64
B-01D	2/20/2006	46
BL-01	11/17/2005	70
BL-02	11/17/2005	156
BL-03	11/18/2005	0
BL-04	11/18/2005	40
BL-05	11/18/2005	102
BL-06	11/18/2005	114
BL-07	11/18/2005	39
BL-08	11/18/2005	90
BL-09	12/23/2005	4701
BL-09	1/11/2006	5270
BL-09	1/18/2006	5049
BL-09	1/25/2006	4809
BL-09	2/1/2006	4689
BL-09	2/9/2006	4932
BL-09	2/15/2006	4393
BL-09	2/22/2006	4086
BL-09	3/1/2006	3404
BL-09 (recount)	3/1/2006	3486
BL-09D	12/23/2005	23097
BL-09D	1/11/2006	22016
BL-09D	1/18/2006	21230
BL-09D	1/25/2006	20383
BL-09D	2/1/2006	20171
BL-09D	2/9/2006	20428
BL-09D	2/15/2006	19778
BL-09D	2/22/2006	18018
BL-09D	3/1/2006	16980
BL-09D (recount)	3/1/2006	16403
BL-10	11/17/2005	295
BL-10	1/4/2006	-104
BL-10D	12/15/2005	8259
BL-10D (recount)	12/15/2005	7885
BL-10D	1/4/2006	7535
BL-11	11/17/2005	61
BL-11	1/3/2006	13
BL-11D	12/15/2005	-213
BL-11D	1/3/2006	-27
BL-12	11/17/2005	126
BL-12	1/3/2006	-39
BL-12D	12/15/2005	-31
BL-12D	1/3/2006	-35
BL-13	11/17/2005	76

TABLE 6.2

SUMMARY OF TRITIUM CONCENTRATIONS IN
MONITORING WELLS AND SURFACE WATER SAMPLES [1]
EXELON GENERATION
BRAIDWOOD STATION

Monitoring Location	*Sample Date*	*Tritium Result (pCi/L)*
BL-13	1/3/2006	-16
BL-13D	12/15/2005	-150
BL-13D	1/3/2006	9
BL-14	11/17/2005	70
BL-14	1/3/2006	-37
BL-14D	12/15/2005	-187
BL-14D	1/3/2006	-91
BL-15	11/17/2005	1178
BL-15	1/3/2006	146
BL-15D	12/16/2005	-38
BL-15D	1/3/2006	-49
BL-16	11/17/2005	4058
BL-16	1/3/2006	3364
BL-16D	12/16/2005	-85
BL-16D	1/3/2006	-91
BL-17	12/1/2005	25
BL-17	12/5/2005	105
BL-17	12/6/2005	183
BL-17	1/3/2006	-44
BL-17D	12/12/2005	28
BL-17D	1/3/2006	-126
BL-18	12/1/2005	108
BL-18D	2/7/2006	121
BL-19	12/1/2005	37
BL-19D	2/7/2006	95
BL-20D	12/23/2005	-76
BL-20D	1/4/2006	-117
C-1	12/12/2005	85
C-1	1/3/2006	-80
C-1D	12/12/2005	158
C-1D	1/3/2006	-140
C-2	1/24/2006	-48
C-2	2/1/2006	105
C-2	2/9/2006	162
C-2	2/15/2006	38
C-2	2/22/2006	82
C-2D	1/24/2006	147
C-2D	2/1/2006	221
C-2D	2/9/2006	320
C-2D	2/15/2006	351
C-2D	2/22/2006	589
D-1	12/6/2005	92
D-1	1/4/2006	-13
D-1D	12/23/2005	-147
D-1D	1/4/2006	-141
D-2	12/5/2005	125

TABLE 6.2

SUMMARY OF TRITIUM CONCENTRATIONS IN
MONITORING WELLS AND SURFACE WATER SAMPLES [1]
EXELON GENERATION
BRAIDWOOD STATION

Monitoring Location	*Sample Date*	*Tritium Result (pCi/L)*
D-2	12/6/2005	59
D-2	1/4/2006	-165
D-2D	12/23/2005	-91
D-2D	1/4/2006	-36
D-3	12/2/2005	137
D-3	1/4/2006	-168
D-3D	12/23/2005	4674
D-3D	1/4/2006	5110
D-4	12/6/2005	91
D-5	12/2/2005	73
Ditch at Culvert	12/22/2005	1007
Ditch at Culvert	2/15/2006	468
Ditch at Culvert	2/22/2006	306
Ditch at Culvert	3/1/2006	670
Ditch by Alpha Gate	1/12/2006	-30
Ditch by Alpha Gate	1/19/2006	107
Ditch by Alpha Gate	1/26/2006	77
Ditch by Alpha Gate	2/2/2006	23
Ditch by Alpha Gate	2/9/2006	201
Ditch by Alpha Gate	2/16/2006	123
Ditch by GW-1	2/15/2006	36
Ditch by GW-1	2/22/2006	100
Ditch by GW-1	3/1/2006	-10
DS-10	5/20/2005	49
DS-11	5/5/2005	28
DS-11	5/27/2005	ND()
DS-1a	5/10/2005	44
DS-1b	5/10/2005	10
DS-1b	5/27/2005	40
DS-1b	7/14/2005	59
DS-1b	9/22/2005	-2.34
DS-2	5/5/2005	438
DS-2	5/27/2005	682
DS-2	7/14/2005	1690
DS-2	9/22/2005	1740
DS-3	5/27/2005	786
DS-3	6/14/2005	35
DS-3	7/14/2005	226
DS-3	9/22/2005	289
DS-4	6/14/2005	99
DS-4	7/14/2005	-22.6
DS-4	9/22/2005	72.3
DS-5	7/14/2005	-46.2
DS-5	9/22/2005	-41.1
DS-6	5/20/2005	65
DS-7	5/27/2005	78

TABLE 6.2

SUMMARY OF TRITIUM CONCENTRATIONS IN
MONITORING WELLS AND SURFACE WATER SAMPLES [1]
EXELON GENERATION
BRAIDWOOD STATION

Monitoring Location	*Sample Date*	*Tritium Result (pCi/L)*
DS-8	5/10/2005	51
DS-8	5/27/2005	166
DS-9	5/20/2005	65
F-1	12/12/2005	104
F-1	1/3/2006	-44
F-1D	12/12/2005	139
F-1D	1/3/2006	-56
F-2D	1/9/2006	684
F-2D	1/12/2006	546
F-3D	1/9/2006	1689
F-3D	1/12/2006	1689
F-4D	1/24/2006	-22
F-5D	1/24/2006	1512
F-6D	1/24/2006	689
F-7D	1/24/2006	575
F-8D	1/24/2006	872
G-1	12/6/2005	133
G-2	12/6/2005	87
G-2D	1/26/2006	67
G-3	12/6/2005	81
GW-1	2/9/2006	20
GW-2	2/9/2006	57
MW-101	3/24/2005	41
MW-101	7/28/2005	-397
MW-101	10/19/2005	-52.8
MW-101	11/15/2005	157
MW-102	3/24/2005	58
MW-103	3/24/2005	132
MW-103	8/15/2005	3010
MW-103	10/20/2005	2660
MW-103	11/15/2005	2497
MW-104	3/24/2005	397
MW-104	7/28/2005	142
MW-105	7/28/2005	563
MW-105	10/17/2005	384
MW-105	11/15/2005	729
MW-105	1/4/2006	169
MW-105D	12/16/2005	-69
MW-105D	1/4/2006	-120
MW-106	7/28/2005	8.77
MW-106	1/4/2006	-35
MW-106D	12/16/2005	-115
MW-106D	1/4/2006	-25
MW-107	7/28/2005	158
MW-107	9/30/2005	124
MW-107	10/17/2005	129

TABLE 6.2

SUMMARY OF TRITIUM CONCENTRATIONS IN
MONITORING WELLS AND SURFACE WATER SAMPLES [1]
EXELON GENERATION
BRAIDWOOD STATION

Monitoring Location	*Sample Date*	*Tritium Result (pCi/L)*
MW-107	11/15/2005	269
MW-108	7/28/2005	18.2
MW-108	9/30/2005	43.8
MW-108	10/17/2005	-29.4
MW-108	11/15/2005	91
MW-109	7/28/2005	238
MW-109	9/30/2005	305
MW-110	10/20/2005	137
MW-110	11/15/2005	93
MW-110	1/4/2006	-104
MW-111	10/19/2005	-44.0
MW-111	11/15/2005	224
MW-111	1/4/2006	-78
MW-111D	1/9/2006	-66
MW-112	10/19/2005	-33.0
MW-112	11/15/2005	167
MW-112	1/4/2006	-127
MW-112D	1/9/2006	-111
MW-113	10/19/2005	4480
MW-113	11/15/2005	4830
MW-113	12/5/2005	4009
MW-113	12/6/2005	3598
MW-113	1/3/2006	4008
MW-113D	12/14/2005	4835
MW-113D	1/3/2006	4772
P-1	12/1/2005	2484
P-2	12/2/2005	4344
P-2	1/3/2006	2045
P-2D	12/12/2005	2599
P-2D	1/3/2006	2384
P-3	12/2/2005	3258
P-4	12/1/2005	33041
P-4	12/6/2005	25311
P-4	1/3/2006	19317
P-4	1/11/2006	15937
P-4	1/18/2006	12165
P-4	1/25/2006	9588
P-4	2/1/2006	6621
P-4	2/9/2006	4412
P-4	2/15/2006	3045
P-4	3/1/2006	3479
P-4D	12/23/2005	59592
P-4D	1/3/2006	48493
P-4D	1/11/2006	47095
P-4D	1/18/2006	50308
P-4D	1/25/2006	38965

TABLE 6.2

SUMMARY OF TRITIUM CONCENTRATIONS IN
MONITORING WELLS AND SURFACE WATER SAMPLES [1]
EXELON GENERATION
BRAIDWOOD STATION

Monitoring Location	*Sample Date*	*Tritium Result (pCi/L)*
P-4D	2/1/2006	32551
P-4D	2/9/2006	34828
P-4D	2/15/2006	39339
P-4D	2/22/2006	44547
P-4D	3/1/2006	45640
P-4D (recount)	3/1/2006	40895
P-4S	2/22/2006	2841
P-5	12/1/2005	6621
P-5	1/3/2006	6166
P-5D	12/23/2005	2402
P-5D	1/3/2006	2165
P-6	12/1/2005	450
P-6	1/18/2006	110
P-7	12/1/2005	1210
P-8	12/1/2005	2998
P-8	12/6/2005	2212
P-9	12/5/2005	1346
P-9	12/6/2005	-90
P-9	12/13/2005	111
P-9 (recount)	12/13/2005	27
P-10	12/5/2005	1934
P-10	12/6/2005	1723
P-11	12/5/2005	1681
P-11	12/6/2005	1476
P-12	12/5/2005	1535
P-12	12/6/2005	1622
P-13D	12/23/2005	226468
P-13D (recount)	12/28/2005	225231
P-13D	1/3/2006	228283
P-13D	1/11/2006	229838
P-13D	1/18/2006	223754
P-13D	1/25/2006	217122
P-13D	2/1/2006	226034
P-13D	2/9/2006	233668
P-13D	2/15/2006	229926
P-13D	2/22/2006	230133
P-13D	3/1/2006	230793
P-13D (recount)	3/1/2006	214892
P-14	1/24/2006	2537
P-14D	1/24/2006	2388
PS-1	12/22/2005	-18
PS-1	1/4/2006	-89
PS-2	12/22/2005	-89
PS-2	1/4/2006	15
PS-3	1/4/2006	-137
PS-4	1/10/2006	30

TABLE 6.2

SUMMARY OF TRITIUM CONCENTRATIONS IN
MONITORING WELLS AND SURFACE WATER SAMPLES [1]
EXELON GENERATION
BRAIDWOOD STATION

Monitoring Location	*Sample Date*	*Tritium Result (pCi/L)*
PS-6	1/12/2006	287
RW-1	12/1/2005	2396
RW-1	12/4/2005	7855
RW-2	12/1/2005	33736
RW-2	12/4/2005	88778
RW-2 (10 ft)	12/13/2005	54111
RW-2 (10.6 ft)	12/6/2005	58621
RW-2 (20 ft)	12/13/2005	171166
RW-2 (20.6 ft)	12/6/2005	170024
RW-2 (25 ft)	12/6/2005	223888
RW-2 (25 ft)	12/13/2005	246442
RW-3	12/2/2005	197
RW-4	12/2/2005	380
S-1	12/5/2005	-21
S-1	12/6/2005	83
S-1D	1/26/2006	1287
S-2	12/5/2005	95
S-2	12/6/2005	88
S-2	1/3/2006	62
S-2	2/1/2006	183
S-2	2/9/2006	237
S-2	2/15/2006	190
S-2	2/22/2006	172
S-2	3/1/2006	85
S-2D	12/12/2005	225
S-2D	1/3/2006	-2
S-2D	2/1/2006	193
S-2D	2/9/2006	177
S-2D	2/15/2006	185
S-2D	2/22/2006	168
S-2D	3/1/2006	74
S-3	12/5/2005	145
S-3	12/6/2005	57
S-4	12/5/2005	1280
S-4	12/6/2005	1086
S-4D	1/26/2006	2111
S-5	12/5/2005	2023
S-5	12/6/2005	1874
S-6	12/5/2005	679
S-6	12/6/2005	411
S-7	1/24/2006	1373
S-7D	1/24/2006	1546
SG-1	7/28/2005	61.3
SG-2	7/28/2005	1970
SG-3	7/28/2005	-21.4
SW-1	11/30/2005	2464

TABLE 6.2

SUMMARY OF TRITIUM CONCENTRATIONS IN
MONITORING WELLS AND SURFACE WATER SAMPLES [1]
EXELON GENERATION
BRAIDWOOD STATION

Monitoring Location	*Sample Date*	*Tritium Result (pCi/L)*
SW-2	11/30/2005	2347
SW-2	1/11/2006	2938
SW-2	1/18/2006	2504
SW-2	1/25/2006	2441
SW-2	2/1/2006	2626
SW-2	2/15/2006	2434
SW-2	2/22/2006	808
SW-2	3/1/2006	2243
SW-2 (recount)	3/1/2006	2142
SW-3	12/2/2005	96
SW-4	12/2/2005	83
SW-5	1/30/2006	76
SW-6	2/9/2006	41
VB-1	5/27/2005	51295
VB-1-1	11/15/2005	1194
VB-1-1	1/4/2006	425
VB-1-1D	12/16/2005	-49
VB-1-1D	1/4/2006	-132
VB-1-2	11/17/2005	337
VB-1-2D	1/13/2006	238
VB-1-3	11/15/2005	206
VB-1-3D	1/13/2006	19431
VB-1-4	11/15/2005	384
VB-1-4D	1/13/2006	7424
VB-1-5	11/15/2005	130
VB-1-5D	1/13/2006	22928
VB-1-6	11/22/2005	95
VB-1-6D	1/13/2006	41
VB-1-7	11/22/2005	140
VB-1-7D	1/9/2006	-116
VB-1-8	11/22/2005	57
VB-1-8D	1/9/2006	10877
VB-1-9	11/22/2005	107
VB-1-9D	1/13/2006	3370
VB-2-1	11/15/2005	207
VB-2-2	11/15/2005	6193
VB-2-2	12/5/2005	5832
VB-2-2	12/6/2005	5569
VB-2-2	1/4/2006	5232
VB-2-2D	12/23/2005	3445
VB-2-2D	1/4/2006	4037
VB-2-3	11/15/2005	3940
VB-2-4	11/15/2005	3664
VB-2-5	11/15/2005	4270
VB-2-5	1/3/2006	3834
VB-2-5D	12/14/2005	64

TABLE 6.2

SUMMARY OF TRITIUM CONCENTRATIONS IN
MONITORING WELLS AND SURFACE WATER SAMPLES [1]
EXELON GENERATION
BRAIDWOOD STATION

Monitoring Location	*Sample Date*	*Tritium Result (pCi/L)*
VB-2-5D	1/3/2006	102
VB-2-6	11/15/2005	2132
VB-2-6	12/5/2005	2348
VB-2-6	12/6/2005	1979
VB-2-6	1/3/2006	1412
VB-2-6D	12/14/2005	56
VB-2-6D	1/3/2006	44
VB-2-7	12/14/2005	-47
VB-2-7	1/4/2006	-60
VB-2-7D	12/14/2005	-52
VB-2-7D	1/4/2006	-53
VB-2-8	12/14/2005	-103
VB-2-9	1/12/2006	78
VB-2-9D	1/12/2006	-65
VB-3	5/11/2005	1521
VB-3-1	11/15/2005	5959
VB-3-10	12/16/2005	8473
VB-3-10	1/3/2006	12076
VB-3-10D	12/16/2005	70773
VB-3-10D	1/3/2006	108736
VB-3-2	11/15/2005	32830
VB-3-2 (repeat)	11/15/2005	26686
VB-3-3	11/16/2005	43894
VB-3-4	11/16/2005	58489
VB-3-4	12/5/2005	43708
VB-3-4	12/6/2005	40654
VB-3-4	1/3/2006	29286
VB-3-4D	12/14/2005	747
VB-3-4D	1/3/2006	790
VB-3-5	11/22/2005	95
VB-3-6	11/22/2005	53572
VB-3-7	12/2/2005	169
VB-3-7	1/3/2006	-126
VB-3-7D	12/14/2005	-79
VB-3-7D	1/3/2006	-205
VB-3-8	12/2/2005	171
VB-3-9D	12/13/2005	21715
VB-3-9D	1/4/2006	19605

[1] Results through March 1, 2006

TABLE 6.3

SUMMARY OF WEEKLY RESULTS FOR TRITIUM IN KEY MONITORING WELLS AND THE PERIMETER DITCH [1]
EXELON GENERATION
BRAIDWOOD STATION

Monitoring Location	*Sample Date*	*Tritium Result (pCi/L)*
BL-09	12/23/2005	4701
BL-09	1/11/2006	5270
BL-09	1/18/2006	5049
BL-09	1/25/2006	4809
BL-09	2/1/2006	4689
BL-09	2/9/2006	4932
BL-09	2/15/2006	4393
BL-09	2/22/2006	4086
BL-09	3/1/2006	3404
BL-09 (recount)	3/1/2006	3486
BL-09D	12/23/2005	23097
BL-09D	1/11/2006	22016
BL-09D	1/18/2006	21230
BL-09D	1/25/2006	20383
BL-09D	2/1/2006	20171
BL-09D	2/9/2006	20428
BL-09D	2/15/2006	19778
BL-09D	2/22/2006	18018
BL-09D	3/1/2006	16980
BL-09D (recount)	3/1/2006	16403
C-2	1/24/2006	-48
C-2	2/1/2006	105
C-2	2/9/2006	162
C-2	2/15/2006	38
C-2	2/22/2006	82
C-2D	1/24/2006	147
C-2D	2/1/2006	221
C-2D	2/9/2006	320
C-2D	2/15/2006	351
C-2D	2/22/2006	589
Ditch by Alpha Gate	1/12/2006	-30
Ditch by Alpha Gate	1/19/2006	107
Ditch by Alpha Gate	1/26/2006	77
Ditch by Alpha Gate	2/2/2006	23
Ditch by Alpha Gate	2/9/2006	201
Ditch by Alpha Gate	2/16/2006	123
P-4	12/1/2005	33041
P-4	12/6/2005	25311
P-4	1/3/2006	19317
P-4	1/11/2006	15937
P-4	1/18/2006	12165
P-4	1/25/2006	9588
P-4	2/1/2006	6621
P-4	2/9/2006	4412
P-4	2/15/2006	3045
P-4	3/1/2006	3479
P-4D	12/23/2005	59592
P-4D	1/3/2006	48493

TABLE 6.3

SUMMARY OF WEEKLY RESULTS FOR TRITIUM IN KEY MONITORING WELLS AND THE PERIMETER DITCH [1]
EXELON GENERATION
BRAIDWOOD STATION

Monitoring Location	*Sample Date*	*Tritium Result (pCi/L)*
P-4D	1/11/2006	47095
P-4D	1/18/2006	50308
P-4D	1/25/2006	38965
P-4D	2/1/2006	32551
P-4D	2/9/2006	34828
P-4D	2/15/2006	39339
P-4D	2/22/2006	44547
P-4D	3/1/2006	45640
P-4D (recount)	3/1/2006	40895
P-13D	12/23/2005	226468
P-13D (recount)	12/28/2005	225231
P-13D	1/3/2006	228283
P-13D	1/11/2006	229838
P-13D	1/18/2006	223754
P-13D	1/25/2006	217122
P-13D	2/1/2006	226034
P-13D	2/9/2006	233668
P-13D	2/15/2006	229926
P-13D	2/22/2006	230133
P-13D	3/1/2006	230793
P-13D (recount)	3/1/2006	214892
S-2	12/5/2005	95
S-2	12/6/2005	88
S-2	1/3/2006	62
S-2	2/1/2006	183
S-2	2/9/2006	237
S-2	2/15/2006	190
S-2	2/22/2006	172
S-2	3/1/2006	85
S-2D	12/12/2005	225
S-2D	1/3/2006	-2
S-2D	2/1/2006	193
S-2D	2/9/2006	177
S-2D	2/15/2006	185
S-2D	2/22/2006	168
S-2D	3/1/2006	74
SW-2	11/30/2005	2347
SW-2	1/11/2006	2938
SW-2	1/18/2006	2504
SW-2	1/25/2006	2441
SW-2	2/1/2006	2626
SW-2	2/15/2006	2434
SW-2	2/22/2006	808
SW-2	3/1/2006	2243
SW-2 (recount)	3/1/2006	2142

[1] Results through March 1, 2006

TABLE 6.4

SUMMARY OF TRITIUM CONCENTRATIONS IN PRIVATE WELLS [1]
EXELON GENERATION
BRAIDWOOD STATION

Monitoring Location	*Date*	*Tritium Result (pCi/L)*
PW-1	11/30/2005	-26
PW-2	11/30/2005	48
PW-3	11/30/2005	25
PW-3	2/2/2006	-63
PW-4	12/2/2005	43
PW-5	12/7/2005	9
PW-5	1/19/2006	-12
PW-5	1/30/2006	28
PW-6	2/2/2006	-4
PW-6P[2]	12/8/2005	142
PW-6P[2]	2/7/2006	128
PW-7	12/7/2005	-58
PW-8	12/3/2005	1151
PW-8	12/6/2005	1524
PW-8	12/8/2005	1367
PW-9	12/5/2005	142
PW-10	12/7/2005	72
PW-11	12/5/2005	99
PW-11	2/2/2006	12
PW-12	12/7/2005	44
PW-13	12/7/2005	-62
PW-13	1/30/2006	38
PW-14	12/14/2005	-118
PW-14	1/30/2006	56
PW-15	12/14/2005	-51

[1] Results through March 1, 2006
[2] Surface water (pond) sample

TABLE 6.5

SUMMARY OF INDICATOR PARAMETER SAMPLES IN THE BLOWDOWN LINE, BACKGROUND GROUNDWATER, AND MONITORING WELLS NEAR THE BLOWDOWN LINE
EXELON GENERATION
BRAIDWOOD STATION

Monitoring Location:	*Sample Date:*	*Sodium (mg/L)*	*Chloride (mg/L)*
At River (blowdown line)	11/14/2005	48.4	96
Inside Plant (blowdown line)	11/14/2005	48.1	100
MW-106 (unimpacted)	11/14/2005	2.70	ND(5)
MW-110 (unimpacted)	11/14/2005	4.9	ND(5)
BL-01	11/18/2005	2.5	ND(5)
BL-02	11/18/2005	3.3	6
BL-03	11/18/2005	2.8	ND(5)
BL-04	11/18/2005	4.3	ND(5)
BL-05	11/18/2005	5.7	8
BL-06	11/18/2005	2.8	ND(5)
BL-07	11/18/2005	2.8	16
BL-08	11/18/2005	1.6	ND(5)
BL-10	11/18/2005	10.8	ND(5)
BL-10D	12/15/2005	22.6	26
BL-11	11/18/2005	2.3	ND(5)
BL-11D	12/15/2005	4.7	6.0
BL-12	11/18/2005	2.6	ND(5)
BL-12D	12/15/2005	3.5	5.0
BL-13	11/18/2005	2.1	ND(5)
BL-13D	12/15/2005	2.8	ND(5)
BL-14	11/18/2005	2.6	ND(5)
BL-14D	12/15/2005	3.0	5.0
BL-15	11/18/2005	8.9	6
BL-15D	12/16/2005	3.0	ND(5)
BL-16	11/18/2005	2.6	54
BL-16D	12/16/2005	2.4	ND(5)
BL-17D	12/13/2005	3.5	ND(5)
MW-105D	12/16/2005	2.6	5.0

APPENDICES

A

APPENDIX A

CORRESPONDENCE BETWEEN EXELON AND THE IEPA BUREAU OF WATER

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 – (217) 782-3397
JAMES R. THOMPSON CENTER, 100 WEST RANDOLPH, SUITE 11-300, CHICAGO, IL 60601 – (312) 814-6026

ROD R. BLAGOJEVICH, GOVERNOR DOUGLAS P. SCOTT, DIRECTOR

217/785-0561

December 16, 2005

CERTIFIED MAIL # 7004 2510 0001 8648 9027
RETURN RECEIPT REQUESTED

RECEIVED
DEC 20 2005
By Scott Butler

Exelon Generation – Braidwood
Attn: John Petro
RR 1 Box 84
Braceville, IL 60407

Re: Violation Notice: EXELON GENERATION – BRAIDWOOD STATION
Violation Notice No.: W-2005-00537

Dear Mr. John Petro:

This constitutes a Violation Notice pursuant to Section 31(a)(1) of the Illinois Environmental Protection Act, 415 ILCS 5/31(a)(1), and is based upon review of available information and investigation by representatives of the Illinois Environmental Protection Agency ("Illinois EPA").

The Illinois EPA hereby provides notice of violations of environmental statutes, regulations or permits as set forth in Attachment A to this letter. Attachment A includes an explanation of the activities that the Illinois EPA believes may resolve the specified violations, including an estimate of a reasonable time period to complete the necessary activities. However, due to the nature and seriousness of the violations cited, please be advised that resolution of the violations may also require the involvement of a prosecutorial authority for purposes that may include, among others, the imposition of statutory penalties.

A written response, which may include a request for a meeting with representatives of the Illinois EPA, must be submitted via certified mail to the Illinois EPA within 45 days of receipt of this letter. The response must address each violation specified in Attachment A and include for each, an explanation of the activities that will be implemented and the time schedule for the completion of each activity. Also, if a pollution prevention activity will be implemented, indicate that intention in any written response. The written response will constitute a proposed Compliance Commitment Agreement ("CCA") pursuant to Section 31 of the Act. The Illinois EPA will review the proposed CCA and will accept or reject the proposal within 30 days of receipt.

If a timely written response to this Violation Notice is not provided, it shall be considered a waiver of the opportunity to respond and meet, and the Illinois EPA may proceed with a referral to the prosecutorial authority.

Written communications should be directed to BEVERLY BOOKER at the ILLINOIS EPA, BUREAU OF WATER, CAS #19, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276. All communications must include reference to this Violation Notice number, W-2005-00537.

Questions regarding this Violation Notice should be directed to Gary Forsee at 217/785-0561.

Sincerely,

Michael S. Garretson/KC

Michael S. Garretson, Manager
Compliance Assurance Section
Bureau of Water

Attachment

cc: Melburg, Peg

ATTACHMENT A

EXELON GENERATION - BRAIDWOOD STATION, VIOLATION NOTICE NO. W-2005-00537:

Questions regarding the violations identified in this attachment should be referred to Gary Forsee at (217) 785-0561.

A review of information available to the Illinois EPA indicates the following violations of statutes, regulations, or permits. Included with each type of violation is an explanation of the activities that the Illinois EPA believes may resolve the violation including an estimated time period for resolution.

Groundwater Quality

No person shall cause, threaten, or allow the release of any contaminant to a resource groundwater such that treatment or additional treatment is necessary to continue an existing use or to assure a potential use of such groundwater, or such that the existing or potential use of such groundwater is precluded. Exelon Generation - Braidwood Station must cease and decease of any further violations of the Act.

Violation Date	Violation Description
12/12/05	Sampling results indicate violations of Section 12 of the Act, the General Prohibition Against Use Impairment of Resource Groundwater, and the causing of the groundwater quality standard of tritium (20,000 pCi/L) to be exceeded during the time period and at the location(s) designated below: RW-2 10.5 ft. depth 58,621 pCi/L RW-2 20.5 ft. depth 170,024 pCi/L RW-2 25 ft. depth 223,888 pCi/L
Rule/Reg.	Section 12(a), and (d) of the Act, 415 ILCS 5/12, 35 Ill. Adm. Code 620.115, 35 Ill. Adm. Code 620.301(a)(1) and (2), and 35 Ill. Adm. Code 620.410(e)(3).
12/07/05	Sampling results indicate violations of Section 12 of the Act, the General Prohibition Against Use Impairment of Resource Groundwater during the time period and at the location(s) designated below: Private well located at horse barn North of pond 1,151 pCi/L
Rule/Reg.	Section 12(a), and (d) of the Act, 415 ILCS 5/12, 35 Ill. Adm. Code 620.115, and 35 Ill. Adm. Code 620.301(a)(1) and (2).

ATTACHMENT A

EXELON GENERATION - BRAIDWOOD STATION, VIOLATION NOTICE NO. W-2005-00537:

Violation Date	Violation Description
12/06/05	Sampling results indicate violations of Section 12 of the Act, the General Prohibition Against Use Impairment of Resource Groundwater, and the causing of the groundwater quality standard of tritium (20,000 pCi/L) to be exceeded during the time period and at the location(s) designated below: VB-3-4 58,489 pCi/L VB-3-3 43,894 pCi/L VB-3-2 32,830 pCi/L VB-3-6 53,572 pCi/L P-4 33,736 pCi/L RW-2 33,736 pCi/L
Rule/Reg.	Section 12(a), and (d) of the Act, 415 ILCS 5/12, 35 Ill. Adm. Code 620.115, 35 Ill. Adm. Code 620.301(a)(1) and (2), and 35 Ill. Adm. Code 620.410(e)(3).
12/01/05	Sampling results indicate violations of Section 12 of the Act, the General Prohibition Against Use Impairment of Resource Groundwater during the time period and at the location(s) designated below: Pond located just north of Smiley Rd. and west of the blow-down line. 2,347 pCi/L 2,464 pCi/L
Rule/Reg.	Section 12(a), (d), and (f) of the Act, 415 ILCS 5/12.

Exelon.
Nuclear

Exelon Generation Company, LLC
Braidwood Station
35100 South Rt 53, Suite 84
Braceville, IL 60407-9619

www.exeloncorp.com

February 2, 2006
BW060011

Ms. Beverly Booker
Illinois Environmental Protection Agency
Bureau of Water, CAS #19
P. O. Box 19276
Springfield, IL 62794-9276

Subject: Braidwood Station
Response to Violation Notice W-2005-00537

Reference: Letter from Illinois EPA, "Violation Notice: Exelon Generation – Braidwood Station," dated December 16, 2005

Dear Ms. Booker:

In the referenced letter, the Illinois Environmental Protection Agency (Illinois EPA) issued a Violation Notice to Exelon Generation Company, LLC (Exelon) regarding groundwater quality at Braidwood Station and adjoining property. The Violation Notice is based on sampling results obtained between December 1 and December 12, 2005, that indicate the level of tritium exceeds the standards set forth in Section 12 of the Illinois Environmental Protection Act and the Illinois Pollution Control Board's regulations.

The enclosure to this letter contains Exelon's response to the Violation Notice. The response describes our actions to protect and inform the public, cease the release of tritium to groundwater, prevent future release of tritium to the groundwater, and our plans to address the elevated levels of tritium in the existing groundwater.

In accordance with 415 ILCS 5/31, "Notice; complaint; hearing;" subdivision (a)(2)(C), Exelon requests a meeting with representatives of the Illinois EPA to discuss this matter. We will contact the Illinois EPA to arrange this meeting.

This written response is being submitted within 45 days of Exelon's receipt of the Violation Notice via certified mail (i.e., December 20, 2005). By submitting this response, Exelon is not admitting that it has violated the Illinois Environmental Protection Act or the regulations of the Illinois Pollution Control Board. If you have any questions about this response, please contact Kenneth Ainger at 630 657-2800.

Respectfully,

Keith J. Polson
Site Vice President
Braidwood Station

VIA CERTIFIED MAIL
RETURN RECEIPT REQUESTED

ENCLOSURE

RESPONSE TO VIOLATION NOTICE W-2005-00537

I. Violation Notice Allegations

On December 16, 2005, the Illinois EPA issued the following in a violation notice to Exelon Generation Company, LLC:

Groundwater Quality

No person shall cause, threaten, or allow the release of any contaminant to resource groundwater such that treatment or additional treatment is necessary to continue an existing use or to assure a potential use of such groundwater, or such that the existing or potential use of such groundwater is precluded. Exelon Generation – Braidwood Station must cease and decease of any further violations of the Act.

Violation Date	Violation Description
12/12/05	Sampling results indicate violations of Section 12 of the Act, the General Prohibition Against Use Impairment of Resource Groundwater, and the causing of the groundwater quality standard of tritium (20,000 pCi/L) to be exceeded during the time period and at the location(s) designated below: RW-2 10.5 ft. depth 58,621 pCI/L RW-2 20.5 ft. depth 170,024 pCi/L RW-2 25 ft. depth 223,888 pCi/L
Rule/Reg.	Section 12(a), and (d) of the Act, 415 ILCS 5/12, 35 Ill. Adm. Code 620.115, 35 Ill. Adm. Code 620.301(a)(1) and (2), and 35 Ill. Adm. Code 620.410(e)(3).
12/07/05	Sampling results indicate violations of Section 12 of the Act, the General Prohibition Against Use Impairment of Resource Groundwater during the time period and at the location(s) designated below: Private well located at horse barn North of pond 1,151 pCi/L
Rule/Reg.	Section 12(a), and (d) of the Act, 415 ILCS 5/12, 35 Ill. Adm. Code 620.115, and 35 Ill. Adm. Code 620.301(a)(1) and (2).
12/06/05	Sampling results indicate violations of Section 12 of the Act, the General Prohibition Against Use Impairment of Resource Groundwater, and the causing of the groundwater quality standard of tritium (20,000 pCi/L) to be exceeded during the time period and at the location(s) designated below: VB-3-4 58,489 pCi/L VB-3-3 43,894 pCi/L VB-3-2 32,830 pCi/L VB-3-6 53,572 pCi/L P-4 33,736 pCi/L RW-2 33,736 pCi/L

Rule/Reg.	Section 12(a), and (d) of the Act, 415 ILCS 5/12, 35 Ill. Adm. Code 620.115, 35 Ill. Adm. Code 620.301(a)(1) and (2), and 35 Ill. Adm. Code 620.410(e)(3).

Violation Date	Violation Description	
12/01/05	Sampling results indicate violations of Section 12 of the Act, the General Prohibition Against Use Impairment of Resource Groundwater during the time period and at the location(s) designated below:	
	Pond located just north of Smiley Rd. and west of the blow-down line.	2,347 pCi/L 2,464 pCi/L
Rule/Reg.	Section 12(a), (d), and (f) of the Act, 415 ILCS 5/12.	

II. Exelon Response

The following response describes our actions to protect and inform the public, cease the release of tritium to groundwater, prevent future release of tritium to the groundwater, and our plans to address the elevated levels of tritium in the existing groundwater. In order to further assist the Illinois EPA in an understanding of site conditions, we are including in Attachment 1 a summary of key investigative data collected to date at the site. These data summaries are considered preliminary, as we are collecting additional data and continuing our evaluations, and include:

1. A base map of monitoring locations and key site features.
2. Groundwater level contour maps of the shallow and deep zones of the upper aquifer.
3. Estimated tritium concentrations presented in contour maps of the shallow and deep zones.
4. A hydrogeologic cross-section.
5. A table summarizing permanent and temporary well monitoring specifications.
6. A table summarizing sample results for tritium analyses from wells in the site area; and
7. A table summarizing tritium results from samples collected at private wells.

Protection and Notification of the Public

Exelon's first priority in response to this issue is the protection of the public. When we determined in late November 2005 that tritium in groundwater had likely migrated off the Braidwood Station property, we notified potentially affected residents. Door-to-door initial notifications were made to inform them of the status of our investigation, present them a fact sheet from the U. S. EPA regarding tritium, offer to sample their private wells for the presence of tritium, and respond to their questions and concerns. The results of the private well sample analyses, conducted by an independent laboratory, were provided to the residents. On December 12, 2005, Exelon conducted a meeting with the potentially affected local residents to update them on the status of our ongoing investigation, explain future actions and address their questions and concerns. In addition, we have met individually with a number of residents to address specific

concerns. A second round of door-to-door updates was conducted with the potentially affected residents on December 29, 2005, during which we provided those residents a copy of our December 29, 2005 news release and invited them to another update meeting which was held on January 26, 2006.

In addition to sampling private wells, Exelon obtained permission from potentially affected residents to drill temporary wells on their property and to sample water from ponds on their property to determine the migration of the tritium in groundwater. Exelon's plume characterization team continued sampling, analyzing and notifying adjoining land owners until the leading edge of the tritium was identified. Exelon has sampled over 31 private wells, drilled and sampled over 150 monitoring wells on and off the property, and sampled nearby surface water ponds offsite to laterally and vertically identify the distribution of tritium in the groundwater.

In order to identify potential users of groundwater in the down-gradient direction of flow (which is to the north) from the blowdown pipeline, Exelon initiated a comprehensive well inventory and well records search. This search is being conducted through the Illinois State Water Survey and includes groundwater users that can be identified within a one mile radius of the blowdown pipeline. The location of the wells, their use, depth and construction are being compiled for future evaluations. This well inventory, along with previously identified well users (private residences where wells have already been sampled), will form the basis of Exelon's notification list. This list will identify additional private, as well as public, water supply users that would be notified if it is determined there is a potential for impact to their water supply wells.

Cessation of Release of Tritium to Groundwater

Liquid radioactive effluent releases into the Braidwood Station circulating water blowdown line were suspended on November 23, 2005. This action was taken until additional information could be collected and testing conducted to ensure the integrity of the pipeline at all locations. Braidwood Station has not processed any liquid radioactive effluents through the circulating water blowdown pipeline since November 23, 2005.

As a result of suspending liquid radioactive effluent releases into the circulating water blowdown pipeline, temporary 20,000 gallon water storage tanks are being used to store liquid radioactive effluents onsite until new radioactive waste processing equipment is made operational.

An acoustical leak detection test was completed on January 6, 2006 to verify the integrity of the circulating water blowdown pipeline. A tethered acoustical sensor head inserted into the pipe was carried by the circulating water blowdown flow providing leak detection as it traversed along the pipeline length. The sensitivity of the sensor was determined by Exelon Engineering to detect a one gallon per minute leak under normal operating blowdown line pressure. One anomaly was identified at the end of the pipeline near the Kankakee River. This area was excavated and a visual inspection of the exposed pipe determined there was no leak.

Although there have been no liquid radioactive effluent releases through the circulating water blowdown pipeline since November 23, 2005, because the vacuum breaker valves installed along the length of the blowdown pipeline have been a source of leaks and

spills, a daily visual inspection of the blowdown pipeline is being conducted to verify no gross leakage.

In addition, Exelon has completed the following activities.

- Installation and sampling of over 30 shallow (approximately 15 ft. deep) and over 20 deep (approximately 25 ft. deep) monitoring points adjacent to the blowdown pipeline.
- Laboratory analyses of over 60 samples for tritium as a direct indicator of leakage from the blowdown pipeline and 45 samples for chloride and sodium which have been established as an indicator of the Braidwood Station cooling lake water flowing in the blowdown pipeline.
- Measurement of water levels along the blowdown pipeline and comparison with the regional, shallow groundwater table to determine if significant leaks are creating a mounding effect on the water table.
- Comparison of the three dimensional distribution of tritium in the groundwater to the plumes located south of Smiley Road to determine if it correlates with an on-going, or active release from the blowdown pipeline.

The above activities have relied upon groundwater data collected to date near and down-gradient of the blowdown pipeline. None of the data have indicated to Exelon and to its hydrogeologic experts that tritium measured in the groundwater on and off property has come from an active leak in the circulating water blowdown pipeline or vacuum breakers.

Prevention of Future Release of Tritium to Groundwater

Exelon is taking several actions, as described below, to prevent future releases of tritium into the groundwater. These include a potential design change involving discharge of liquid effluent into an additional circulating water blowdown pipeline, a project to significantly reduce the overall liquid discharge of tritium from Braidwood Station, and, in the event of a future spill, procedure changes to create a more effective response to minimize the impact to the environment.

Liquid effluents will not be introduced into the current circulating water blowdown pipeline unless leakage from this pipeline and vacuum breaker valves can be prevented with a high level of confidence. Exelon is currently exploring options for an alternate pipeline for discharge of liquid radioactive effluents that would maintain the current discharge point, but eliminate concerns with the existing circulating water blowdown pipeline and vacuum breaker valves.

Additionally, a project is underway at Braidwood Station to minimize liquid radioactive effluent releases into the circulating water blowdown pipeline in the future with the installation of new water processing equipment in the radioactive waste system. These improvements include state-of-the-art technologies in reverse osmosis and an additional unit to recycle existing liquid radioactive waste inventory into water that meets our quality requirements for the reactor coolant system. Also, Braidwood Station intends to install a means of converting liquid effluents to gaseous effluents.

Exelon is also looking into methods of reducing the production of tritium through various changes in reactor core configuration and primary water chemistry. These include potential changes in the reactor fuel rod design, "burnable poisons" in the reactor core, and fuel cycle length. Exelon is also partnering with its vendors to explore possible new technologies in tritium separation.

Finally, in the event of a future spill, the following actions are being taken to improve Exelon's response and minimize the impact to the environment.

1. A corporate environmental manager was assigned the action to institutionalize Exelon's tritium environmental spill response knowledge. The manager will utilize input from the various functional areas to develop an integrated set of procedures to mitigate and remediate spills with the potential to contain radioactive isotopes. Appropriate personnel will be trained on these procedures. A review of the effectiveness of the procedure development and training will be conducted at a suitable interval following completion.

2. The knowledge of Braidwood Station personnel regarding environmental regulations and reporting requirements will be enhanced with additional training. Training programs for personnel in the Operations, Chemistry/Environmental, and Radiation Protection Departments will be analyzed to determine additional knowledge requirements to address low level radioactivity spill reporting and personnel will be trained and tested on the changes. General training for all employees will be reviewed to identify any needed changes.

3. Exelon's applicable procedures/programs will be reviewed to ensure the Illinois regulations governing radioactive contamination of groundwater are correctly reflected and implemented in those documents.

Plans to Address Elevated Levels of Tritium in Existing Groundwater

Exelon proposes to address the elevated levels of tritium in existing groundwater through the Illinois EPA's Site Remediation Program (SRP). Participation in the SRP will include the following.

1. Conduct of a focused site investigation to characterize the extent of contamination. The investigation will focus on tritium. Since November 2005, Exelon has conducted extensive sampling as described above, and is currently evaluating the results to determine if additional sampling is necessary. A well survey, as described above, consistent with SRP rules and Illinois EPA policy, will also be included. Prior to submitting the final Site Investigation Report, Exelon will contact the Illinois EPA SRP staff to obtain input on any additional needs. The Site Investigation Report will be submitted as soon as possible, but no later than March 24, 2006.

2. Development of remedial objectives. As part of this step, Exelon will not only evaluate compliance with Part 620.410(e)(3), but risk to the public as well. Work on developing a Remedial Objectives Report (ROR) will commence as soon as possible, and will be submitted no later than 30 days after Illinois EPA approval of the Site Investigation Report.

3. Preparation of a Remedial Action Plan. Based on the results of the Site Investigation and the Remedial Objectives Report, a Remedial Action Plan (RAP) will be prepared and submitted. Options are currently being evaluated which include pumping areas of high concentration and returning these waters to the circulating water system. The RAP will include a schedule for all activities from startup to completion, and also provide for quarterly reports. This plan will be submitted within 30 days of approval of the Remedial Objectives Report.

4. Submission of a Remedial Action Completion Report (RACR). Once the RAP is approved, the final remedial design will commence within 30 days and the final RACR will be submitted within 30 days of completion.

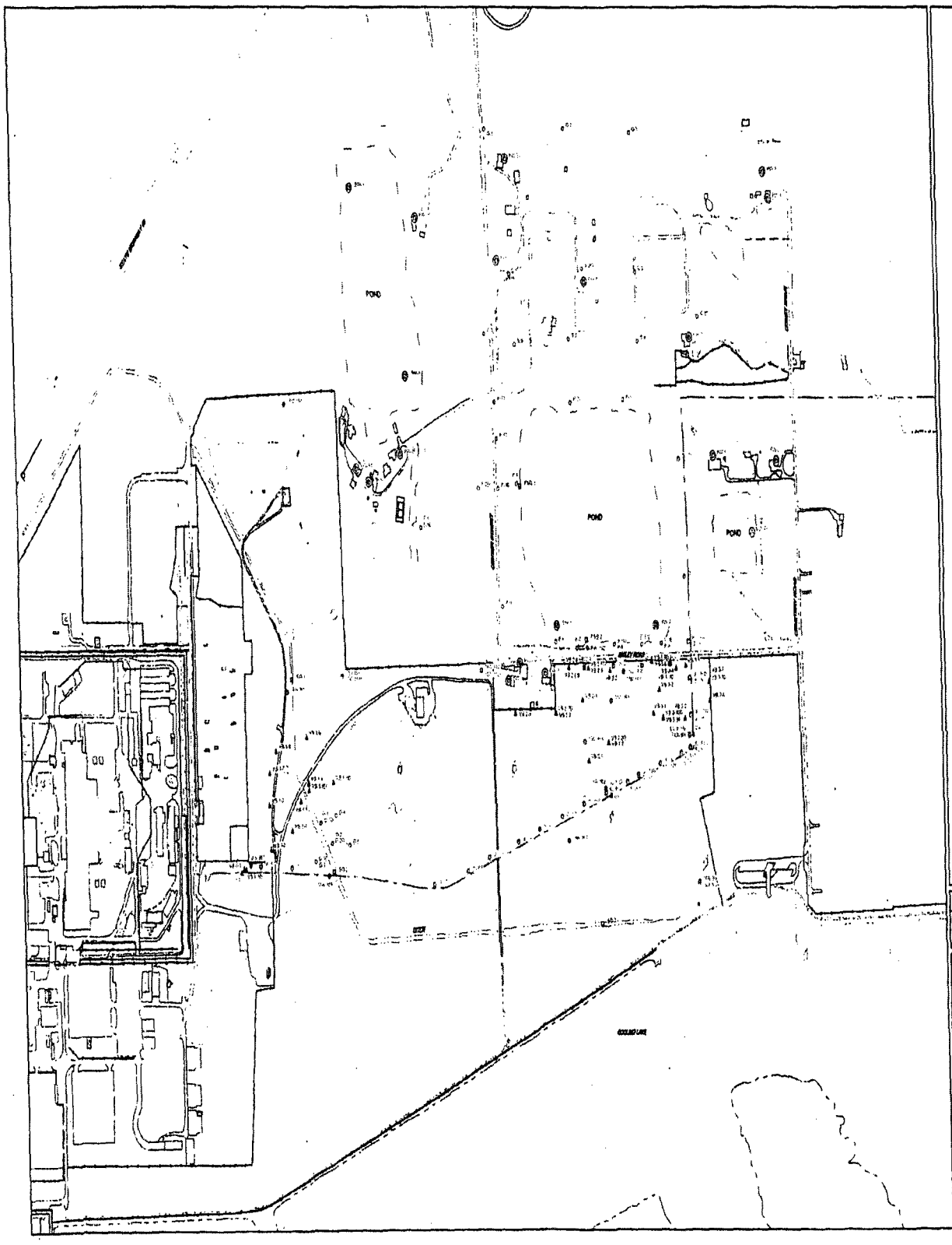
The site has not yet been precisely identified, but generally is shown as the area on figures 4 and 5. Areas separate from this site, to the east along the routing of the blowdown pipeline, are currently being investigated.

As part of the overall strategy to address this issue, a community relations plan is being implemented. The plan builds on Braidwood Station's existing community outreach program that has been used, as described above in this response, to conduct multiple communications to keep the public informed. Exelon intends to continue this effort. The community relations plan includes development of a website with access to a fact sheet on the Braidwood tritium issue, a telephone hotline for interested members of the public to acquire information on the issue, and an upcoming community information night. The actions in our community relations plan may be adjusted over time, as the circumstances of this issue evolve. Our current community relations action plan will be submitted by March 1, 2006.

Attachment 1

Summary of Key Investigative Data

Figure 1	Groundwater Monitoring Locations
Figure 2	Average Groundwater Contours Shallow – January 2006
Figure 3	Average Groundwater Contours Deep – January 2006
Figure 4	Estimated Tritium Results Shallow Groundwater Zone
Figure 5	Estimated Tritium Results Deep Groundwater Zone
Figure 6	Site Specific Hydrogeologic Profile
Table 1	Monitoring Well Construction Specifications
Table 2	Summary of Tritium Results in Monitoring Wells
Table 3	Summary of Tritium Results at Private Wells



LEGEND

EXISTING FENCE LINE

BLOW DOWN LINE

SHALLOW BLOW DOWN LINE SAMPLING LOCATION

DEEP BLOW DOWN LINE SAMPLING LOCATION

VACUUM BREAKER LOCATION

VACUUM BREAKER SAMPLING LOCATION

SHALLOW MONITORING WELL LOCATION

DEEP MONITORING WELL LOCATION

PIEZOMETER WELL LOCATION

SHALLOW TEMPORARY WELL LOCATION

DEEP TEMPORARY WELL LOCATION

STAFF GAUGE LOCATION

SURFACE WATER SAMPLING LOCATION

POND SAMPLING LOCATION

SHALLOW RECOVERY WELL LOCATION

DEEP RECOVERY WELL LOCATION

DRAFT

SCALE VERIFICATION

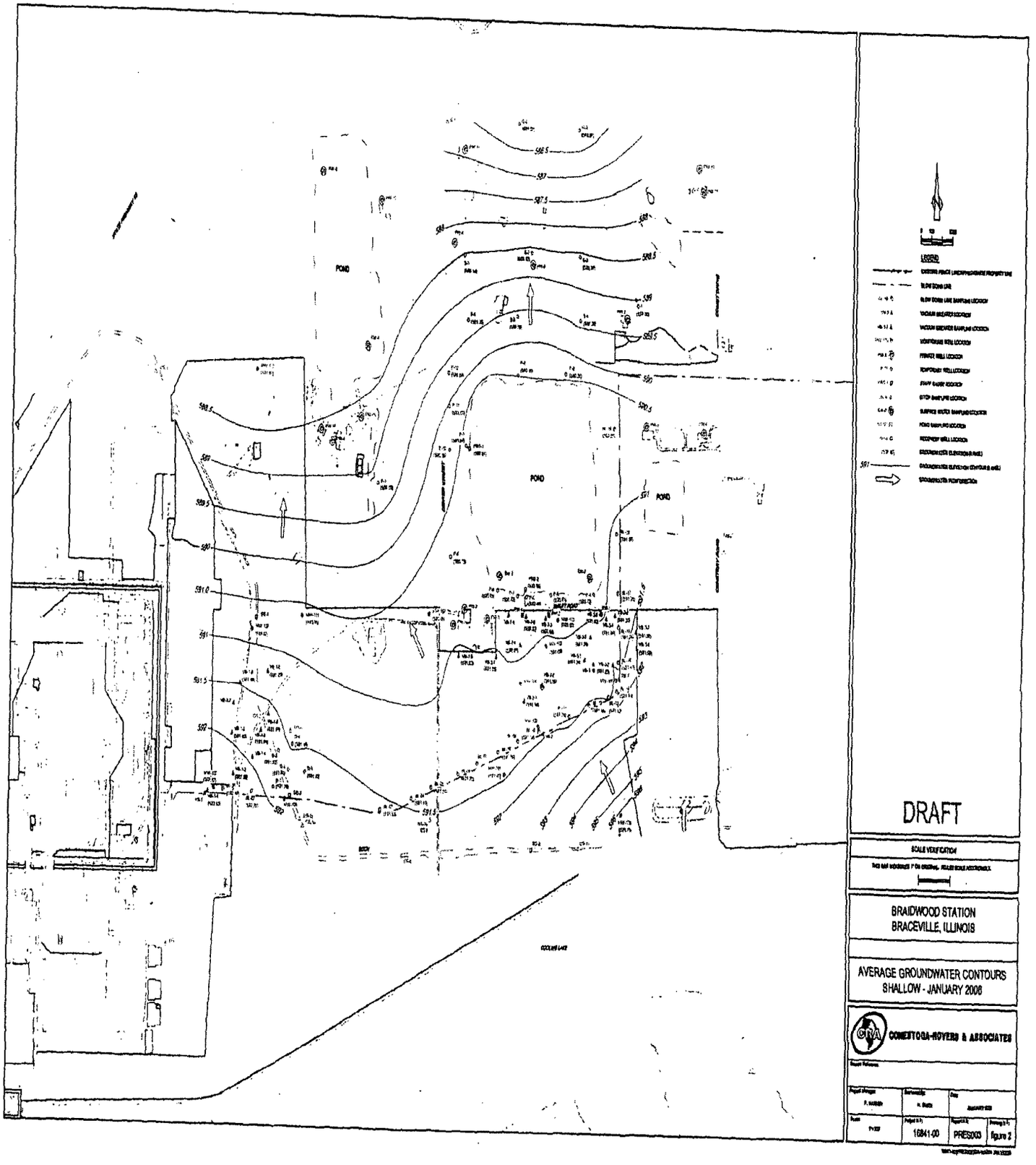
THIS BAR MEASURES 1" ON ORIGINAL. ADJUST SCALE ACCORDINGLY

BRAIDWOOD STATION
BRACEVILLE, ILLINOIS

GROUNDWATER MONITORING LOCATIONS

CONESTOGA-ROVERS & ASSOCIATES

Project Manager: P. HUDNEY	Prepared by: K. SMITH	Date: JANUARY 2005	
Scale: 1"=200'	Project No.: 16841-00	Report No.: PRES003	Drawing No.: 1


POND
POND
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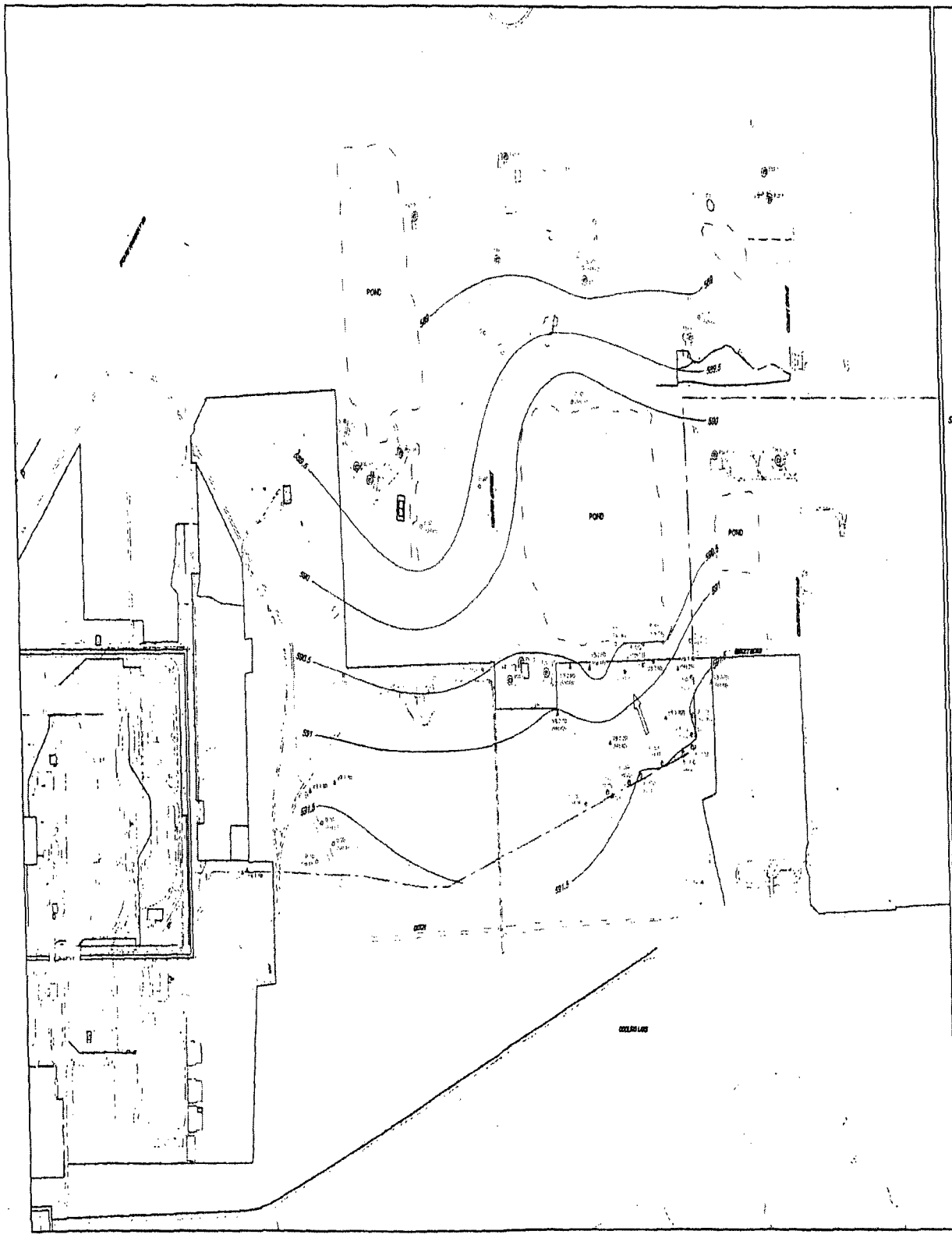
LEGEND
DRAFT
SCALE VERIFICATION
BRAIDWOOD STATION
BRACEVILLE, ILLINOIS
AVERAGE GROUNDWATER CONTOURS
SHALLOW - JANUARY 2006
CONESTOGA-ROVERS & ASSOCIATES
16841-00
PRES003
figure 2



LEGEND

- EXISTING FENCE LINE/PROXIMATE PROPERTY LINE
- BLOW DOWN LINE
- BLOW DOWN LINE SAMPLING LOCATION
- VACUUM BREAKER LOCATION
- VACUUM BREAKER SAMPLING LOCATION
- MONITORING WELL LOCATION
- PRIVATE WELL LOCATION
- TEMPORARY WELL LOCATION
- RECOVERY WELL LOCATION
- GROUNDWATER ELEVATION (8 WELL)
- 591 GROUNDWATER ELEVATION CONTOUR (8 WELL)
- GROUNDWATER FLOW DIRECTION

DRAFT

SCALE VERIFICATION

THIS BAR MEASURES 1" ON ORIGINAL. ADJUST SCALE ACCORDINGLY

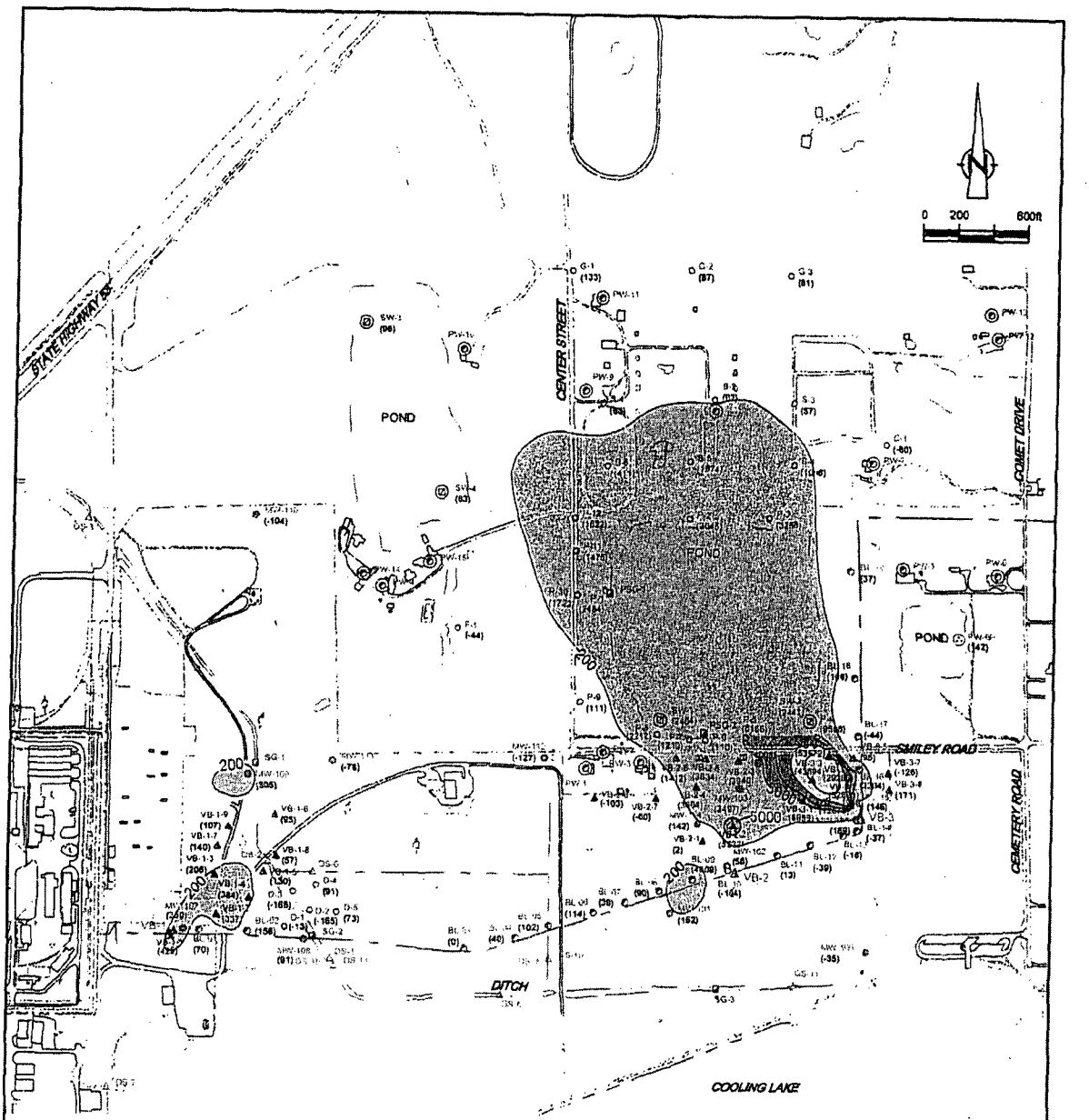
BRAIDWOOD STATION
BRACEVILLE, ILLINOIS

AVERAGE GROUNDWATER CONTOURS
DEEP - JANUARY 2006

CONESTOGA-ROVERS & ASSOCIATES

Project Manager	Reviewed By	Date
P. BRANDT	R. SUTER	JANUARY 2006
Scale	Project No.	Figure No.	Drawing No.
1"=200'	16841-00	PRES003	Figure 3

16841-REPRESENTATION MAPS FOR 2006.DWG



LEGEND:

- EXISTING FENCE LINE/APPROXIMATE PROPERTY LINE
- EXISTING PERIMETER DITCH LIMITS
- FEEDER DITCH
- BLOW DOWN LINE
- BL-19 SHALLOW BLOW DOWN LINE SAMPLING LOCATION
- VB-3 VACUUM BREAKER LOCATION
- VB-3-7 VACUUM BREAKER SAMPLING LOCATION
- MW-105 SHALLOW MONITORING WELL LOCATION
- PW-5 PRIVATE WELL LOCATION
- P-11 SHALLOW TEMPORARY WELL LOCATION
- PSG-1 STAFF GAUGE LOCATION
- DS-6 DITCH SAMPLING LOCATION
- SW-2 SURFACE WATER SAMPLING LOCATION
- RW-1 SHALLOW RECOVERY WELL LOCATION
- PW-5P POND SAMPLING LOCATION

- TRITIUM RESULTS 200,000 TO 250,000 (PICOCURRIES/LITER)
- TRITIUM RESULTS 10,000 TO 200,000
- TRITIUM RESULTS 60,000 TO 100,000
- TRITIUM RESULTS 40,000 TO 60,000
- TRITIUM RESULTS 20,000 TO 40,000
- TRITIUM RESULTS 10,000 TO 20,000
- TRITIUM RESULTS 5,000 TO 10,000
- TRITIUM RESULTS 200 TO 5,000
- TRITIUM RESULTS 0 TO 200

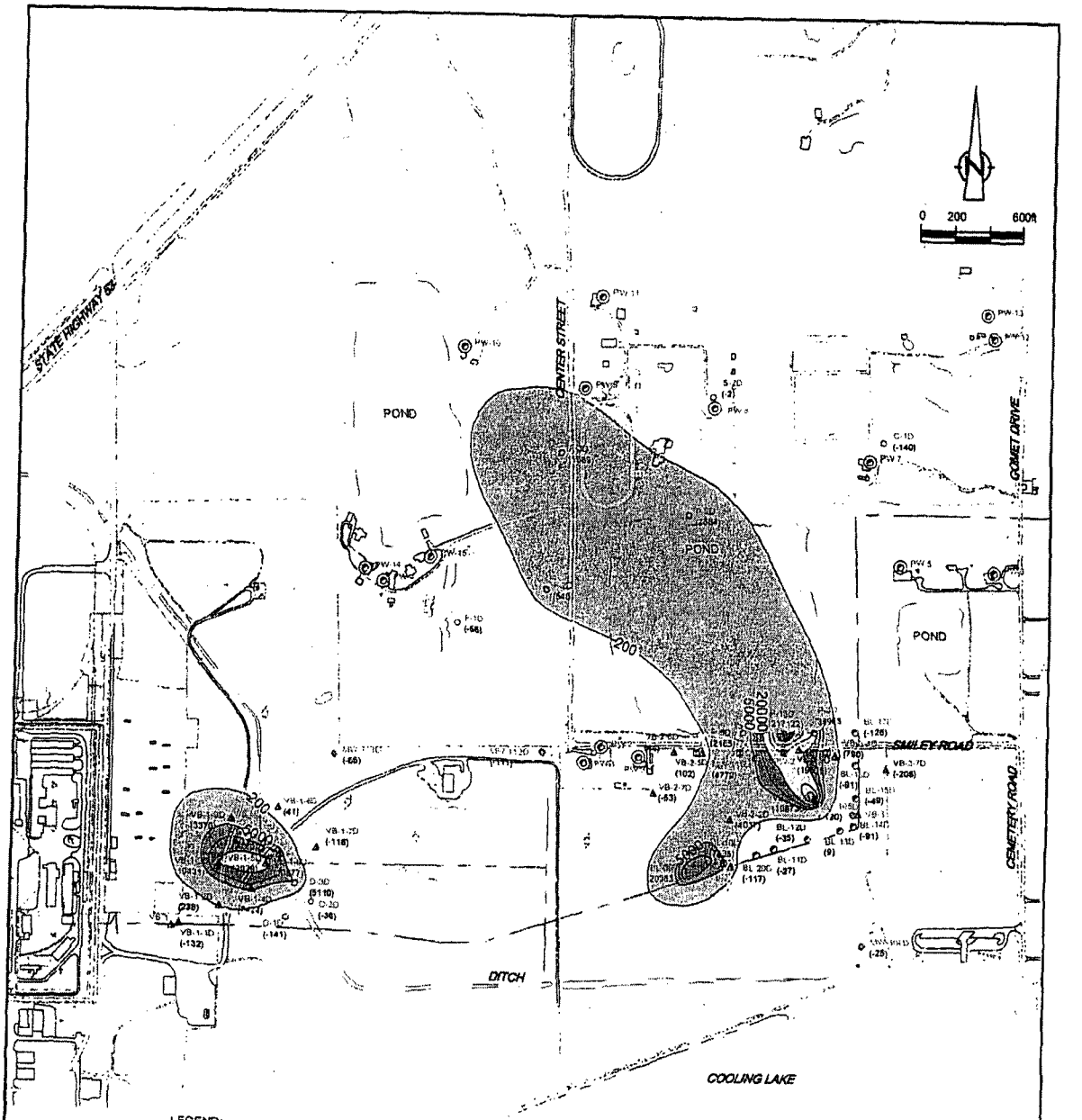
NOTE:
BACKGROUND TRITIUM CONCENTRATION: 200 pCi/L
DRINKING WATER STANDARD FOR TRITIUM: 20,000 pCi/L
TRITIUM DATA FOR SAMPLES COLLECTED THROUGH JANUARY 25, 2006. CONTOURS WERE GENERATED USING LOG VALUES.

figure 4

ESTIMATED TRITIUM RESULTS
SHALLOW GROUNDWATER ZONE
BRAIDWOOD STATION
Braceville, Illinois

DRAFT

18841-00(PRES003)GN-WA006 JAN 30/2006



LEGEND:

- EXISTING FENCE LINE/APPROXIMATE PROPERTY LINE
- EXISTING PERIMETER DITCH LIMITS
- FEEDER DITCH
- BLOW DOWN LINE
- BL-1D — DEEP BLOW DOWN LINE SAMPLING LOCATION
- VB-3 — VACUUM BREAKER LOCATION
- VB-3-7D — DEEP VACUUM BREAKER SAMPLING LOCATION
- DEEP MONITORING WELL LOCATION
- PW-5 — PRIVATE WELL LOCATION
- DEEP TEMPORARY WELL LOCATION
- POND SAMPLING LOCATION
- DEEP RECOVERY WELL LOCATION
- (2,484) — TRITIUM RESULT IN GROUNDWATER
- —200— TRITIUM CONTOUR

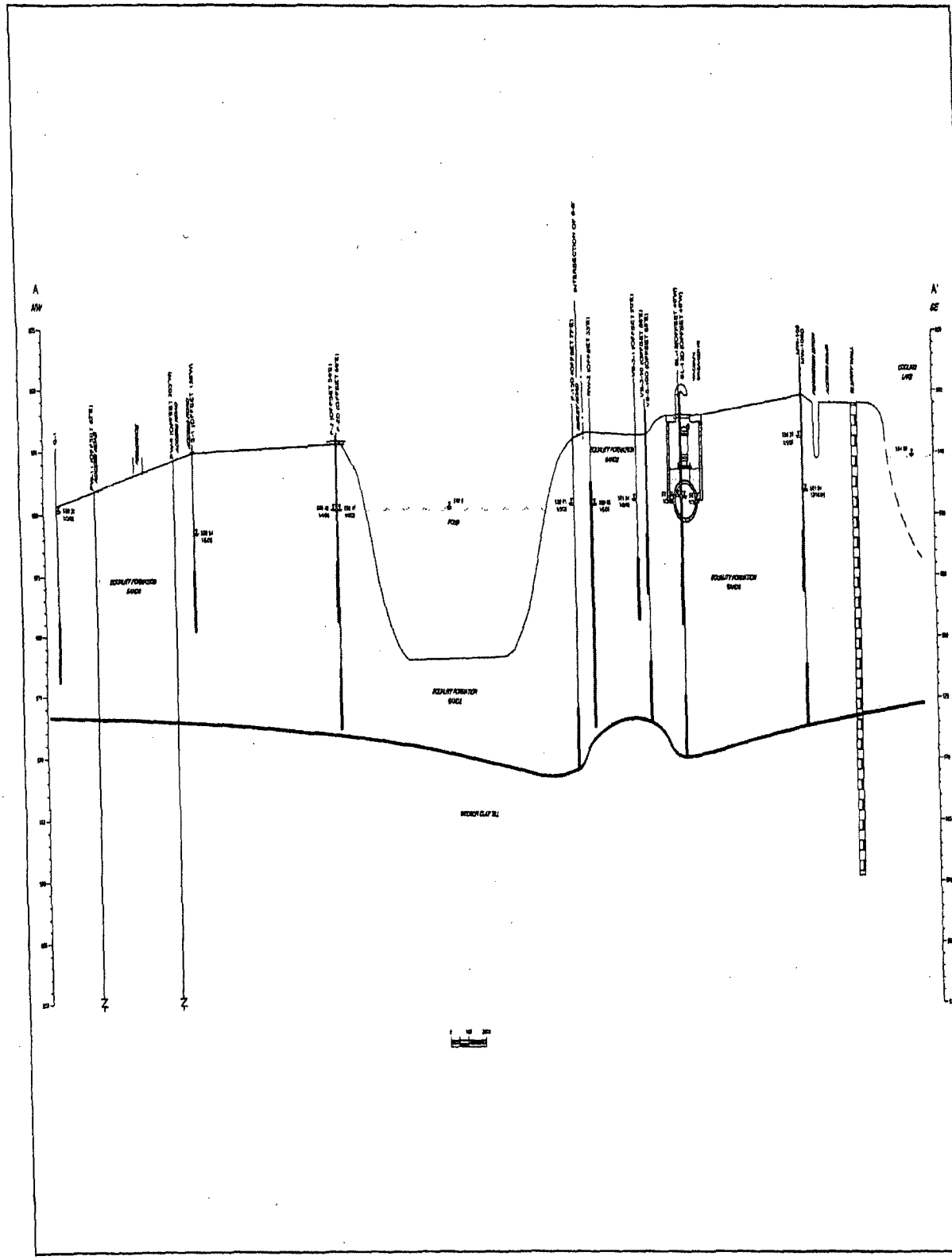
- TRITIUM RESULTS 200,000 TO 250,000 (PICOCURRIES/LITER)
- TRITIUM RESULTS 100,000 TO 200,000
- TRITIUM RESULTS 60,000 TO 100,000
- TRITIUM RESULTS 40,000 TO 60,000
- TRITIUM RESULTS 20,000 TO 40,000
- TRITIUM RESULTS 10,000 TO 20,000
- TRITIUM RESULTS 5,000 TO 10,000
- TRITIUM RESULTS 200 TO 5,000
- TRITIUM RESULTS 0 TO 200

DRAFT

NOTE:
BACKGROUND TRITIUM CONCENTRATION: 200 PCI/L
DRINKING WATER STANDARD FOR TRITIUM: 20,000 PCI/L
TRITIUM DATA FOR SAMPLES COLLECTED THROUGH JANUARY 25, 2006. CONTOURS WERE GENERATED USING LOG VALUES.

figure 5
ESTIMATED TRITIUM RESULTS
DEEP GROUNDWATER ZONE
BRAIDWOOD STATION
Braceville, Illinois

16841-00(PRES003)GN-WA007 JAN 30/2006



DRAFT

SCALE VERIFICATION

THIS BAR MEASURES 1" ON ORIGINAL. ADJUST SCALE ACCORDINGLY

BRAIDWOOD STATION
BRACEVILLE, ILLINOIS

SITE SPECIFIC HYDROGEOLOGIC PROFILE
JANUARY 2006 (A-A')

CONESTOGA-ROVERS & ASSOCIATES

Project Manager	Reviewed by	Date
P. MURPHY	N. SMITH	JANUARY 2006

Scale	Project No	Report No	Drawing No
HORIZONTAL 1"=200' VERTICAL 1"=5'	16841-00	PRES003	6

DRAFT

TABLE 1

MONITORING WELL
CONSTRUCTION SPECIFICATIONS
EXELON GENERATION
BRAIDWOOD STATION

Well Number	Boring Total Depth (ft BGS)[1]	Ground Surface (NGVD)[2]	Well Diameter (inches)	Well Material	Screen Interval (ft BGS)	Top of Riser Elevation (NGVD)	Screen Top Elevation (NGVD)	Screen Bottom Elevation (NGVD)	Stick Up (ft AGS)[4]
MW-101	10.0	599.49	2	PVC[3]	5 to 10	602.77	594.49	589.49	3.28
MW-102	11.0	602.42	2	PVC	6 to 11	605.70	596.42	591.42	3.28
MW-103	8.0	595.72	2	PVC	3 to 8	598.84	592.72	587.72	3.12
MW-104	8.0	596.60	2	PVC	3 to 8	598.80	593.60	588.60	2.20
MW-105	16.0	597.29	2	PVC	11 to 16	600.74	586.29	581.29	3.45
MW-105D	24.0	597.22	1	PVC	19 to 24	598.20	578.22	573.22	0.98
MW-106	16.0	599.60	2	PVC	11 to 16	602.73	588.60	583.60	3.13
MW-106D	27.0	599.70	1	PVC	22 to 27	601.81	577.70	572.70	2.11
MW-107	16.0	599.85	2	PVC	11 to 16	603.24	588.85	583.85	3.39
MW-108	16.0	599.76	2	PVC	11 to 16	603.10	588.76	583.76	3.34
MW-109	16.0	598.81	2	PVC	11 to 16	601.23	587.81	582.81	2.42
MW-110	20.0	604.01	3	PVC	9.5 to 19.5	607.27	594.01	584.01	3.26
MW-111	16.0	603.29	4	PVC	5.5 to 15.5	607.20	597.29	587.29	3.91
MW-111D	26.5	603.17	1	PVC	21.5 to 26.5	605.05	581.67	576.67	1.88
MW-112	16.0	598.57	5	PVC	5.5 to 15.6	602.62	592.57	582.57	4.05
MW-112D	26.5	598.61	1	PVC	21.5 to 26.5	600.85	577.11	572.11	2.24
MW-113	16.0	596.10	6	PVC	5.5 to 15.7	599.77	590.10	580.10	3.67
MW-113D	24.0	596.14	1	PVC	19 to 24	596.90	577.14	572.14	0.76
VB-2-1	15.0	601.27	1	PVC	10 to 15	605.71	591.27	586.27	4.44
VB-2-2	15.0	596.82	1	PVC	10 to 15	600.16	586.82	581.82	3.34
VB-2-2D	29.5	596.49	1	PVC	24.5 to 29.5	598.95	571.99	566.99	2.46
VB-2-3	15.0	595.95	1	PVC	10 to 15	600.16	585.95	580.95	4.21
VB-2-4	15.0	596.08	1	PVC	10 to 15	600.82	586.08	581.08	4.74
VB-2-5	15.0	595.76	1	PVC	10 to 15	599.82	585.76	580.76	4.06
VB-2-5D	24.0	595.76	1	PVC	19 to 24	596.78	576.76	571.76	1.02
VB-2-6	15.0	596.01	1	PVC	10 to 15	601.44	586.01	581.01	5.43
VB-2-6D	24.0	596.01	1	PVC	19 to 24	596.77	577.01	572.01	0.76
VB-2-7	15.0	600.51	1	PVC	10 to 15	602.04	590.51	585.51	1.53

TABLE 1

MONITORING WELL
CONSTRUCTION SPECIFICATIONS
EXELON GENERATION
BRAIDWOOD STATION

Well Number	*Boring Total Depth (ft BGS)*[1]	*Ground Surface (NGVD)*[2]	*Well Diameter (inches)*	*Well Material*	*Screen Interval (ft BGS)*	*Top of Riser Elevation (NGVD)*	*Screen Top Elevation (NGVD)*	*Screen Bottom Elevation (NGVD)*	*Stick Up (ft AGS)*[4]
VB-2-7D	25.0	600.51	1	PVC	20 to 25	602.28	580.51	575.51	1.77
VB-2-8	15.0	598.18	1	PVC	10 to 15	599.05	588.18	583.18	0.87
VB-2-9	14.0	*	1	PVC	9 to 14	*	*	*	*
VB-2-9D	28.0	*	1	PVC	23 to 28	*	*	*	*
VB-3-1	15.0	596.38	1	PVC	10 to 15	600.99	586.38	581.38	4.61
VB-3-2	15.0	596.49	1	PVC	10 to 15	601.51	586.49	581.49	5.02
VB-3-3	15.0	596.27	1	PVC	10 to 15	600.03	586.27	581.27	3.76
VB-3-4	15.0	596.18	1	PVC	10 to 15	601.37	586.18	581.18	5.19
VB-3-4D	25.0	596.18	1	PVC	20 to 25	600.82	576.18	571.18	4.64
VB-3-5	15.0	*	1	PVC	10 to 15	*	*	*	*
VB-3-6	15.0	*	1	PVC	10 to 15	*	*	*	*
VB-3-7	14.5	596.24	1	PVC	9.5 to 14.5	599.49	586.74	581.74	3.25
VB-3-7D	24.0	596.24	1	PVC	19 to 24	597.04	577.24	572.24	0.80
VB-3-8	14.5	596.44	1	PVC	9.5 to 14.5	599.51	586.94	581.94	3.07
VB-3-9D	24.5	595.68	1	PVC	19.5 to 24.5	596.62	577.18	572.18	0.94
VB-3-10	13.0	596.43	1	PVC	8 to 13	599.28	588.43	583.43	2.85
VB-3-10D	23.5	596.49	1	PVC	18.5 to 23.5	598.44	577.99	572.99	1.95
VB-1-1	15.0	602.14	1	PVC	10 to 15	605.62	592.14	587.14	3.48
VB-1-1D	32.0	*	1	PVC	27 to 32	*	*	*	*
VB-1-2	15.0	599.94	1	PVC	10 to 15	604.65	589.94	584.94	4.71
VB-1-2D	28.0	*	1	PVC	23 to 28	*	*	*	*
VB-1-3	15.0	599.64	1	PVC	10 to 15	603.61	589.64	584.64	3.97
VB-1-3D	27.5	*	1	PVC	22.5 to 27.5	*	*	*	*
VB-1-4	15.0	599.32	1	PVC	10 to 15	601.50	589.32	584.32	2.18
VB-1-4D	28.0	*	1	PVC	23 to 28	*	*	*	*
VB-1-5	15.0	600.17	1	PVC	10 to 15	603.85	590.17	585.17	3.68
VB-1-5D	28.0	*	1	PVC	23 to 28	*	*	*	*
VB-1-6	15.0	*	1	PVC	10 to 15	605.34	*	*	*

TABLE 1

MONITORING WELL
CONSTRUCTION SPECIFICATIONS
EXELON GENERATION
BRAIDWOOD STATION

Well Number	*Boring Total Depth (ft BGS)* [1]	*Ground Surface (NGVD)* [2]	*Well Diameter (inches)*	*Well Material*	*Screen Interval (ft BGS)*	*Top of Riser Elevation (NGVD)*	*Screen Top Elevation (NGVD)*	*Screen Bottom Elevation (NGVD)*	*Stick Up (ft AGS)* [4]
VB-1-6D	27.0	*	1	PVC	22 to 27	*	*	*	*
VB-1-7	15.0	*	1	PVC	10 to 15	603.62	*	*	*
VB-1-7D	26.5	600.48	1	PVC	21.5 to 26.5	602.80	578.98	573.98	2.32
VB-1-8	15.0	*	1	PVC	10 to 15	603.36	*	*	*
VB-1-8D	26.5	600.15	1	PVC	21.5 to 26.5	602.49	578.65	573.65	2.34
VB-1-9	15.0	*	1	PVC	10 to 15	601.86	*	*	*
VB-1-9D	27.0	*	1	PVC	22 to 27	*	*	*	*
RW-1	25.0	596.68	1	PVC	5 to 25	599.36	591.68	572	2.68
RW-2	24.0	596.59	1	PVC	4 to 24	599.30	591.59	571.59	2.71
RW-3	24.0	596.24	1	PVC	4 to 24	599.19	592.24	572.27	2.95
RW-4	24.0	596.31	1	PVC	4 to 24	598.77	592.31	572.31	2.46
BL-1	17.0	600.38	1	PVC	12 to 17	605.58	588.38	583.38	5.20
BL-2	14.5	600.16	1	PVC	9.5 to 14.5	604.84	590.66	585.66	4.68
BL-3	23.0	600.60	1	PVC	18 to 23	604.50	582.60	577.60	3.90
BL-4	14.5	599.76	1	PVC	10 to 15	601.91	589.76	584.76	2.15
BL-5	21.0	599.76	1	PVC	16 to 21	602.60	583.76	578.76	2.84
BL-6	16.5	597.74	1	PVC	11.5 to 16.5	601.83	586.24	581.24	4.09
BL-7	14.0	597.57	1	PVC	9 to 14	601.08	588.57	583.57	3.51
BL-8	18.0	598.53	1	PVC	13 to 18	602.29	585.53	580.53	3.76
BL-9 [5]	12.5	599.75	1	PVC	7.5 to 12.5	602.75	592.25	587.25	3.00
BL-9	21.0	599.60	1	PVC	16 to 21	602.49	583.60	578.60	2.89
BL-9D	29.0	599.65	1	PVC	24 to 29	600.36	575.65	570.65	0.71
BL-10	17.0	602.49	1	PVC	12 to 17	605.37	590.28	585.28	2.88
BL-10D	32.0	602.43	1	PVC	27 to 32	605.16	575.43	570.43	2.73
BL-11	16.5	597.47	1	PVC	11.5 to 16.5	600.65	585.97	580.97	3.18
BL-11D	28.0	597.34	1	PVC	23 to 28	599.09	574.34	569.34	1.75
BL-12	17.0	598.03	1	PVC	12 to 17	601.60	586.03	581.03	3.57
BL-12D	28.0	598.10	1	PVC	23 to 28	599.87	575.10	570.10	1.77

TABLE 1

MONITORING WELL
CONSTRUCTION SPECIFICATIONS
EXELON GENERATION
BRAIDWOOD STATION

Well Number	*Boring Total Depth (ft BGS)*[1]	*Ground Surface (NGVD)*[2]	*Well Diameter (inches)*	*Well Material*	*Screen Interval (ft BGS)*	*Top of Riser Elevation (NGVD)*	*Screen Top Elevation (NGVD)*	*Screen Bottom Elevation (NGVD)*	*Stick Up (ft AGS)*[4]
BL-13	15.0	598.07	1	PVC	10 to 15	601.37	588.07	583.07	3.30
BL-13D	24.5	598.05	1	PVC	19.5 to 24.5	600.82	565.55	564.55	2.77
BL-14	18.0	597.34	1	PVC	13 to 18	601.26	584.34	579.34	3.92
BL-14D	26.5	597.46	1	PVC	21.5 to 26.5	599.90	575.96	570.96	2.44
BL-15	17.5	597.29	1	PVC	12.5 to 17.5	600.98	584.79	579.79	3.69
BL-15D	24.0	597.54	1	PVC	19 to 24	598.50	578.54	573.64	0.96
BL-16	17.0	597.12	1	PVC	12 to 17	600.30	585.12	580.12	3.18
BL-16D	24.0	597.28	1	PVC	19 to 24	598.17	578.28	573.28	0.89
BL-17	14.5	597.01	1	PVC	9.5 to 14.5	597.62	587.51	582.51	0.61
BL-17D	24.0	597.01	1	PVC	19 to 24	598.11	578.01	573.01	1.10
BL-18	14.5	596.82	1	PVC	9.5 to 14.5	597.59	587.32	582.32	0.77
BL-19	9.0	594.94	1	PVC	4 to 9	595.55	590.94	585.94	0.61
BL-20D	28.0	596.89	1	PVC	23 to 28	600.45	573.89	568.89	3.56
P-1	14.5	594.90	1	PVC	9.5 TO 14.5	595.59	585.40	580.40	0.69
P-2	14.5	595.65	1	PVC	9.5 TO 14.5	596.27	586.15	581.15	0.62
P-2D	23.5	595.88	1	PVC	18.5 to 23.5	596.55	577.38	572.38	0.67
P-3	14.5	595.69	1	PVC	9.5 TO 14.5	596.26	586.19	581.19	0.57
P-4	14.5	*	1	PVC	9.5 TO 14.5	597.14	*	*	*
P-4D	27.0	596.46	1	PVC	22 to 27	599.22	574.46	569.46	2.76
P-5	15.0	*	1	PVC	10 to 15	597.06	*	*	*
P-5D	27.0	596.34	1	PVC	22 to 27	599.37	574.34	569.34	3.03
P-6	14.5	*	1	PVC	9.5 to 14.5	597.85	*	*	*
P-7	14.5	599.77	1	PVC	9.5 to 14.5	600.24	590.27	585.27	0.47
P-8	14.5	595.49	1	PVC	9.5 to 14.5	596.24	585.99	580.99	0.75
P-9	14.5	598.55	1	PVC	9.5 to 14.5	599.19	589.05	584.05	0.64
P-10	14.5	596.08	1	PVC	9.5 to 14.5	596.58	586.58	581.58	0.50
P-11	14.5	595.19	1	PVC	9.5 to 14.5	596.23	585.69	580.69	1.04
P-12	14.5	595.56	1	PVC	9.5 to 14.5	596.13	586.06	581.06	0.57

TABLE 1

MONITORING WELL
CONSTRUCTION SPECIFICATIONS
EXELON GENERATION
BRAIDWOOD STATION

Well Number	*Boring Total Depth (ft BGS)*[1]	*Ground Surface (NGVD)*[2]	*Well Diameter (inches)*	*Well Material*	*Screen Interval (ft BGS)*	*Top of Riser Elevation (NGVD)*	*Screen Top Elevation (NGVD)*	*Screen Bottom Elevation (NGVD)*	*Stick Up (ft AGS)*[4]
P-13D	27.0	596.11	1	PVC	22 to 27	598.76	574.11	569.11	2.65
P-14	15.5	*	1	PVC	10.5 to 15.5	*	*	*	*
P-14D	28.0	*	1	PVC	23 to 28	*	*	*	*
D-1	15.0	599.64	1	PVC	10 to 15	603.69	589.64	584.64	4.05
D-1D	27.0	599.82	1	PVC	22 to 27	603.77	577.82	572.82	3.95
D-2	15.0	598.78	1	PVC	10 to 15	601.92	588.78	583.78	3.14
D-2D	27.0	598.65	1	PVC	22 to 27	601.47	576.65	571.65	2.82
D-3	15.0	599.00	1	PVC	10 to 15	602.48	589.00	584.00	3.48
D-3D	27.0	598.91	1	PVC	22 to 27	602.22	576.91	571.91	3.31
D-4	15.0	598.48	1	PVC	10 to 15	602.55	588.48	583.48	4.07
D-5	15.0	598.58	1	PVC	10 to 15	602.27	588.58	583.58	3.69
S-1	14.5	594.99	1	PVC	9.5 to 14.5	595.60	585.49	580.49	0.61
S-1D	28.0		1	PVC	23 to 28	*	*	*	*
S-2	14.5	592.72	1	PVC	9.5 to 14.5	593.32	583.22	578.22	0.60
S-2D	23.5	592.72	1	PVC	18.5 to 23.5	593.98	574.22	569.22	1.26
S-3	14.5	592.65	1	PVC	9.5 to 14.5	593.37	583.15	578.15	0.72
S-4	14.5	594.23	1	PVC	9.5 to 14.5	594.63	584.73	579.73	0.40
S-4D	24.5		1	PVC	19.5 to 24.5	*	*	*	*
S-5	14.5	592.76	1	PVC	9.5 to 14.5	593.44	583.26	578.26	0.68
S-6	14.5	594.99	1	PVC	9.5 to 14.5	595.57	585.49	580.49	0.58
S-7	13.6	*	1	PVC	8.6 to 13.36	*	*	*	*
S-7D	27.5	*	1	PVC	22.5 to 27.5	*	*	*	*
G-1	14.5	590.70	1	PVC	9.5 to 14.5	595.35	581.20	576.20	4.65
G-2	14.5	590.24	1	PVC	9.5 to 14.5	590.82	580.74	575.74	0.58
G-2D	24.0		1	PVC	19 to 24	*	*	*	*
G-3	14.5	592.34	1	PVC	9.5 to 14.5	592.93	582.84	577.84	0.59
F-1	14.0	595.27	1	PVC	9 to 14	596.25	586.27	581.27	0.98
F-1D	24.0	595.27	1	PVC	19 to 24	596.19	576.27	571.27	0.92

TABLE 1

MONITORING WELL
CONSTRUCTION SPECIFICATIONS
EXELON GENERATION
BRAIDWOOD STATION

Well Number	*Boring Total Depth (ft BGS)*[1]	*Ground Surface (NGVD)*[2]	*Well Diameter (inches)*	*Well Material*	*Screen Interval (ft BGS)*	*Top of Riser Elevation (NGVD)*	*Screen Top Elevation (NGVD)*	*Screen Bottom Elevation (NGVD)*	*Stick Up (ft AGS)*[4]
F-2D	25.0	594.05	1	PVC	20 to 25	597.26	574.05	569.05	3.21
F-3D	25.0	594.59	1	PVC	20 to 25	597.36	544.59	539.59	2.77
F-4D	29.5	*	1	PVC	24.5 to 29.5	*	*	*	*
F-5D	27.0	*	1	PVC	22 to 27	*	*	*	*
F-6D	27.5	*	1	PVC	22.5 to 27.5	*	*	*	*
F-7D	28.0	*	1	PVC	23 to 28	*	*	*	*
F-8D	26.0	*	1	PVC	21 to 26	*	*	*	*
C-1	14.0	595.00	1	PVC	9 to 14	595.78	586.00	581.00	0.78
C-1D	24.0	595.00	1	PVC	19 to 24	595.87	576.00	571.00	0.87
C-2	15.5	*	1	PVC	10.5 to 15.5	*	*	*	*
C-2D	27.5	*	1	PVC	22.5 to 27.5	*	*	*	*
A-1	15.0	*	1	PVC	10 to 15	*	*	*	*
A-1D	25.0	*	1	PVC	20 to 25	*	*	*	*

Notes

[1] ft BGS - feet below ground surface

[2] NGVD - National Geodetic Vertical Datum

[3] PVC - polyvinyl chloride

[4] above ground surface

[5] Abandoned

* ground surface not yet shot, survey data incomplete

TABLE 2

SUMMARY OF TRITIUM RESULTS
IN MONITORING WELLS
EXELON GENERATION
BRAIDWOOD STATION

Location	*Sample Name*	*Sample Date*	*3H-Tritium (pCi/L)*
A-1	GW011106-MB-A-1	1/11/2006	33
A-1D	GW011106-MB-A-1D	1/11/2006	60
BL-01	GW-111705-JK-BL-01	11/17/2005	70
BL-02	GW-111705-JK-BL-02	11/17/2005	156
BL-03	GW-111805-JK-BL-15	11/18/2005	0
BL-04	GW-111805-JK-BL-14	11/18/2005	40
BL-05	GW-111805-JK-BL-13	11/18/2005	102
BL-06	GW-111805-JK-BL-12	11/18/2005	114
BL-07	GW-111805-JK-BL-11	11/18/2005	39
BL-08	GW-111805-JK-BL-10	11/18/2005	90
BL-09	GW-012506-JL-BL-9	1/25/2006	4809
BL-09D	GW-012506-JL-BL-9D	1/25/2006	20383
BL-10	GW-010406-JL-BL-10	1/4/2006	-104
BL-10D	GW-010406-JL-BL-10D	1/4/2006	7535
BL-11	GW-010306-JL-BL-11	1/3/2006	13
BL-11D	GW-010306-JL-BL-11D	1/3/2006	-27
BL-12	GW-010306-JL-BL-12	1/3/2006	-39
BL-12D	GW-010306-JL-BL-12D	1/3/2006	-35
BL-13	GW-010306-JL-BL-13	1/3/2006	-16
BL-13D	GW-010306-JL-BL-13D	1/3/2006	9
BL-14	GW-010306-JL-BL-14	1/3/2006	-37
BL-14D	GW-010306-JL-BL-14D	1/3/2006	-91
BL-15	GW-010306-JL-BL-15	1/3/2006	146
BL-15D	GW-010306-JL-BL-15D	1/3/2006	-49
BL-16	GW-010306-JL-BL-16	1/3/2006	3364
BL-16D	GW-010306-JL-BL-16D	1/3/2006	-91
BL-17	GW-010306-JL-BL-17	1/3/2006	-44
BL-17D	GW-010306-JL-BL-17D	1/3/2006	-126
BL-18	GW-120105-DS-BL-18	12/1/2005	108
BL-19	GW-120105-DS-BL-19	12/1/2005	37
BL-20D	GW-010406-JL-BL-20D	1/4/2006	-117
C-1	GW-010306-JL-C-1	1/3/2006	-60
C-1D	GW-010306-JL-C-1D	1/3/2006	-140
C-2	GW-012406-MB-C-2	1/24/2006	-48
C-2D	GW-012406-MB-C-2D	1/24/2006	147
D-1	GW-010406-JL-D-1	1/4/2006	-13
D-1D	GW-010406-JL-D-1D	1/4/2006	-141
D-2	GW-010406-JL-D-2	1/4/2006	-165
D-2D	GW-010406-JL-D-2D	1/4/2006	-36
D-3	GW-010406-JL-D-3	1/4/2006	-168
D-3D	GW-010406-JL-D-3D	1/4/2006	5110
D-4	GW-120605-JRB-D-4	12/6/2005	91
D-5	GW-120205-MK-D-5	12/2/2005	73
Ditch at Culvert	Ditch at Culvert~12/22/05	12/22/2005	1007
Ditch by Alpha Gate	Ditch by Alpha Gate~01/12/06	1/12/2006	-30
F-1	GW-010306-JL-F-1	1/3/2006	-44
F-1D	GW-010306-JL-F-1D	1/3/2006	-56

TABLE 2

SUMMARY OF TRITIUM RESULTS
IN MONITORING WELLS
EXELON GENERATION
BRAIDWOOD STATION

Location	*Sample Name*	*Sample Date*	*3H-Tritium (pCi/L)*
F-2D	GW-011206-MB-F-2D	1/12/2006	546
F-3D	GW-011206-MB-F-3D	1/12/2006	1689
F-4D	GW-012406-MB-F-4D	1/24/2006	-22
F-5D	GW-012406-MB-F-5D	1/24/2006	1512
F-6D	GW-012406-MB-F-6D	1/24/2006	689
F-7D	GW-012406-MB-F-7D	1/24/2006	575
F-8D	GW-012406-MB-F-8D	1/24/2006	872
G-1	GW-120605-JL-G-1	12/6/2005	133
G-2	GW-120605-JL-G-2	12/6/2005	87
G-3	GW-120605-JL-G-3	12/6/2005	81
MW-101	GW-111505-JK-17-Dup	11/15/2005	162
MW-101	GW-111505-JK-17	11/15/2005	157
MW-102	MW-102	3/24/2005	58
MW-103	GW-111505-JK-13-Dup	11/15/2005	1970
MW-103	GW-111505-JK-13	11/15/2005	2497
MW-104	MW-104	7/28/2005	142
MW-105	GW-010406-JL-MW-105	1/4/2006	169
MW-105D	GW-010406-JL-MW-105D	1/4/2006	-120
MW-106	GW-010406-JL-MW-106	1/4/2006	-35
MW-106D	GW-010406-JL-MW-106D	1/4/2006	-25
MW-107	GW-111605-JK-19	11/15/2005	269
MW-108	GW-111605-JK-20	11/15/2005	91
MW-109	GW-093005-DC-03	9/30/2005	305
MW-110	GW-010406-JK-MW110	1/4/2006	-104
MW-111	GW-010406-JL-MW-111	1/4/2006	-78
MW-111D	GW010906-MB-MW111D	1/9/2006	-66
MW-112	GW-010406-JL-MW-112	1/4/2006	-127
MW-112D	GW010906-MB-MW112D	1/9/2006	-111
MW-113	GW-010306-JL-MW-113	1/3/2006	4008
MW-113D	GW-010306-JL-MW-113D	1/3/2006	4772
P-1	GW-120105-DS-P-1	12/1/2005	2484
P-10	GW-120605-JL-P-10	12/6/2005	1723
P-11	GW-120605-JL-P-11	12/6/2005	1476
P-12	GW-120605-JL-P-12	12/6/2005	1622
P-13D	GW-012506-JL-P-13D	1/25/2006	217122
P-14	GW-012406-MB-P-14	1/24/2006	2537
P-14D	GW-012406-MB-P-14D	1/24/2006	2388
P-2	GW-010306-JL-P-2	1/3/2006	2045
P-2D	GW-010306-JL-P-2D	1/3/2006	2384
P-3	GW-120205-MK-P-3	12/2/2005	3258
P-4	GW-012506-JL-P-4	1/25/2006	9588
P-4D	GW-012506-JL-P-4D	1/25/2006	38965
P-5	GW-010306-JL-P-5	1/3/2006	6166
P-5D	GW-010306-JL-P-5D	1/3/2006	2165
P-6	GW-011806-MB-P-6	1/18/2006	110
P-7	GW-120105-DS-P-7	12/1/2005	1210
P-8	GW-120605-JL-P-8	12/6/2005	2212

TABLE 2

SUMMARY OF TRITIUM RESULTS
IN MONITORING WELLS
EXELON GENERATION
BRAIDWOOD STATION

Location	*Sample Name*	*Sample Date*	*3H-Tritium (pCi/L)*
P-9	GW-121305-JL-P-9-recount	12/13/2005	27
P-9	GW-121305-JL-P-9	12/13/2005	111
PW-6P	Pond~12/08/05	12/8/2005	142
RW-1	RW-1~12/04/05	12/4/2005	7855
RW-2	GW-121305-JL-RW2@20'	12/13/2005	171166
RW-2	GW-121305-JL-RW2@25'	12/13/2005	246442
RW-2	GW-121305-JL-RW2@10'	12/13/2005	54111
RW-3	GW-120205-JL-RW-3	12/2/2005	197
RW-4	GW-120205-JL-RW-4	12/2/2005	380
S-1	GW-120605-JL-S-1	12/6/2005	83
S-2	GW-010306-JL-S-2	1/3/2006	62
S-2D	GW-010306-JL-S-2D	1/3/2006	-2
S-3	GW-120605-JL-S-3	12/6/2005	57
S-4	GW-120605-JL-S-4	12/6/2005	1086
S-5	GW-120605-JL-S-5	12/6/2005	1874
S-6	GW-120605-JL-S-6	12/6/2005	411
S-7	GW-012406-MB-S-7	1/24/2006	1373
S-7D	GW-012406-MB-S-7D	1/24/2006	1546
SG-1	SG-1	7/28/2005	61.3
SG-2	SG-2	7/28/2005	1970
SG-3	SG-3	7/28/2005	-21.4
SW-1	Lake #1~11/30/05	11/30/2005	2464
SW-2	GW-012506-JL-SW-2	1/25/2006	2441
SW-3	GW-120205-NW-FTL-Lake	12/2/2005	96
SW-4	GW-120205-SE-FTL- Lake	12/2/2005	83
VB-1	VB-1~05/27/2005	5/27/2005	51295
VB-1-1	GW-010406-JL-VB1-1	1/4/2006	425
VB-1-1D	GW-010406-JL-VB1-1D	1/4/2006	-132
VB-1-2	GW-111705-JK-VB1-2	11/17/2005	337
VB-1-2D	GW-011306-MB-VB1-2D	1/13/2006	238
VB-1-3	GW-111605-DC-VB1-3	11/15/2005	206
VB-1-3D	GW-011306-MB-VB1-3D	1/13/2006	19431
VB-1-4	GW-111605-DC-VB1-4	11/15/2005	384
VB-1-4D	GW-011306-MB-VB1-4D	1/13/2006	7424
VB-1-5	GW-111605-DC-VB1-5	11/15/2005	130
VB-1-5D	GW-011306-JL-VB1-5D	1/13/2006	22928
VB-1-6	GW-112205-JL-VB1-6	11/22/2005	95
VB-1-6D	GW-011306-JL-VB1-6D	1/13/2006	41
VB-1-7	GW-112205-JL-VB1-7	11/22/2005	140
VB-1-7D	GW010906-MB-VB1-7D	1/9/2006	-116
VB-1-8	GW-112205-JL-VB1-8	11/22/2005	57
VB-1-8D	GW010906-MB-VB1-8D	1/9/2006	10877
VB-1-9	GW-112205-JL-VB1-9	11/22/2005	107
VB-1-9D	GW-011306-MB-VB1-9D	1/13/2006	3370
VB-2-1	GW-111505-DC-VB2-1-Dup	11/15/2005	2.38
VB-2-2	GW-010406-JL-VB2-2	1/4/2006	5232
VB-2-2D	GW-010406-JL-VB2-2D	1/4/2006	4037

TABLE 2

SUMMARY OF TRITIUM RESULTS
IN MONITORING WELLS
EXELON GENERATION
BRAIDWOOD STATION

Location	*Sample Name*	*Sample Date*	*3H-Tritium (pCi/L)*
VB-2-3	GW-111505-DC-VB2-3-Dup	11/15/2005	3460
VB-2-3	GW-111505-DC-VB2-3	11/15/2005	3940
VB-2-4	GW-111505-DC-VB2-4-Dup	11/15/2005	3350
VB-2-4	GW-111505-DC-VB2-4	11/15/2005	3664
VB-2-5	GW-010306-JL-VB2-5	1/3/2006	3834
VB-2-5D	GW-010306-JL-VB2-5D	1/3/2006	102
VB-2-6	GW-010306-JL-VB-2-6	1/3/2006	1412
VB-2-6D	GW-010306-JL-VB-2-6D	1/3/2006	44
VB-2-7	GW-010406-JL-VB2-7	1/4/2006	-60
VB-2-7D	GW-010406-JL-VB2-7D	1/4/2006	-53
VB-2-8	GW-121405-JS-VB-2-8	12/14/2005	-103
VB-2-9	GW-011206-MB-VB2-9	1/12/2006	78
VB-2-9D	GW-011206-MB-VB2-9D	1/12/2006	-65
VB-3	VB-3~05/11/2005	5/11/2005	1521
VB-3-1	GW-111505-DC-VB3-1	11/15/2005	5959
VB-3-1	GW-111505-DC-VB3-1-Dup	11/15/2005	5460
VB-3-10	GW-010306-JL-VB3-10	1/3/2006	12076
VB-3-10D	GW-010306-JL-VB3-10D	1/3/2006	108736
VB-3-2	GW-111505-DC-VB3-2	11/15/2005	32830
VB-3-3	GW-111605-DC-VB3-3	11/16/2005	43894
VB-3-4	GW-010306-JL-VB3-4	1/3/2006	29286
VB-3-4D	GW-010306-JL-VB3-4D	1/3/2006	790
VB-3-5	GW-112205-JL-VB3-5	11/22/2005	95
VB-3-6	GW-112205-JL-VB3-6	11/22/2005	53572
VB-3-7	GW-010306-JL-VB3-7	1/3/2006	-126
VB-3-7D	GW-010306-JL-VB3-7D	1/3/2006	-205
VB-3-8	GW-120205-MK-VB-3-8	12/2/2005	171
VB-3-9D	GW-010406-JL-VB3-9D	1/4/2006	19605

TABLE 3

SUMMARY OF TRITIUM RESULTS
AT PRIVATE WELLS
EXELON GENERATION
BRAIDWOOD STATION

Location	*Sample Date*	*3H-Tritium (pCi/L)*
PW-1	11/30/2005	-26
PW-2	11/30/2005	48
PW-3	11/30/2005	25
PW-4	12/2/2005	43
PW-5	1/19/2006	-12
PW-7	12/7/2005	-58
PW-8	12/8/2005	1367
PW-9	12/5/2005	142
PW-10	12/7/2005	72
PW-11	12/5/2005	99
PW-12	12/7/2005	44
PW-13	12/7/2005	-62
PW-14	12/14/2005	-118
PW-15	12/14/2005	-51

B

APPENDIX B

FIELD PROCEDURES

1.0 SITE-SPECIFIC SAMPLING PLAN

This appendix provides a discussion of the methods used to perform field activities at the Braidwood Station during the investigation of tritium in groundwater.

1.1 PERMANENT MONITORING WELL INSTALLATION

Installation procedures for the permanent monitoring wells are outlined below:

i) Monitoring wells were installed using 4¼-inch inside diameter hollow stem augers.

ii) Upon reaching the target depth, a 10-foot length of No. 10 slot, 2-inch diameter polyvinyl chloride (PVC) well screen and sufficient PVC riser pipe to extend above the ground was installed in the borehole;

iii) A filter sand pack consisting of silica sand was inserted to a general height of 1 to 2 feet above the well screen; and

iv) The short length of borehole annulus remaining above the sand pack was sealed using 3/8-inch diameter bentonite chips.

The permanent wells were fitted with a protective casing and locking cap.

1.2 PERMANENT MONITORING WELL DEVELOPMENT

In order to establish good hydraulic communication with the aquifer and reduce the volume of sediment in the wells, the permanent wells were developed. Well development was conducted in accordance with the procedures outlined below:

i) Water was purged from the well using a peristaltic pump and dedicated tubing.

ii) Groundwater was collected at regular intervals and the pH, temperature, and conductivity were measured using field instruments. These instruments were calibrated daily according to the manufacturer's specifications. Additionally, observations such as color, odor, and turbidity of the purged water were recorded.

iii) Development continued until the turbidity of the monitoring wells was significantly reduced and three consistent readings of pH, temperature, and

conductivity were recorded, or a minimum of ten well volumes were purged.

1.3 TEMPORARY MONITORING WELL INSTALLATION

Shallow and deep temporary monitoring wells were installed using direct push (Geoprobe) methods. Shallow wells range in depth from 11 to 21 feet bgs. Deep wells range in depth from 21 to 41 feet bgs. Deep wells were installed to the top of the underlying clay layer, the location of which was determined at each location in one of two ways. The top of the clay layer was identified by using a Geoprobe macrocore and visually looking at the soil sample retrieved in the macrocore or identified by a noticeable change in resistance encountered by the Geoprobe and noted by the Geoprobe operator.

Installation procedures for the temporary monitoring wells are outlined below:

i) Upon reaching the target depth, a 5-foot length of No. 10 slot, 1-inch diameter PVC well screen and sufficient PVC riser pipe to extend above the ground surface was installed in the borehole;

ii) A filter sand pack consisting of silica sand was inserted to a general height of 1 to 2 feet above the well screen;

iii) Under certain drilling conditions, approximately 2 gallons of water was added to the borehole to keep sand from coming into the boreholes; 1and

iv) the short length of borehole annulus remaining above the sand pack was sealed using 3/8-inch diameter bentonite chips.

The temporary wells were fitted with watertight caps.

1.4 TEMPORARY MONITORING WELL DEVELOPMENT

In order to establish good hydraulic communication with the aquifer and reduce the volume of sediment in the wells, the temporary wells were developed. Well development was conducted in accordance with the procedures outlined below:

[1] Heaving sands were often encountered during drilling and installation of the temporary wells. In order to compensate for the upflow of sand into the Geoprobe core, clean water was added to create a downward head during the installation of the PVC casing.

i) Water was purged from the well using a peristaltic pump and dedicated tubing. Two gallons of water was added during well installation; therefore, two times that amount of water needed to be purged to ensure groundwater samples would be representative of the underlying groundwater.

ii) Groundwater was collected at regular intervals and the pH, temperature, and conductivity were measured using field instruments. These instruments were calibrated daily according to the manufacturer's specifications. Additionally, observations such as color, odor, and turbidity of the purged water were recorded.

iii) Development continued until the turbidity and silt content of the monitoring wells were significantly reduced and three consistent readings of pH, temperature, and conductivity were recorded, or a minimum of ten well volumes were purged.

1.5 INSTALLATION OF RECOVERY WELLS

The recovery wells were advanced to reach the top of the underlying clay layer, between 24 to 28 feet bgs.

Installation procedures for the recovery wells are outlined below:

i) Recovery wells were installed using 6¼-inch inside diameter hollow stem augers.

ii) Upon reaching the target depth, a 20 foot length of No. 10 slot, 4 inch diameter PVC well screen and sufficient PVC riser pipe to extend to the ground was installed in the borehole;

iii) A filter sand pack consisting of silica sand was inserted to a general height of 1 to 2 feet above the well screen; and

iv) The short length of borehole annulus remaining above the sand pack was sealed using 3/8-inch diameter bentonite chips.

The recovery wells were fitted with watertight caps and locking caps. All soil cuttings were containerized into 55-gallon drums, sealed, labeled, and retained on Site.

1.6 RECOVERY WELL DEVELOPMENT

In order to establish good hydraulic communication with the aquifer and reduce the volume of sediment in the wells, the recovery wells were developed. Well development was conducted in accordance with the procedures outlined below:

i) Water was purged from the well using a disposable bailer; and

ii) Two well volumes where removed from the well.

1.7 GROUNDWATER AND SURFACE WATER LEVEL MEASUREMENTS

The depth to water in each well was measured to the nearest 0.01 foot using an electronic water level meter that was cleaned prior to use at each well. To minimize sample turbidity, the water level meter probe was lowered slowly when measuring the total depth of the well. Measurements were recorded after each well installation and at each sampling event. Surface water level measurements were recorded by reading the staff gauges.

1.8 GROUNDWATER SAMPLING AND ANALYSES

Groundwater samples were collected from permanent, temporary, and recovery wells. Groundwater samples collected for tritium analyses were delivered to an Exelon representative, who submitted them to Environmental, Inc. of Northbrook, Illinois, to the Illinois Emergency Management Agency (IEMA), and to the NRC for analyses. Groundwater samples collected for total metals, general chemistry, groundwater quality, sodium, and chloride analyses were hand delivered to First Environmental Laboratories, Inc. (First Environmental) of Naperville, Illinois.

1.8.1 CRA GROUNDWATER SAMPLING PROTOCOLS

Groundwater samples were collected in accordance with the CRA Slow Purging/Minimal Disturbance Protocols specified below.

i) A new pair of disposable latex gloves was used for each sample.

ii) The depth to water in each well was measured to the nearest 0.01 foot using an electronic water level meter. In order to minimize sample turbidity, the probe of the water level meter was lowered slowly to measure the total depth of the well.

iii) Prior to sampling, each well was purged using a peristaltic pump. New tubing was used at each well. The well was purged at a low rate to minimize draw down and sediment agitation.

iv) Permanent and temporary monitoring wells were purged by time intervals.

v) Field measurements of temperature, pH, conductivity, and turbidity of the purged water were obtained and recorded in three time intervals.

vi) After purging for 13 to 20 minutes, water samples were collected using the peristaltic pump. Containers were rinsed three times and filled after the third time of rinsing.

vii) Recovery wells were sampled by using a disposable bailer. Two well volumes were removed prior to sample collection.

The title page of each logbook contained the following information:

- person to whom the logbook is assigned;
- logbook number;
- project name;
- project start date; and
- end date.

Entries into the logbook contained a variety of information. At the beginning of each day's logbook entry, the date, start time, weather conditions, and the names of all sampling team members present were entered. The names of individuals visiting the Site or field sampling team and the purpose of their visit were also recorded in the field logbook.

All field measurements obtained and samples collected were recorded. All logbook entries were made in ink, signed, and dated with no erasures. If an incorrect logbook entry was made, the incorrect information was crossed out with a single strike mark that was initialed and dated by the person making the erroneous entry. The correct information was entered into the logbook adjacent to the original entry.

Whenever a sample was collected or a measurement is made, a detailed description of the location was recorded in the logbook. Photographs taken at a location, if any, were noted in the logbook. All equipment used to obtain field measurements was recorded in the field logbook. In addition, the calibration data for all field measurement equipment was recorded in the field logbook or on the appropriate Field Data Record Form.

The equipment used to collect samples, time of sample collection, sample description, volume and number of containers, and preservatives added (if applicable) were recorded in the field logbook. Each sample was uniquely identified using the sample numbering system developed for this Site.

The following packaging and shipping procedures were used to ensure that the chain-of-custody of samples collected for chemical analysis remains intact:

1. *The field sampler is personally responsible for the care and custody of the samples until they are transferred to another person or the laboratory. As few people as possible will handle the samples.*
2. *All sample containers will be identified by using sample labels that include the unique sample identification number and the date and time of collection. Sample labels will be completed for each sample using waterproof ink.*
3. *A properly completed chain-of-custody form will accompany samples. The sample identification numbers and required analyses will be listed on the chain-of-custody form. When transferring the possession of samples, the individuals relinquishing and receiving the samples will sign and record the date and time on the form. The chain-of-custody form documents sample custody transfers from the sampler to another person, to the laboratory, or to/from a secure storage area.*
4. *Samples will be properly packaged for shipment and dispatched to the laboratory for analysis with a separate signed chain-of-custody form enclosed in each shipping cooler. Shipping coolers will be secured with custody tape for shipment to the laboratory. The custody tape will be covered with clear plastic tape to prevent accidental damage to the custody tape.*
5. *If samples are collocated (split) with a government agency or other entity, it is the responsibility of that entity to prepare its own chain-of-custody form for the samples. Information regarding the identity of the entity and the samples that are being collocated will be recorded in the field logbook.*

6. *The chain-of-custody form identifying its contents will accompany all sample shipments. The chain-of-custody form is a four-part carbonless-copy form. The form is completed by the sampling team, which, after signing and relinquishing custody to the shipper, retains the bottom (goldenrod) copy. The shipper, if different than the sampling team members, retains the pink copy after relinquishing custody to the laboratory. The yellow copy is retained by the laboratory and the fully executed white copy is returned as part of the data deliverables package.*

7. *If the samples are sent by common carrier, a bill of lading (e.g., FedEx airbill) will be used and copies will be retained as permanent documentation. Commercial carriers are not required to sign the chain-of-custody form as long as the form is sealed inside the sample cooler and the custody tape remains intact.*

The above procedures were further expanded to address the requirements of Exelon, Environmental, Inc., and Site conditions. These are presented below.

1.8.2 EXELON GROUNDWATER SAMPLING PROTOCOLS

In addition to the above CRA standard protocols, the procedures were supplemented with Exelon's protocols as specified below.

1) *Sampler shall start with clean empty bottles.*

2) *Purge the well to stabilize the pH, conductivity, and temperature.*

3) *Label the sample bottles with the location and date.*

4) *Obtain a peer check on the label, location, well #, etc., for the first bottle filled at each well.*

5) *Rinse the bottles 3 times.*

6) *Fill at least three (3) bottles for each sample.*

7) *Log each sample and number of containers on the 4-part Chain of Custody form.*

8) *The sampler relinquishes all sample containers to an Exelon employee and signs/dates the 4-part Chain of Custody form as "RELINQUISHED BY".*

9) *The Exelon employee receives all sample containers and signs/dates the 4-part Chain of Custody form as "RECEIVED BY".*

10) *The sampler retains the Shipper Copy (Pink) and the Sampler Copy (Goldenrod) of the 4-part Chain of Custody form.*

11) *The Exelon employee retains the Fully Executed Copy (White) and the Receiving Laboratory Copy (Yellow) of the 4-Part Chain of Custody form.*

12) *The Exelon employee relinquishes at least 1 container of each sample to the Environmental Inc. representative and signs/dates the 4-part Chain of Custody form as "RELINQUISHED BY". The Exelon employee shall note in the remarks column the number of containers of each sample relinquished.*

13) *The Environmental Inc. representative receives the sample containers and signs/dates the 4-part Chain of Custody form as "RECEIVED BY".*

14) *The Environmental Inc. representative retains the Receiving Laboratory Copy (Yellow) of the 4-part Chain of Custody form.*

15) *The Exelon employee retains the Fully Executed Copy (White) of the 4-Part Chain of Custody form.*

16) *The Environmental Inc. representative delivers the sample(s) to Environmental Inc. Midwest Lab.*

17) *The Exelon employee relinquishes all sample containers to the Exelon Tritium Team clerk and signs/dates the 4-part Chain of Custody form as "RELINQUISHED BY".*

18) *The Exelon Tritium Team clerk receives the sample containers and signs/dates the 4-part Chain of Custody form as "RECEIVED BY".*

19) *The Exelon Tritium Team clerk retains the Fully Executed Copy (White) of the 4-Part Chain of Custody form.*

20) *The Exelon Tritium Team clerk shall place one container of each sample in a locked file cabinet drawer labeled "SAMPLES FOR NRC".*

21) *The Exelon Tritium Team clerk shall place one container of each sample in a locked file cabinet drawer labeled "SAMPLES FOR IEMA".*

22) *When requested by the NRC, the Exelon Tritium Team clerk shall relinquish containers from the drawer labeled "SAMPLES FOR NRC"*

and sign a suitable Chain of Custody form provided by the NRC identifying the samples relinquished.

23) *The NRC representative shall receive the containers from the drawer labeled "SAMPLES FOR NRC" and sign the applicable Chain of Custody form.*

24) *The Exelon Tritium Team clerk shall retain a copy of the signed Chain of Custody form provided by the NRC.*

25) *When requested by the IEMA, the Exelon Tritium Team clerk shall relinquish containers from the drawer labeled "SAMPLES FOR IEMA" and sign a suitable Chain of Custody form provided by the IEMA identifying the samples relinquished.*

26) *The IEMA representative shall receive the containers from the drawer labeled "SAMPLES FOR IEMA" and sign the applicable Chain of Custody form.*

27) *The Exelon Tritium Team clerk shall retain a copy of the signed Chain of Custody form provided by the IEMA.*

28) *The Exelon Tritium Team clerk shall maintain a log (hardcopy and/or electronic) of all samples placed in the locked cabinets. As a minimum, for each sample the log shall identify:*

    a) *Sample ID*

    b) *Sample Date*

    c) *Date sample was placed in NRC cabinet*

    d) *Date sample was place in IEMA cabinet*

    e) *Date sample was relinquished to the NRC representative and the NRC representative's name*

    f) *Date sample was relinquished to the IEMA representative and IEMA representative's name*

1.9 SURFACE WATER SAMPLING

Surface water samples were collected as grab samples. Sample bottles were placed into the pond, rinsed three times, and filled half way. The samples were

delivered to an Exelon representative, who shipped them to Environmental, Inc. and the IEMA for chemical analysis of tritium.

1.10 PRIVATE WATER WELL SAMPLING PROGRAMS

Exelon initiated sampling of nearby private wells in November 2005. This routine private well sampling program is for 15 locations (residences) found north of Smiley Road and downgradient of the impacted groundwater areas. The following describes the procedures listed to sample the 15 wells presented on Figure 2.2.

A letter from CRA explaining the voluntary private well residential sampling program was hand delivered to the nearby Braidwood residents by Exelon. Residents were requested to sign an access agreement to allow CRA onto their property to sample their well. Once access was granted, sampling was conducted. Water samples were collected from an outside, unsoftened faucet, if available. If an outside faucet was not available the sample was collected from inside the resident's home. Before collecting a water sample the faucet was run for 15 minutes. After 15 minutes, three 500-milliliter bottles were each rinsed three times each and then filled to the top. The bottles were delivered daily to an Exelon representative, who shipped one bottle to Environmental, Inc., one bottle to the IEMA, and one bottle to the NRC for independent testing. Once results were obtained, a copy of the final laboratory reports was provided to the resident along with an explanation of the test results.

1.11 SINGLE WELL AQUIFER TESTING

Single well hydraulic response tests were performed using rising head methods, wherein the water level in a monitoring well is depressed and water level recovery is monitored over time. A pressure transducer and data logger monitored water levels. Data obtained from the single well response tests was evaluated using the methods developed by Bouwer & Rice (1976).

C

APPENDIX C

MONITORING WELL STRATIGRAPHIC AND INSTRUMENTATION LOGS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: A-1
DATE COMPLETED: January 11, 2006
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. KUHL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	MONITOR WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
2, 4, 6, 8, 10, 12, 14	SP SAND, fine grained, brown		Bentonite Chips; 1" Well Casing; Sand Pack; 1" Well Screen; 2.25" Borehole				
	END OF BOREHOLE @ 15.0ft BGS	15.0					

WELL DETAILS
Screened interval:
10.0 to 15.0ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
0.0 to 9.0ft BGS
Material: Bentonite Chips
Sand Pack:
9.0 to 15.0ft BGS
Material: Global #5

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: A-1D
DATE COMPLETED: January 10, 2006
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. KUHL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	MONITOR WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24	SP SAND, fine grained, brown		Bentonite Chips; 1" Well Casing; Sand Pack; 1" Well Screen; 2.25" Borehole				
26, 28, 30, 32, 34, 36, 38	END OF BOREHOLE @ 25.0ft BGS	25.0					

WELL DETAILS
Screened interval:
20.0 to 25.0ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
0.0 to 19.0ft BGS
Material: Bentonite Chips
Sand Pack:
19.0 to 25.0ft BGS
Material: Global #5

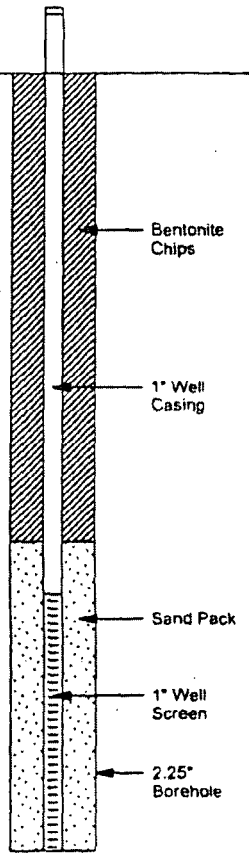
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: BL-06
DATE COMPLETED: November 17, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: D. CRUICKSHANK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	RUN NUMBER	CORE RECOVERY %	RQD %
	TOP OF CASING GROUND SURFACE	601.8 597.7				
	SP SAND, fine grained, brown					
2						
4						
6						
8						
10						
12						
14						
	END OF BOREHOLE @ 15.0ft BGS	582.7				
16						
18						
20						
22						
24						



WELL DETAILS
Screened interval:
587.7 to 582.7ft AMSL
10.0 to 15.0ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
597.7 to 588.7ft AMSL
0.0 to 9.0ft BGS
Material: Bentonite Chips
Sand Pack:
588.7 to 582.7ft AMSL
9.0 to 15.0ft BGS
Material: Global #5

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG
(BEDROCK)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: BL-07
DATE COMPLETED: November 17, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: D. CRUICKSHANK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	RUN NUMBER	CORE RECOVERY %	RQD %
	TOP OF CASING GROUND SURFACE	601.1 597.6				
	SP SAND, fine grained, brown					
2						
4			Bentonite Chips			
6			1" Well Casing			
8						
10			Sand Pack			
12			1" Well Screen			
14			2.25" Borehole			
	END OF BOREHOLE @ 15.0ft BGS	582.6				
16						
18						
20						
22						
24						

WELL DETAILS
Screened interval:
587.6 to 582.6ft AMSL
10.0 to 15.0ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
597.6 to 588.6ft AMSL
0.0 to 9.0ft BGS
Material: Bentonite Chips
Sand Pack:
588.6 to 582.6ft AMSL
9.0 to 15.0ft BGS
Material: Global #5

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: BL-08
DATE COMPLETED: November 17, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: D. CRUICKSHANK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	RUN NUMBER	CORE RECOVERY %	RQD %
	TOP OF CASING GROUND SURFACE	602.3 598.5				
	SP SAND, fine grained, brown					
2						
4			Bentonite Chips			
6			1" Well Casing			
8						
10			Sand Pack			
12			1" Well Screen			
14			2.25" Borehole			
	END OF BOREHOLE @ 15.0ft BGS	583.5				
16						
18						
20						
22						
24						

WELL DETAILS
Screened interval:
588.5 to 583.5ft AMSL
10.0 to 15.0ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
598.5 to 589.5ft AMSL
0.0 to 9.0ft BGS
Material: Bentonite Chips
Sand Pack:
589.5 to 583.5ft AMSL
9.0 to 15.0ft BGS
Material: Global #5

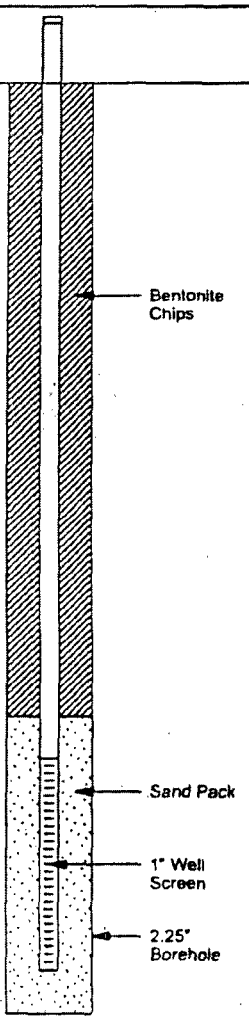
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: BL-09
DATE COMPLETED: December 21, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: J. LUZWICK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	RUN NUMBER	CORE RECOVERY %	RQD %
	TOP OF CASING GROUND SURFACE	602.5 599.6				
	SP SAND, fine grained, brown					
22	END OF BOREHOLE @ 22.0ft BGS	577.6				



WELL DETAILS
Screened interval:
583.6 to 578.6ft AMSL
16.0 to 21.0ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
599.6 to 584.6ft AMSL
0.0 to 15.0ft BGS
Material: Bentonite Chips
Sand Pack:
584.6 to 577.6ft AMSL
15.0 to 22.0ft BGS
Material: Global #5

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: BL-9D
DATE COMPLETED: December 21, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: J. LUZWICK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE
	TOP OF CASING GROUND SURFACE	600.4 599.7					
2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28	SP SAND, fine grained, brown		Bentonite Chips 1" Well Casing Sand Pack 1" Well Screen 2.25" Borehole				
30, 32, 34, 36, 38, 40, 42	END OF BOREHOLE @ 29.0ft BGS	570.7					

WELL DETAILS
Screened interval:
575.7 to 570.7ft AMSL
24.0 to 29.0ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
599.7 to 575.7ft AMSL
0.0 to 23.0ft BGS
Material: Bentonite Chips
Sand Pack:
576.7 to 570.7ft AMSL
23.0 to 29.0ft BGS
Material: Global #5

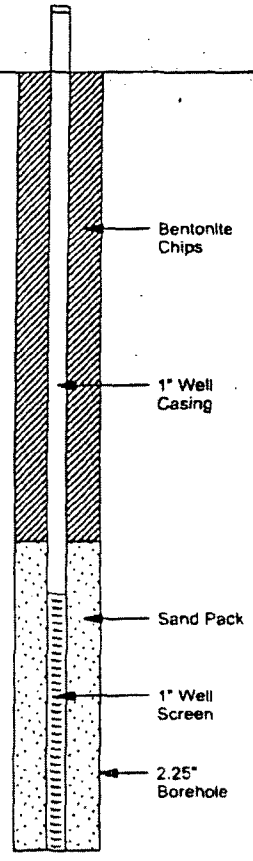
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: BL-10
DATE COMPLETED: November 17, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: D. CRUICKSHANK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE
	TOP OF CASING GROUND SURFACE	605.4 602.5					
2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24	SP SAND, fine grained, brown						
	END OF BOREHOLE @ 15.0ft BGS	587.5					



WELL DETAILS
Screened interval:
592.5 to 587.5ft AMSL
10.0 to 15.0ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
602.5 to 593.5ft AMSL
0.0 to 9.0ft BGS
Material: Bentonite Chips
Sand Pack:
593.5 to 587.5ft AMSL
9.0 to 15.0ft BGS
Material: Global #5

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: BL-10D
DATE COMPLETED: December 15, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: J. LUZWICK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	TOP OF CASING GROUND SURFACE	605.2 602.4					
2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44	SP SAND, fine grained, brown		Bentonite Chips 1" Well Casing Sand Pack 1" Well Screen 2.25" Borehole				
	END OF BOREHOLE @ 32.0ft BGS	570.4					

WELL DETAILS
Screened interval:
575.4 to 570.4ft AMSL
27.0 to 32.0ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
602.4 to 577.4ft AMSL
0.0 to 25.0ft BGS
Material: Bentonite Chips
Sand Pack:
577.4 to 570.4ft AMSL
25.0 to 32.0ft BGS
Material: Global #5

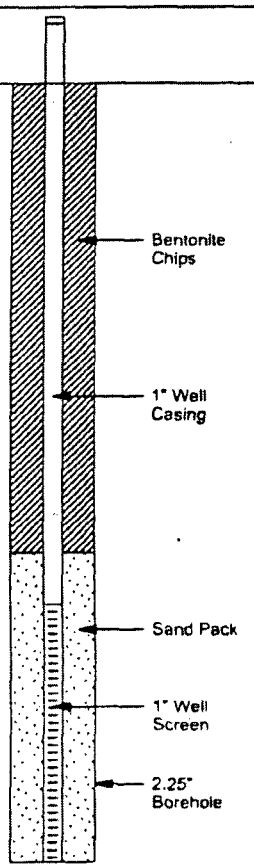
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: BL-11
DATE COMPLETED: November 17, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: D. CRUICKSHANK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	TOP OF CASING GROUND SURFACE	600.7 597.5					
2, 4, 6, 8, 10, 12, 14	SP SAND, fine grained, brown		Bentonite Chips; 1" Well Casing; Sand Pack; 1" Well Screen; 2.25" Borehole				
	END OF BOREHOLE @ 15.0ft BGS	582.5					
16, 18, 20, 22, 24							



WELL DETAILS
Screened interval:
587.5 to 582.5ft AMSL
10.0 to 15.0ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
597.5 to 588.5ft AMSL
0.0 to 9.0ft BGS
Material: Bentonite Chips
Sand Pack:
588.5 to 582.5ft AMSL
9.0 to 15.0ft BGS
Material: Global #5

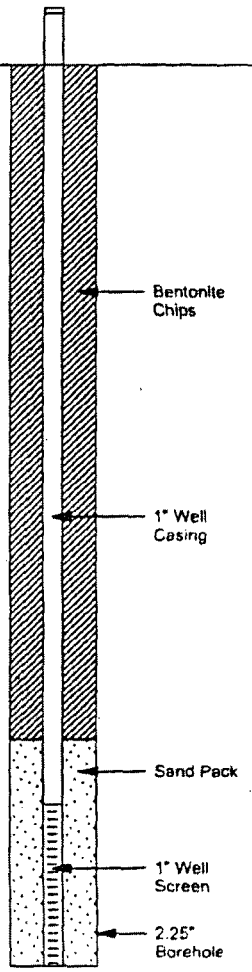
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: BL-11D
DATE COMPLETED: December 15, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: J. LUZWICK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	TOP OF CASING GROUND SURFACE	599.1 597.3					
	SP SAND, fine grained, brown						
28	END OF BOREHOLE @ 28.0ft BGS	569.3					



WELL DETAILS
Screened interval:
574.3 to 569.3ft AMSL
23.0 to 28.0ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
597.3 to 576.3ft AMSL
0.0 to 21.0ft BGS
Material: Bentonite Chips
Sand Pack:
576.3 to 569.3ft AMSL
21.0 to 28.0ft BGS
Material: Global #5

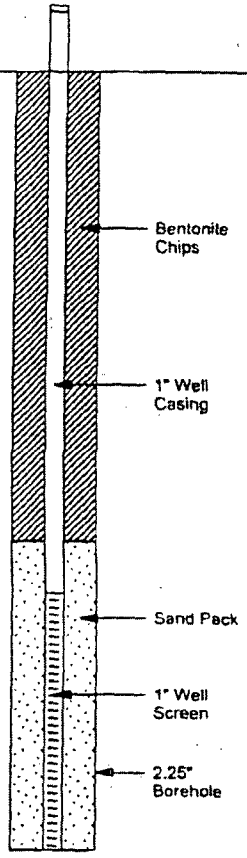
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: BL-12
DATE COMPLETED: November 17, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: D. CRUICKSHANK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE
	TOP OF CASING GROUND SURFACE	601.6 598.0					
	SP SAND, fine grained, brown						
2							
4							
6							
8							
10							
12							
14							
	END OF BOREHOLE @ 15.0ft BGS	583.0					
16							
18							
20							
22							
24							



WELL DETAILS
Screened interval:
588.0 to 583.0ft AMSL
10.0 to 15.0ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
598.0 to 589.0ft AMSL
0.0 to 9.0ft BGS
Material: Bentonite Chips
Sand Pack:
589.0 to 583.0ft AMSL
9.0 to 15.0ft BGS
Material: Global #5

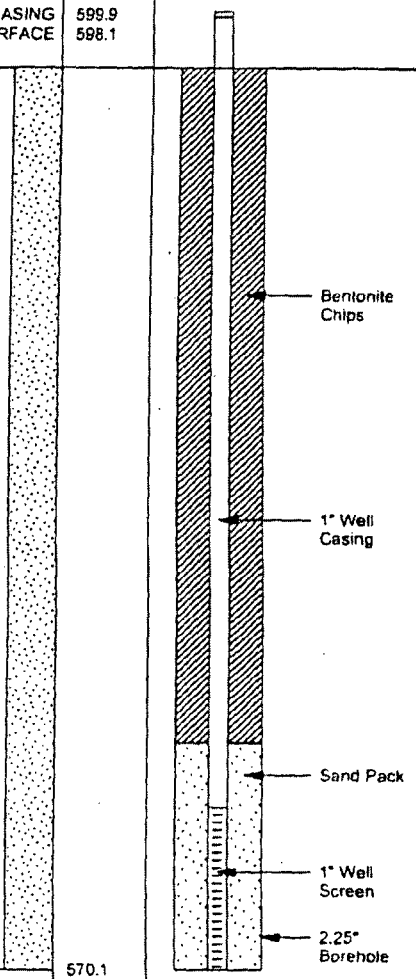
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE: REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: BL-12D
DATE COMPLETED: December 15, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: J. LUZWICK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	TOP OF CASING GROUND SURFACE	599.9 598.1					
2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40	SP SAND, fine grained, brown		Bentonite Chips 1" Well Casing Sand Pack 1" Well Screen 2.25" Borehole				
	END OF BOREHOLE @ 28.0ft BGS	570.1					



WELL DETAILS
Screened interval:
575.1 to 570.1ft AMSL
23.0 to 28.0ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
596.1 to 577.1ft AMSL
0.0 to 21.0ft BGS
Material: Bentonite Chips
Sand Pack:
577.1 to 570.1ft AMSL
21.0 to 28.0ft BGS
Material: Global #5

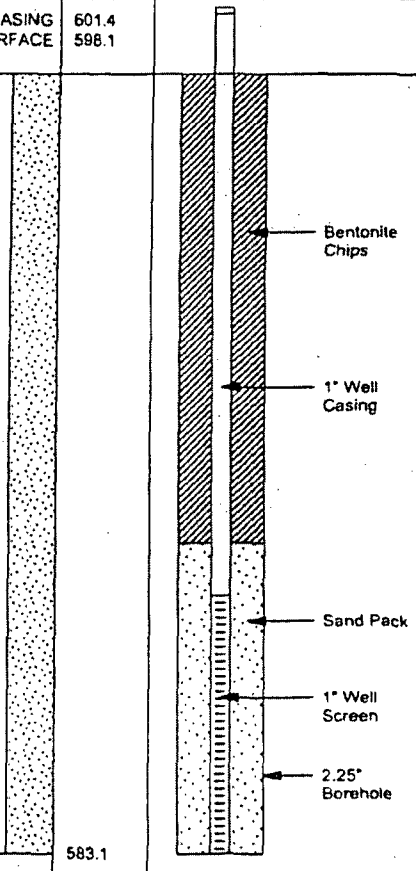
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: BL-13
DATE COMPLETED: November 17, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: D. CRUICKSHANK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	TOP OF CASING GROUND SURFACE	601.4 598.1					
	SP SAND, fine grained, brown						
2							
4			Bentonite Chips				
6			1" Well Casing				
8							
10			Sand Pack				
12			1" Well Screen				
14			2.25" Borehole				
	END OF BOREHOLE @ 15.0ft BGS	583.1					
16							
18							
20							
22							
24							



WELL DETAILS
Screened interval:
588.1 to 583.1ft AMSL
10.0 to 15.0ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
598.1 to 589.1ft AMSL
0.0 to 9.0ft BGS
Material: Bentonite Chips
Sand Pack:
589.1 to 583.1ft AMSL
9.0 to 15.0ft BGS
Material: Global #5

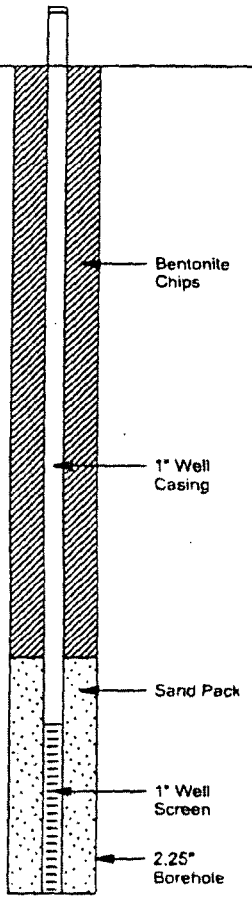
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: BL-13D
DATE COMPLETED: December 15, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: J. LUZWICK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	TOP OF CASING GROUND SURFACE	600.8 598.1					
2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24	SP SAND, fine grained, brown		Bentonite Chips 1" Well Casing Sand Pack 1" Well Screen 2.25" Borehole				
	END OF BOREHOLE @ 24.5ft BGS	573.6					



WELL DETAILS
Screened interval:
578.6 to 573.6ft AMSL
19.5 to 24.5ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
598.1 to 580.6ft AMSL
0.0 to 17.5ft BGS
Material: Bentonite Chips
Sand Pack:
580.6 to 573.6ft AMSL
17.5 to 24.5ft BGS
Material: Global #5

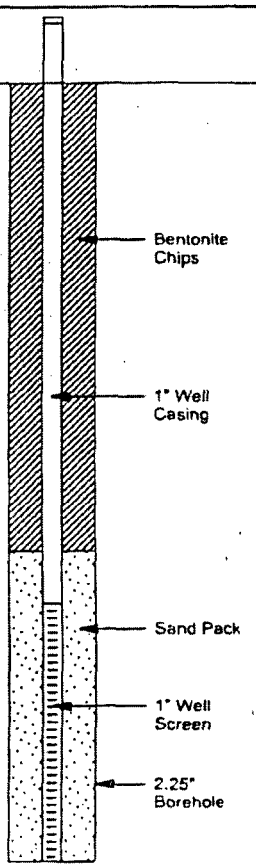
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: BL-14
DATE COMPLETED: November 17, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: D. CRUICKSHANK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE
	TOP OF CASING GROUND SURFACE	601.3 597.3					
	SP SAND, fine grained, brown						
2							
4							
6							
8							
10							
12							
14							
	END OF BOREHOLE @ 15.0ft BGS	582.3					
16							
18							
20							
22							
24							



WELL DETAILS
Screened interval:
587.3 to 582.3ft AMSL
10.0 to 15.0ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
597.3 to 588.3ft AMSL
0.0 to 9.0ft BGS
Material: Bentonite Chips
Sand Pack:
588.3 to 582.3ft AMSL
9.0 to 15.0ft BGS
Material: Global #5

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: BL-14D
DATE COMPLETED: December 15, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: J. LUZWICK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	TOP OF CASING GROUND SURFACE	599.9 597.5					
2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26	SP SAND, fine grained, brown		Bentonite Chips; 1" Well Casing; Sand Pack; 1" Well Screen; 2.25" Borehole				
	END OF BOREHOLE @ 26.5ft BGS	571.0					

WELL DETAILS
Screened interval:
576.0 to 571.0ft AMSL
21.5 to 26.5ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
597.5 to 578.0ft AMSL
0.0 to 19.5ft BGS
Material: Bentonite Chips
Sand Pack:
578.0 to 571.0ft AMSL
19.5 to 26.5ft BGS
Material: Global #5

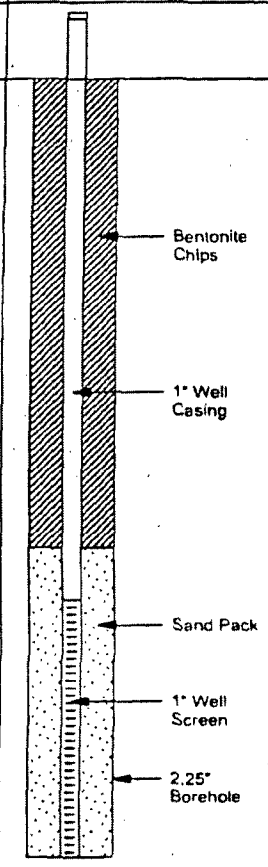
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: BL-15
DATE COMPLETED: November 17, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: D. CRUICKSHANK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE
	TOP OF CASING GROUND SURFACE	601.0 597.3					
2, 4, 6, 8, 10, 12, 14	SP SAND, fine grained, brown						
	END OF BOREHOLE @ 15.0ft BGS	582.3					



WELL DETAILS
Screened interval:
587.3 to 582.3ft AMSL
10.0 to 15.0ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
597.3 to 586.3ft AMSL
0.0 to 9.0ft BGS
Material: Bentonite Chips
Sand Pack:
586.3 to 582.3ft AMSL
9.0 to 15.0ft BGS
Material: Global #5

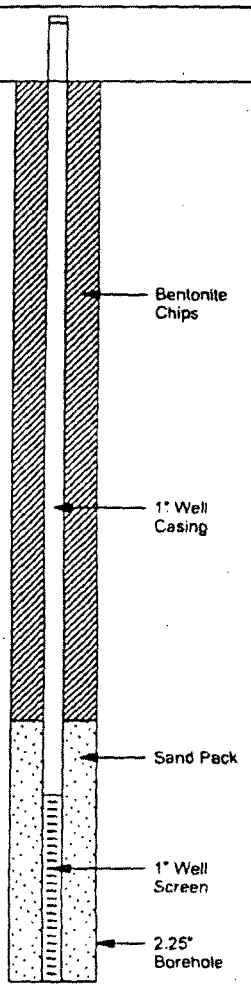
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: BL-15D
DATE COMPLETED: December 16, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: J. LUZWICK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	TOP OF CASING GROUND SURFACE	598.5 597.5					
2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34	SP SAND, fine grained, brown						
24	END OF BOREHOLE @ 24.0ft BGS	573.5					



WELL DETAILS
Screened interval:
576.5 to 573.5ft AMSL
19.0 to 24.0ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
597.5 to 580.5ft AMSL
0.0 to 17.0ft BGS
Material: Bentonite Chips
Sand Pack:
580.5 to 573.5ft AMSL
17.0 to 24.0ft BGS
Material: Global #5

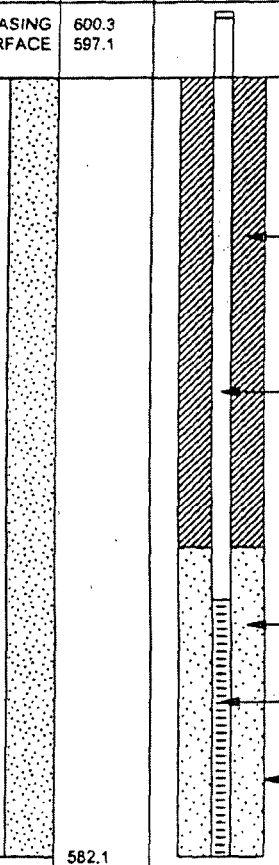
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: BL-16
DATE COMPLETED: November 17, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: D. CRUICKSHANK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE
	TOP OF CASING GROUND SURFACE	600.3 597.1					
	SP SAND, fine grained, brown						
2			Bentonite Chips				
4							
6			1" Well Casing				
8							
10			Sand Pack				
12			1" Well Screen				
14			2.25" Borehole				
	END OF BOREHOLE @ 15.0ft BGS	582.1					
16							
18							
20							
22							
24							



WELL DETAILS
Screened interval:
587.1 to 582.1ft AMSL
10.0 to 15.0ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
597.1 to 588.1ft AMSL
0.0 to 9.0ft BGS
Material: Bentonite Chips
Sand Pack:
588.1 to 582.1ft AMSL
9.0 to 15.0ft BGS
Material: Global #5

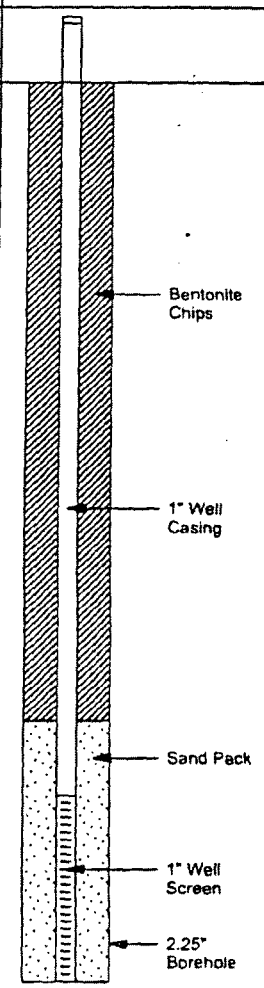
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: BL-16D
DATE COMPLETED: December 16, 1958
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: J. LUZWICK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	TOP OF CASING GROUND SURFACE	598.2 597.3					
2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34	SP SAND, fine grained, brown						
24	END OF BOREHOLE @ 24.0ft BGS	573.3					



WELL DETAILS
Screened interval:
578.3 to 573.3ft AMSL
19.0 to 24.0ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
597.3 to 580.3ft AMSL
0.0 to 17.0ft BGS
Material: Bentonite Chips
Sand Pack:
580.3 to 573.3ft AMSL
17.0 to 24.0ft BGS
Material: Global #5

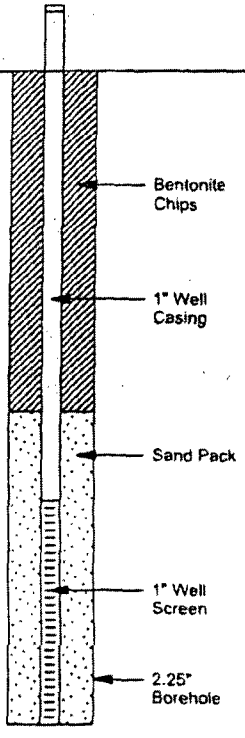
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: BL-17
DATE COMPLETED: December 1, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: J. LUZWICK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	TOP OF CASING GROUND SURFACE	597.6 597.0					
2, 4, 6, 8, 10, 12, 14	SP SAND, fine grained, brown		Bentonite Chips; 1" Well Casing; Sand Pack; 1" Well Screen; 2.25" Borehole				
	END OF BOREHOLE @ 14.5ft BGS	582.5					



WELL DETAILS
Screened interval:
587.5 to 582.5ft AMSL
9.5 to 14.5ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
597.0 to 589.5ft AMSL
0.0 to 7.5ft BGS
Material: Bentonite Chips
Sand Pack:
589.5 to 582.5ft AMSL
7.5 to 14.5ft BGS
Material: Global #5

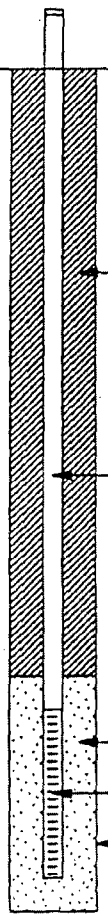
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: BL-17D
DATE COMPLETED: December 12, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: J. LUZWICK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	TOP OF CASING GROUND SURFACE	598.1 597.0					
	SP SAND, fine grained, brown						
2							
4							
6			Bentonite Chips				
8							
10							
12			1" Well Casing				
14							
16							
18							
20			Sand Pack				
22			1" Well Screen				
24			2.25" Borehole				
	Top of clay at 25 ft bgs						
	END OF BOREHOLE @ 25.0ft BGS	572.0					
26							
28							
30							
32							
34							
36							
38							



WELL DETAILS
Screened interval:
578.0 to 573.0ft AMSL
19.0 to 24.0ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
597.0 to 579.0ft AMSL
0.0 to 18.0ft BGS
Material: Bentonite Chips
Sand Pack:
579.0 to 572.0ft AMSL
18.0 to 25.0ft BGS
Material: Global #5

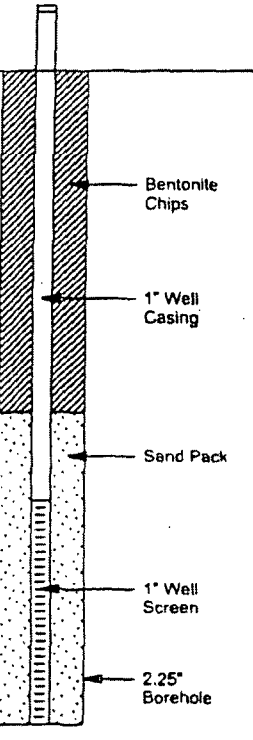
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: BL-18
DATE COMPLETED: December 1, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: J. LUZWICK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	TOP OF CASING GROUND SURFACE	597.6 596.8					
	SP SAND, fine grained, brown						
2							
4							
6							
8							
10							
12							
14							
	END OF BOREHOLE @ 14.5ft BGS	582.3					
16							
18							
20							
22							
24							
26							
28							



WELL DETAILS
Screened interval:
587.3 to 582.3ft AMSL
9.5 to 14.5ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
596.8 to 589.3ft AMSL
0.0 to 7.5ft BGS
Material: Bentonite Chips
Sand Pack:
589.3 to 582.3ft AMSL
7.5 to 14.5ft BGS
Material: Global #5

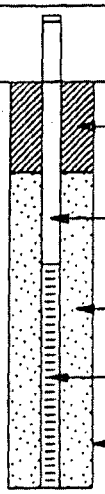
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: BL-19
DATE COMPLETED: December 1, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: J. LUZWICK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE
	TOP OF CASING GROUND SURFACE	595.6 594.9					
2, 4, 6, 8	SP SAND, fine grained, brown		Bentonite Chips 1" Well Casing Sand Pack 1" Well Screen 2.25" Borehole				
	END OF BOREHOLE @ 9.0ft BGS	585.9					



WELL DETAILS
Screened Interval:
590.9 to 585.9ft AMSL
4.0 to 9.0ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
594.9 to 592.9ft AMSL
0.0 to 2.0ft BGS
Material: Bentonite Chips
Sand Pack:
592.9 to 585.9ft AMSL
2.0 to 9.0ft BGS
Material: Global #5

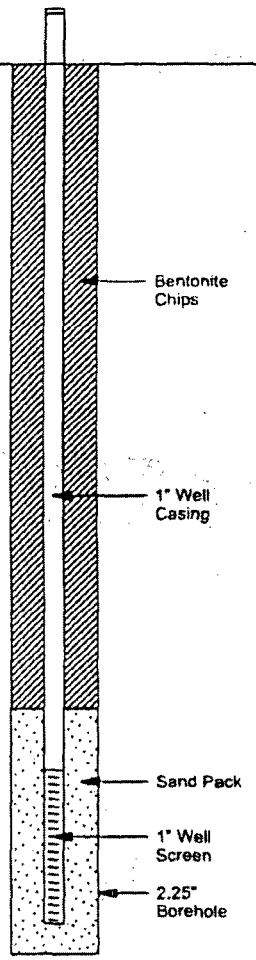
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: BL-20D
DATE COMPLETED: December 21, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: J. LUZWICK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE
	TOP OF CASING GROUND SURFACE	600.5 596.9					
	SP SAND, fine grained, brown						
29.0	END OF BOREHOLE @ 29.0ft BGS	567.9					



WELL DETAILS
Screened interval:
573.9 to 568.9ft AMSL
23.0 to 28.0ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
596.9 to 575.9ft AMSL
0.0 to 21.0ft BGS
Material: Bentonite Chips
Sand Pack:
575.9 to 567.9ft AMSL
21.0 to 29.0ft BGS
Material: Global #5

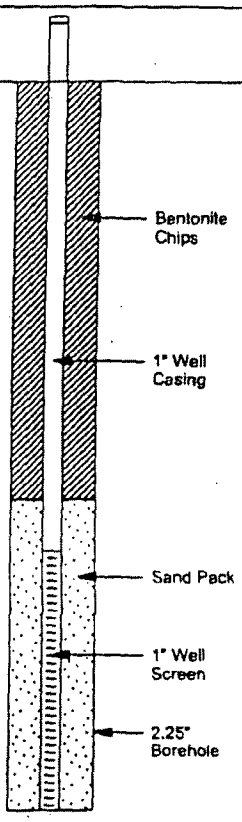
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: C-1
DATE COMPLETED: December 12, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: J. LUZWICK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	TOP OF CASING GROUND SURFACE	595.8 595.0					
	SP SAND, fine grained, brown						
14	END OF BOREHOLE @ 14.0ft BGS	581.0					



WELL DETAILS
Screened interval:
586.0 to 581.0ft AMSL
9.0 to 14.0ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
595.0 to 587.0ft AMSL
0.0 to 8.0ft BGS
Material: Bentonite Chips
Sand Pack:
587.0 to 581.0ft AMSL
8.0 to 14.0ft BGS
Material: Global #5

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: C-1D
DATE COMPLETED: December 12, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: J. LUZWICK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	TOP OF CASING GROUND SURFACE	595.9 595.0					
2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24	SP SAND, fine grained, brown		Bentonite Chips 1" Well Casing Sand Pack 1" Well Screen 2.25" Borehole				
26, 28, 30, 32, 34, 36, 38	END OF BOREHOLE @ 25.0ft BGS Clay at 25 ft BGS	570.0					

WELL DETAILS
Screened interval:
576.0 to 571.0ft AMSL
19.0 to 24.0ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
595.0 to 577.0ft AMSL
0.0 to 18.0ft BGS
Material: Bentonite Chips
Sand Pack:
577.0 to 570.0ft AMSL
18.0 to 25.0ft BGS
Material: Global #5

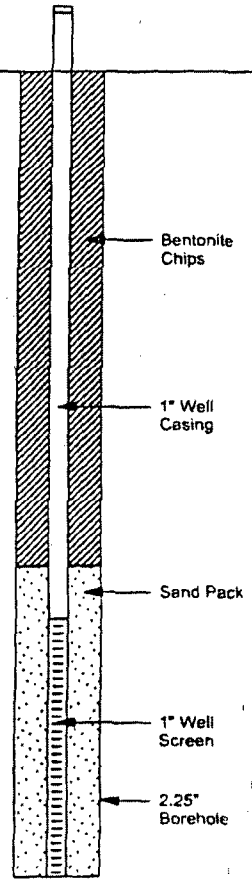
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: C-2
DATE COMPLETED: January 24, 2006
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. KUHL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	TOP OF CASING GROUND SURFACE	610.9 606.9					
2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24	SP SAND, fine grained, brown						
	END OF BOREHOLE @ 15.5ft BGS	591.4					



WELL DETAILS
Screened interval:
596.4 to 591.4ft AMSL
10.5 to 15.5ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
606.9 to 597.4ft AMSL
0.0 to 9.5ft BGS
Material: Bentonite Chips
Sand Pack:
597.4 to 591.4ft AMSL
9.5 to 15.5ft BGS
Material: Global #5

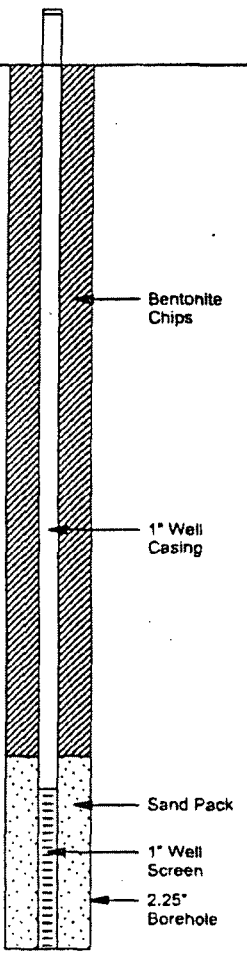
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: C-2D
DATE COMPLETED: January 24, 2006
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. KUHL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE
	TOP OF CASING GROUND SURFACE	609.0 606.8					
	SP SAND, fine grained, brown						
28	END OF BOREHOLE @ 27.5ft BGS	579.3					



WELL DETAILS
Screened interval:
584.3 to 579.3ft AMSL
22.5 to 27.5ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
606.8 to 585.3ft AMSL
0.0 to 21.5ft BGS
Material: Bentonite Chips
Sand Pack:
585.3 to 579.3ft AMSL
21.5 to 27.5ft BGS
Material: Global #5

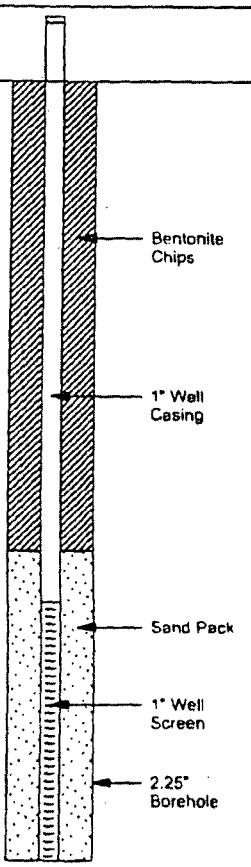
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: D-1
DATE COMPLETED: December 2, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: J. LUZWICK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	TOP OF CASING GROUND SURFACE	603.7 599.6					
	SP SAND, fine grained, brown						
2							
4							
6							
8							
10							
12							
14							
	END OF BOREHOLE @ 15.0ft BGS	584.6					
16							
18							
20							
22							
24							



WELL DETAILS
Screened interval:
589.6 to 584.6ft AMSL
10.0 to 15.0ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
599.6 to 590.6ft AMSL
0.0 to 9.0ft BGS
Material: Bentonite Chips
Sand Pack:
590.6 to 584.6ft AMSL
9.0 to 15.0ft BGS
Material: Global #5

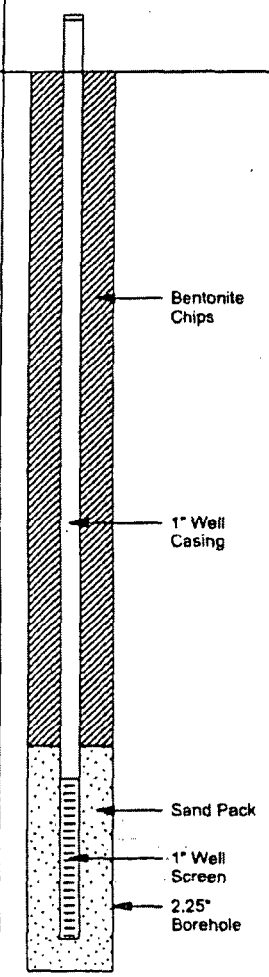
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: D-1D
DATE COMPLETED: December 22, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: J. LUZWICK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE
	TOP OF CASING GROUND SURFACE	603.8 599.8					
	SP SAND, fine grained, brown						
28	END OF BOREHOLE @ 28.0ft BGS	571.8					



WELL DETAILS
Screened interval:
577.8 to 572.8ft AMSL
22.0 to 27.0ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
599.8 to 578.8ft AMSL
0.0 to 21.0ft BGS
Material: Bentonite Chips
Sand Pack:
578.8 to 571.8ft AMSL
21.0 to 28.0ft BGS
Material: Global #5

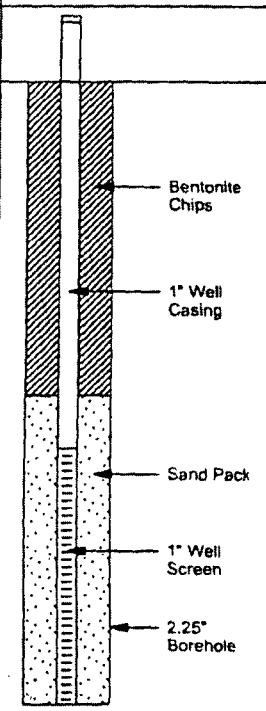
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: D-2
DATE COMPLETED: December 2, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: J. LUZWICK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	TOP OF CASING GROUND SURFACE	601.9 598.8					
	SP SAND, fine grained, brown						
12	END OF BOREHOLE @ 12.0ft BGS	586.8					



WELL DETAILS
Screened interval:
591.8 to 586.8ft AMSL
7.0 to 12.0ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
598.8 to 592.8ft AMSL
0.0 to 6.0ft BGS
Material: Bentonite Chips
Sand Pack:
592.8 to 586.8ft AMSL
6.0 to 12.0ft BGS
Material: Global #5

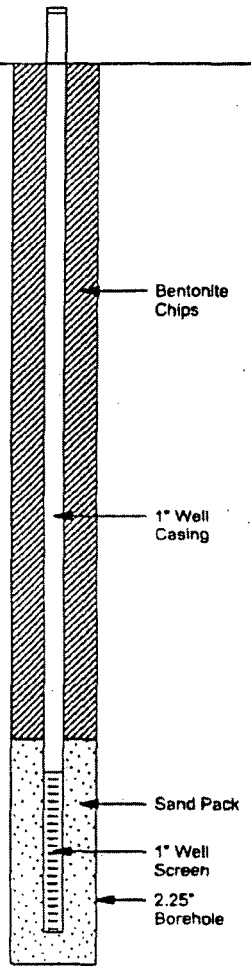
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: D-2D
DATE COMPLETED: December 22, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: J. LUZWICK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE
	TOP OF CASING GROUND SURFACE	601.5 598.7					
2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26	SP SAND, fine grained, brown						
28	END OF BOREHOLE @ 28.0ft BGS	570.7					
30, 32, 34, 36, 38, 40							



WELL DETAILS
Screened interval:
576.7 to 571.7ft AMSL
22.0 to 27.0ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
598.7 to 577.7ft AMSL
0.0 to 21.0ft BGS
Material: Bentonite Chips
Sand Pack:
577.7 to 570.7ft AMSL
21.0 to 28.0ft BGS
Material: Global #5

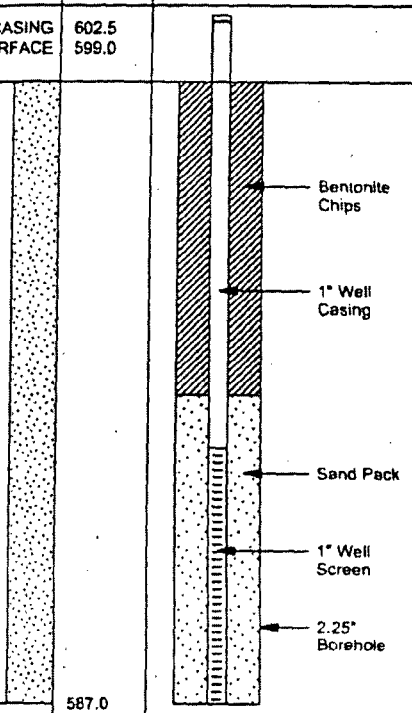
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: D-3
DATE COMPLETED: December 2, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: J. LUZWICK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	TOP OF CASING GROUND SURFACE	602.5 599.0					
	SP SAND, fine grained, brown						
12	END OF BOREHOLE @ 12.0ft BGS	587.0					



WELL DETAILS
Screened Interval:
592.0 to 587.0ft AMSL
7.0 to 12.0ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
599.0 to 593.0ft AMSL
0.0 to 6.0ft BGS
Material: Bentonite Chips
Sand Pack:
593.0 to 587.0ft AMSL
6.0 to 12.0ft BGS
Material: Global #5

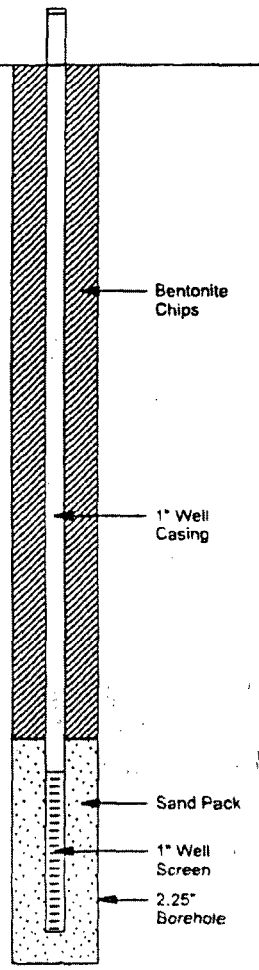
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: D-3D
DATE COMPLETED: December 22, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: J. LUZWICK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE
	TOP OF CASING GROUND SURFACE	602.2 598.9					
	SP SAND, fine grained, brown						
28	END OF BOREHOLE @ 28.0ft BGS	570.9					



WELL DETAILS
Screened interval:
576.9 to 571.9ft AMSL
22.0 to 27.0ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
598.9 to 577.9ft AMSL
0.0 to 21.0ft BGS
Material: Bentonite Chips
Sand Pack:
577.9 to 570.9ft AMSL
21.0 to 28.0ft BGS
Material: Global #5

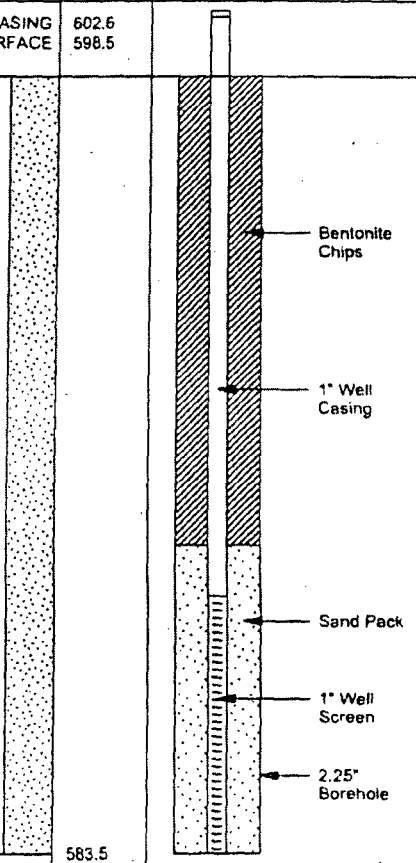
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: D-4
DATE COMPLETED: December 2, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: J. LUZWICK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	TOP OF CASING GROUND SURFACE	602.6 598.5					
	SP SAND, fine grained, brown						
2							
4							
6							
8							
10							
12							
14							
	END OF BOREHOLE @ 15.0ft BGS	583.5					
16							
18							
20							
22							
24							



WELL DETAILS
Screened interval:
588.5 to 583.5ft AMSL
10.0 to 15.0ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
598.5 to 589.5ft AMSL
0.0 to 9.0ft BGS
Material: Bentonite Chips
Sand Pack:
589.5 to 583.5ft AMSL
9.0 to 15.0ft BGS
Material: Global #5

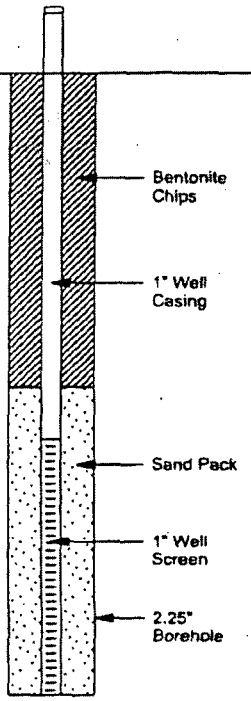
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: D-5
DATE COMPLETED: December 2, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: J. LUZWICK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE
	TOP OF CASING GROUND SURFACE	602.3 598.6					
	SP SAND, fine grained, brown						
12	END OF BOREHOLE @ 12.0ft BGS	586.6					



WELL DETAILS
Screened interval:
591.6 to 586.6ft AMSL
7.0 to 12.0ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
598.6 to 592.6ft AMSL
0.0 to 6.0ft BGS
Material: Bentonite Chips
Sand Pack:
592.6 to 586.6ft AMSL
6.0 to 12.0ft BGS
Material: Global #5

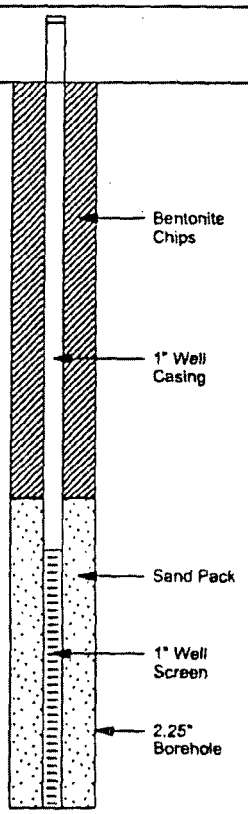
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: F-1
DATE COMPLETED: December 12, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: J. LUZWICK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	TOP OF CASING GROUND SURFACE	596.3 595.3					
	SP SAND, fine grained, brown						
14	END OF BOREHOLE @ 14.0ft BGS	581.3					



WELL DETAILS
Screened interval:
586.3 to 581.3ft AMSL
9.0 to 14.0ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
595.3 to 587.3ft AMSL
0.0 to 8.0ft BGS
Material: Bentonite Chips
Sand Pack:
587.3 to 581.3ft AMSL
8.0 to 14.0ft BGS
Material: Global #5

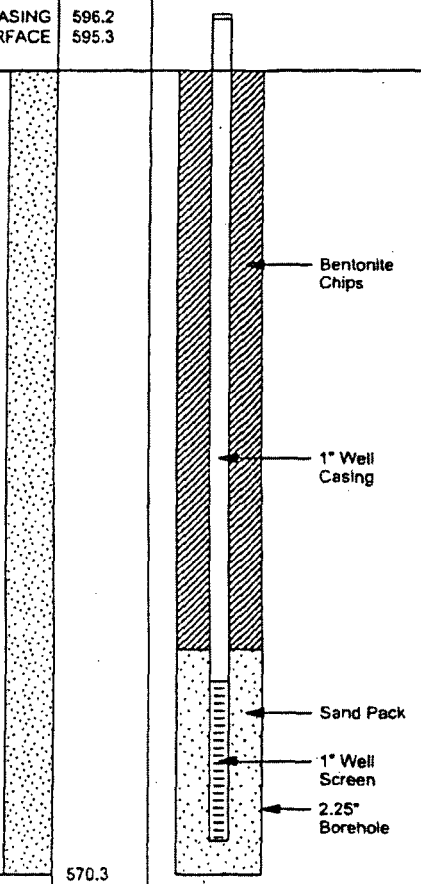
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: F-1D
DATE COMPLETED: December 12, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: J. LUZWICK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE
	TOP OF CASING GROUND SURFACE	596.2 595.3					
2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24	SP SAND, fine grained, brown						
26, 28, 30, 32, 34, 36, 38, 40	END OF BOREHOLE @ 25.0ft BGS Clay at 25 ft BGS	570.3					



WELL DETAILS
Screened interval:
576.3 to 571.3ft AMSL
19.0 to 24.0ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
595.3 to 577.3ft AMSL
0.0 to 18.0ft BGS
Material: Bentonite Chips
Sand Pack:
577.3 to 570.3ft AMSL
18.0 to 25.0ft BGS
Material: Global #5

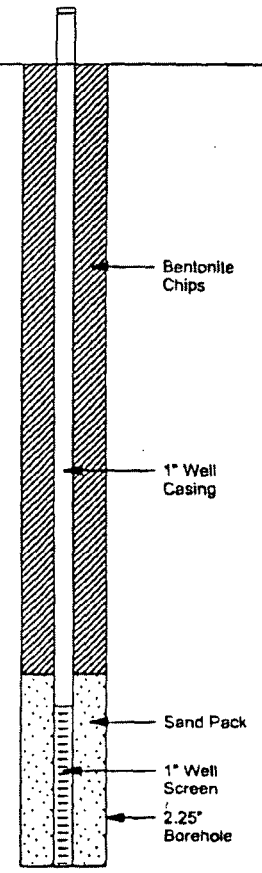
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: F-2D
DATE COMPLETED: January 9, 2006
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. KUHL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE
	TOP OF CASING GROUND SURFACE	597.3 594.1					
2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24	SP SAND, fine grained, brown						
26, 28, 30, 32, 34, 36, 38, 40	END OF BOREHOLE @ 25.0ft BGS	569.1					



WELL DETAILS
Screened interval:
574.1 to 569.1ft AMSL
20.0 to 25.0ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
594.1 to 575.1ft AMSL
0.0 to 19.0ft BGS
Material: Bentonite Chips
Sand Pack:
575.1 to 569.1ft AMSL
19.0 to 25.0ft BGS
Material: Global #5

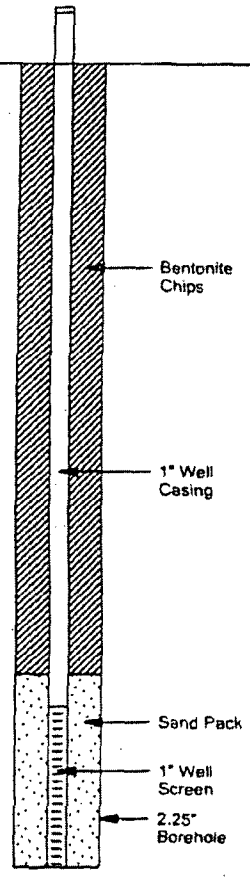
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: F-3D
DATE COMPLETED: January 9, 2006
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. KUHL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE
	TOP OF CASING GROUND SURFACE	597.4 594.6					
2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24	SP SAND, fine grained, brown						
26, 28, 30, 32, 34, 36, 38, 40	END OF BOREHOLE @ 25.0ft BGS	569.6					



WELL DETAILS
Screened Interval:
574.6 to 569.6ft AMSL
20.0 to 25.0ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
594.6 to 575.6ft AMSL
0.0 to 19.0ft BGS
Material: Bentonite Chips
Sand Pack:
575.6 to 569.6ft AMSL
19.0 to 25.0ft BGS
Material: Global #5

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: F-4D
DATE COMPLETED: January 24, 2006
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. KUHL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE
	TOP OF CASING GROUND SURFACE	599.6 595.6					
2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28	SP SAND, fine grained, brown		Bentonite Chips 1" Well Casing Sand Pack 1" Well Screen 2.25" Borehole				
30, 32, 34, 36, 38, 40, 42, 44	END OF BOREHOLE @ 29.5ft BGS	566.1					

WELL DETAILS
Screened interval:
571.1 to 566.1ft AMSL
24.5 to 29.5ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
595.6 to 572.1ft AMSL
0.0 to 23.5ft BGS
Material: Bentonite Chips
Sand Pack:
572.1 to 566.1ft AMSL
23.5 to 29.5ft BGS
Material: Global #5

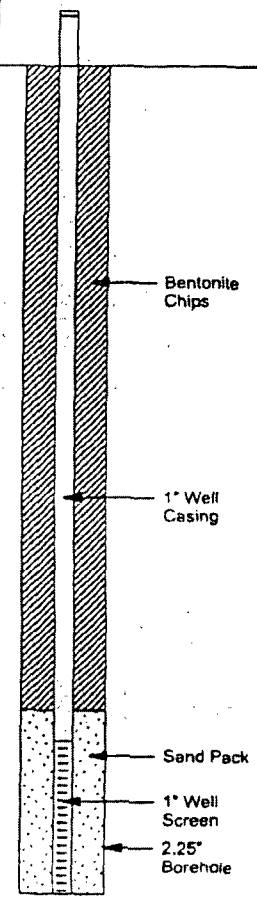
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: F-5D
DATE COMPLETED: January 24, 2006
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. KUHL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	TOP OF CASING GROUND SURFACE	596.0 593.4					
	SP SAND, fine grained, brown						
2							
4							
6							
8							
10							
12							
14							
16							
18							
20							
22							
24							
26							
	END OF BOREHOLE @ 27.0ft BGS	566.4					
28							
30							
32							
34							
36							
38							
40							
42							



WELL DETAILS
Screened interval:
571.4 to 566.4ft AMSL
22.0 to 27.0ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
593.4 to 572.4ft AMSL
0.0 to 21.0ft BGS
Material: Bentonite Chips
Sand Pack:
572.4 to 566.4ft AMSL
21.0 to 27.0ft BGS
Material: Global #5

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: F-6D
DATE COMPLETED: January 24, 2006
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. KUHL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	TOP OF CASING GROUND SURFACE	597.3 595.1					
2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26	SP SAND, fine grained, brown		Bentonite Chips 1" Well Casing Sand Pack 1" Well Screen 2.25" Borehole				
28, 30, 32, 34, 36, 38, 40, 42	END OF BOREHOLE @ 27.5ft BGS	567.6					

WELL DETAILS
Screened interval:
572.6 to 567.6ft AMSL
22.5 to 27.5ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
595.1 to 573.6ft AMSL
0.0 to 21.5ft BGS
Material: Bentonite Chips
Sand Pack:
573.6 to 567.6ft AMSL
21.5 to 27.5ft BGS
Material: Global #5

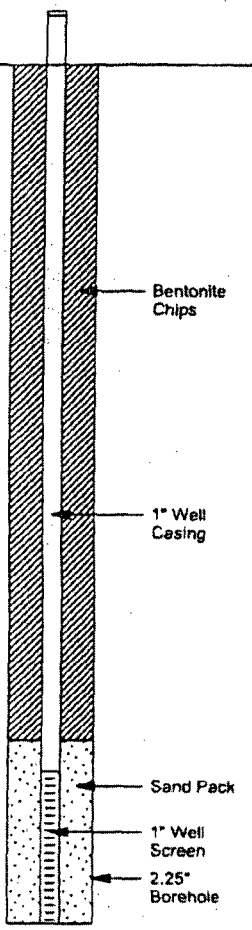
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: F-7D
DATE COMPLETED: January 24, 2006
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. KUHL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE
	TOP OF CASING GROUND SURFACE	596.4 594.4					
2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42	SP SAND, fine grained, brown						
	END OF BOREHOLE @ 28.0ft BGS	566.4					



WELL DETAILS
Screened interval:
571.4 to 566.4ft AMSL
23.0 to 28.0ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
594.4 to 572.4ft AMSL
0.0 to 22.0ft BGS
Material: Bentonite Chips
Sand Pack:
572.4 to 566.4ft AMSL
22.0 to 28.0ft BGS
Material: Global #5

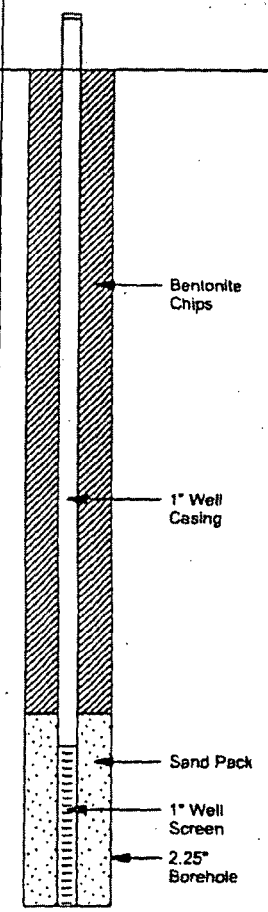
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: F-8D
DATE COMPLETED: January 24, 2006
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. KUHL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	TOP OF CASING GROUND SURFACE	598.4 594.6					
2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26	SP SAND, *fine grained, brown*						
26	END OF BOREHOLE @ 26.0ft BGS	568.6					
28, 30, 32, 34, 36, 38, 40							



WELL DETAILS
Screened Interval:
573.6 to 568.6ft AMSL
21.0 to 26.0ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
594.6 to 574.6ft AMSL
0.0 to 20.0ft BGS
Material: Bentonite Chips
Sand Pack:
574.6 to 568.6ft AMSL
20.0 to 26.0ft BGS
Material: Global #5

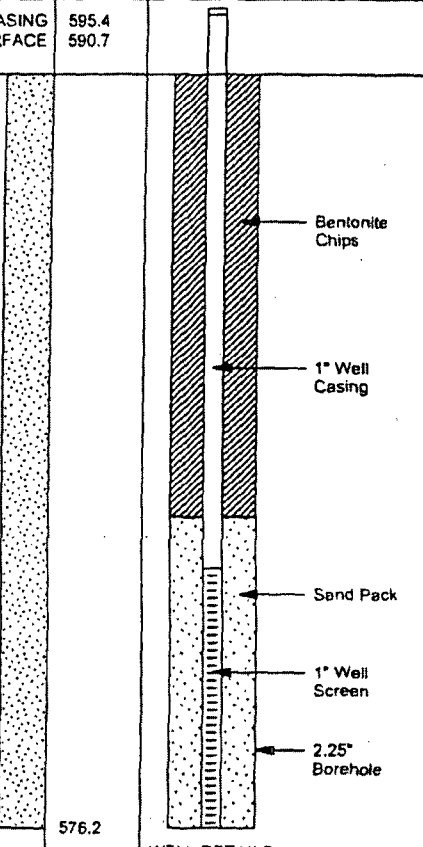
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: G-1
DATE COMPLETED: December 6, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: J. LUZWICK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	TOP OF CASING GROUND SURFACE	595.4 590.7					
	SP SAND, fine grained, brown						
	END OF BOREHOLE @ 14.5ft BGS	576.2					



WELL DETAILS
Screened interval:
581.2 to 576.2ft AMSL
9.5 to 14.5ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
590.7 to 582.2ft AMSL
0.0 to 8.5ft BGS
Material: Bentonite Chips
Sand Pack:
582.2 to 576.2ft AMSL
8.5 to 14.5ft BGS
Material: Global #5

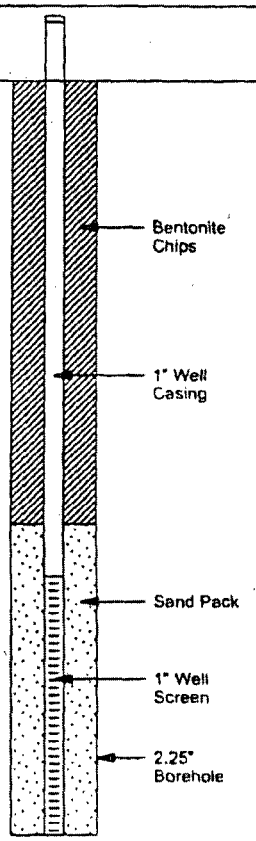
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: G-2
DATE COMPLETED: December 6, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: J. LUZWICK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE "N" VALUE
	TOP OF CASING GROUND SURFACE	590.8 590.2					
	SP SAND, fine grained, brown						
14	END OF BOREHOLE @ 14.5ft BGS	575.7					



WELL DETAILS
Screened interval:
580.7 to 575.7ft AMSL
9.5 to 14.5ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
590.2 to 581.7ft AMSL
0.0 to 8.5ft BGS
Material: Bentonite Chips
Sand Pack:
581.7 to 575.7ft AMSL
8.5 to 14.5ft BGS
Material: Global #5

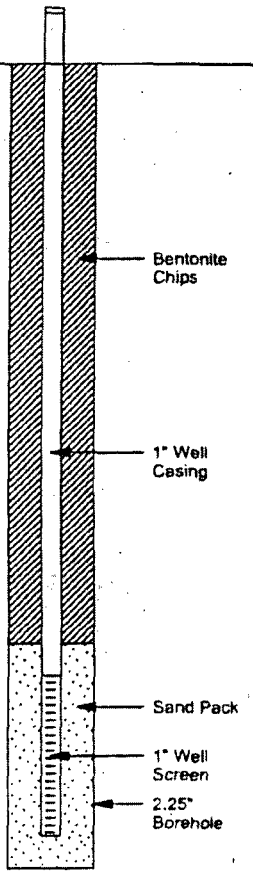
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: G-2D
DATE COMPLETED: January 26, 2006
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. BORKOWSKI

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE
	TOP OF CASING GROUND SURFACE	590.7 590.1					
2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24	SP SAND, fine grained, brown						
	END OF BOREHOLE @ 25.0ft BGS Resistance at 25 ft BGS	565.1					



WELL DETAILS
Screened interval:
571.1 to 566.1ft AMSL
19.0 to 24.0ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
590.1 to 572.1ft AMSL
0.0 to 18.0ft BGS
Material: Bentonite Chips
Sand Pack:
572.1 to 565.1ft AMSL
18.0 to 25.0ft BGS
Material: Global #5

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: G-3
DATE COMPLETED: December 6, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: J. LUZWICK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	TOP OF CASING GROUND SURFACE	592.9 592.3					
2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24	SP SAND, fine grained, brown		Bentonite Chips 1" Well Casing Sand Pack 1" Well Screen 2.25" Borehole				
	END OF BOREHOLE @ 14.5ft BGS	577.8					

WELL DETAILS
Screened interval:
582.8 to 577.8ft AMSL
9.5 to 14.5ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
592.3 to 583.8ft AMSL
0.0 to 8.5ft BGS
Material: Bentonite Chips
Sand Pack:
583.8 to 577.8ft AMSL
8.5 to 14.5ft BGS
Material: Global #5

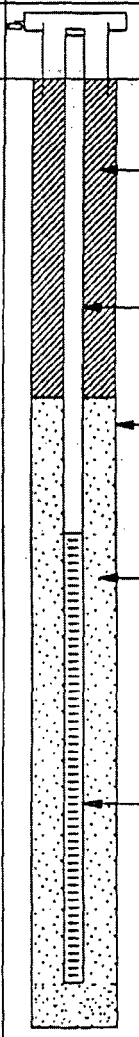
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841-07
CLIENT: EXELON
LOCATION: BRACEVILLE, ILLINOIS
DRILLING CONTRACTOR: BOART LONGYEAR

HOLE DESIGNATION: MW-101
DATE COMPLETED: November 27, 2000
DRILLING METHOD: 4 1/4" HSA
FIELD PERSONNEL: K. DUWAL
DRILLER: JIM BERTHOLD

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
	TOP OF CASING GROUND SURFACE	602.8 599.5						
	GRASS & TOPSOIL	599.3						
	SP-SAND, fine grained, poorly graded, tan with orange, moist		BENTONITE CHIPS	1SS				0
2			2" DIAMETER WELL CASING	2SS				0
4	- saturated at 4.5ft BGS		8" DIAMETER BOREHOLE	3SS				0
6			SAND PACK					
8			2" DIAMETER WELL SCREEN					
10								
	END OF BOREHOLE @ 10.5ft BGS	589.0						
12								
14								



WELL DETAILS
Screened interval:
594.5 to 589.5ft AMSL
5.0 to 10.0ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: Perforated Schedule 40 PVC
Sand Pack:
596.0 to 589.0ft AMSL
3.5 to 10.5ft BGS
Material: #30 SAND

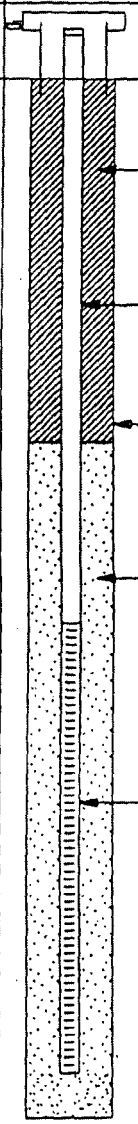
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841-07
CLIENT: EXELON
LOCATION: BRACEVILLE, ILLINOIS
DRILLING CONTRACTOR: BOART LONGYEAR

HOLE DESIGNATION: MW-102
DATE COMPLETED: November 27, 2000
DRILLING METHOD: 4 1/4" HSA
FIELD PERSONNEL: K. DUWAL
DRILLER: JIM BERTHOLD

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
	TOP OF CASING GROUND SURFACE	605.7 602.4						
	GRASS & TOPSOIL	602.2						
	SP-SAND, fine grained, poorly graded, tan with some orange, moist		BENTONITE CHIPS	1SS				0
2			2" DIAMETER WELL CASING	2SS				0
4			8" DIAMETER BOREHOLE	3SS				0
			SAND PACK					
6	- saturated at 6.5ft BGS			4SS				0
8			2" DIAMETER WELL SCREEN					
10								
	END OF BOREHOLE @ 11.5ft BGS	590.9						
12								
14								



WELL DETAILS
Screened interval:
596.4 to 591.4ft AMSL
6.0 to 11.0ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: Perforated Schedule 40 PVC
Sand Pack:
598.4 to 590.9ft AMSL
4.0 to 11.5ft BGS
Material: #30 SAND

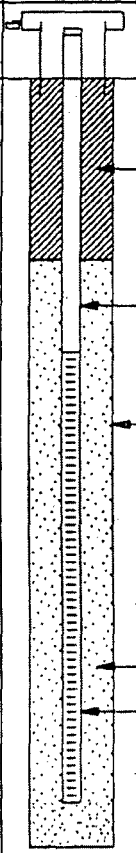
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841-07
CLIENT: EXELON
LOCATION: BRACEVILLE, ILLINOIS
DRILLING CONTRACTOR: BOART LONGYEAR

HOLE DESIGNATION: MW-103
DATE COMPLETED: November 28, 2000
DRILLING METHOD: 4 1/4" HSA
FIELD PERSONNEL: K. DUWAL
DRILLER: JIM BERTHOLD

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
	TOP OF CASING GROUND SURFACE	598.8 595.7						
	Silty Sand with vegetation, dark gray							
	SP-SAND, fine grained, poorly graded, tan, moist	594.7	BENTONITE CHIPS	1SS				0
2	- saturated at 2.0ft BGS		2" DIAMETER WELL CASING	2SS				0
4			8" DIAMETER BOREHOLE					
6			SAND PACK					
			2" DIAMETER WELL SCREEN					
8								
	END OF BOREHOLE @ 8.5ft BGS	587.2						
10								
12								
14								



WELL DETAILS
Screened interval:
592.7 to 587.7ft AMSL
3.0 to 8.0ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: Perforated Schedule 40 PVC
Sand Pack:
593.7 to 587.2ft AMSL
2.0 to 8.5ft BGS
Material: #30 SAND

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841-07
CLIENT: EXELON
LOCATION: BRACEVILLE, ILLINOIS
DRILLING CONTRACTOR: BOART LONGYEAR

HOLE DESIGNATION: MW-104
DATE COMPLETED: November 28, 2000
DRILLING METHOD: 4 1/4" HSA
FIELD PERSONNEL: K. DUWAL
DRILLER: JIM BERTHOLD

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	TOP OF CASING GROUND SURFACE	598.8 596.6						
	Silty Sand with vegetation, dark gray		BENTONITE CHIPS					
	SP-SAND, fine grained, poorly graded, tan, moist	595.6		1SS				0
2	- saturated at 2.0ft BGS		2" DIAMETER WELL CASING	2SS				0
4			8" DIAMETER BOREHOLE					
			SAND PACK					
6			2" DIAMETER WELL SCREEN					
8								
	END OF BOREHOLE @ 8.5ft BGS	588.1						
10								
12								
14								

WELL DETAILS
Screened interval:
593.6 to 588.6ft AMSL
3.0 to 8.0ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: Perforated Schedule 40 PVC
Sand Pack:
594.6 to 588.6ft AMSL
2.0 to 8.0ft BGS
Material: #30 SAND

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

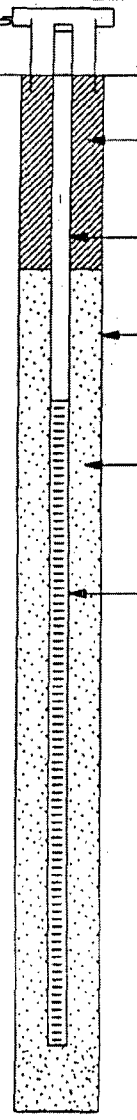
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841-07
CLIENT: EXELON
LOCATION: BRACEVILLE, ILLINOIS
DRILLING CONTRACTOR: ALTECH

HOLE DESIGNATION: MW-105
DATE COMPLETED: July 27, 2005
DRILLING METHOD: 4 1/4" HSA
FIELD PERSONNEL: DAVID CRUICKSHANK
DRILLER: DAN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	TOP OF CASING GROUND SURFACE	600.7 597.3
	GRASS & TOPSOIL, organic, brown/black	597.1
	SP-SAND, trace mica, fine grained, homogeneous, loose, tan brown, dry to moist	
2		
	- wet at 3.5ft BGS	
4	- compact at 4.0ft BGS	
	- saturated, gray to brown at 5.5ft BGS	
6		
8		
10		
12		
14		
16	END OF BOREHOLE @ 16.0ft BGS	581.3
18		
20		

MONITOR INSTALLATION



WELL DETAILS
Screened interval:
592.3 to 582.3ft AMSL
5.0 to 15.0ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 10
Material: Perforated Schedule 40 PVC
Sand Pack:
594.3 to 581.3ft AMSL
3.0 to 16.0ft BGS
Material: #5 SAND

SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
1SS	X		3	N/A
2SS	X		7	N/A
3SS	X		7	N/A
4SS	X		14	N/A
5SS	X		11	N/A
6SS	X		9	N/A
7SS	X		10	N/A
8SS	X		9	N/A

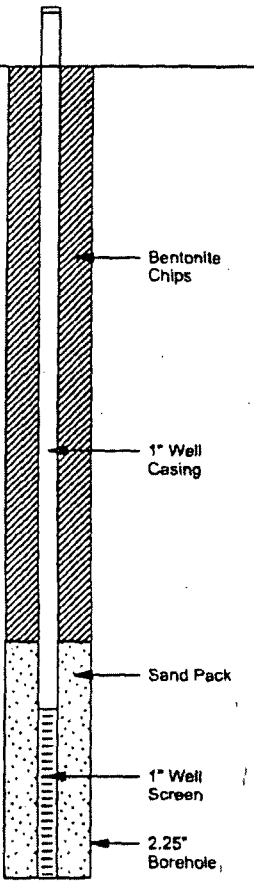
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: MW-105D
DATE COMPLETED: December 15, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: J. LUZWICK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	TOP OF CASING GROUND SURFACE	598.2 597.2					
	SP SAND, fine grained, brown						
24	END OF BOREHOLE @ 24.0ft BGS	573.2					



WELL DETAILS
Screened interval:
578.2 to 573.2ft AMSL
19.0 to 24.0ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
597.2 to 580.2ft AMSL
0.0 to 17.0ft BGS
Material: Bentonite Chips
Sand Pack:
580.2 to 573.2ft AMSL
17.0 to 24.0ft BGS
Material: Global #5

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: MW-106D
DATE COMPLETED: December 16, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: J. LUZWICK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	INTERVAL	REC (ft)	"N" VALUE
	TOP OF CASING GROUND SURFACE	601.8 599.7					
	SP SAND, fine grained, brown						
2							
4							
6			Bentonite Chips				
8							
10							
12							
14			1" Well Casing				
16							
18							
20			Sand Pack				
22							
24			1" Well Screen				
26			2.25" Borehole				
	END OF BOREHOLE @ 27.0ft BGS	572.7					
28							
30							
32							
34							
36							
38							
40							
42							

WELL DETAILS
Screened interval:
577.7 to 572.7ft AMSL
22.0 to 27.0ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
599.7 to 579.7ft AMSL
0.0 to 20.0ft BGS
Material: Bentonite Chips
Sand Pack:
579.7 to 572.7ft AMSL
20.0 to 27.0ft BGS
Material: Global #5

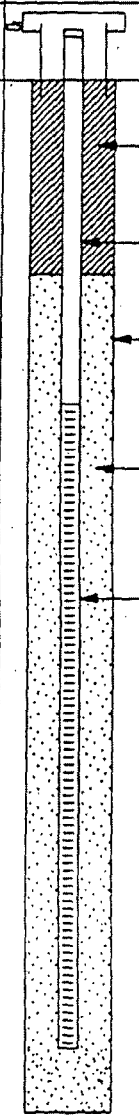
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841-07
CLIENT: EXELON
LOCATION: BRACEVILLE, ILLINOIS
DRILLING CONTRACTOR: ALTECH

HOLE DESIGNATION: MW-106
DATE COMPLETED: July 27, 2005
DRILLING METHOD: 4 1/4" HSA
FIELD PERSONNEL: DAVID CRUICKSHANK
DRILLER: DAN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
	TOP OF CASING GROUND SURFACE	602.7 599.6						
	GRASS & TOPSOIL, black	599.4						
	SP-SAND, trace mica, fine grained, homogeneous, very loose, tan brown, moist		BENTONITE CHIPS	1SS			6	N/A
2			2" DIAMETER WELL CASING	2SS			2	N/A
	- wet at 3.5ft BGS							
4			8" DIAMETER BOREHOLE	3SS			9	N/A
6			SAND PACK					
	- saturated at 7.0ft BGS			4SS			5	N/A
8			2" DIAMETER WELL SCREEN	5SS			7	N/A
10				6SS			10	N/A
12				7SS			5	N/A
14				8SS			6	N/A
16	END OF BOREHOLE @ 16.0ft BGS	583.6						
18								
20								



WELL DETAILS
Screened interval:
594.6 to 584.6ft AMSL
5.0 to 15.0ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 10
Material: Perforated Schedule 40 PVC
Sand Pack:
596.6 to 583.6ft AMSL
3.0 to 16.0ft BGS
Material: #5 SAND

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841-07
CLIENT: EXELON
LOCATION: BRACEVILLE, ILLINOIS
DRILLING CONTRACTOR: ALTECH

HOLE DESIGNATION: MW-107
DATE COMPLETED: July 26, 2005
DRILLING METHOD: 4 1/4" HSA
FIELD PERSONNEL: DAVID CRUICKSHANK
DRILLER: DAN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
	TOP OF CASING GROUND SURFACE	603.2 599.9						
	GRASS & TOPSOIL	599.7						
	SP-SAND, trace mica, fine grained, homogeneous, loose, tan brown, dry		BENTONITE CHIPS	1SS	X		4	N/A
2			2" DIAMETER WELL CASING	2SS	X		5	N/A
	- compact, moist at 3.5ft BGS							
4			8" DIAMETER BOREHOLE	3SS	X		10	N/A
6			SAND PACK	4SS	X		17	N/A
	- wet at 7.5ft BGS							
8			2" DIAMETER WELL SCREEN	5SS	X		10	N/A
	- saturated at 9.5ft BGS							
10				6SS	X		13	N/A
12				7SS	X		10	N/A
14				8SS	X		17	N/A
16	END OF BOREHOLE @ 16.0ft BGS	583.9						
18								
20								

WELL DETAILS
Screened interval:
594.9 to 584.9ft AMSL
5.0 to 15.0ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 10
Material: Perforated Schedule 40 PVC
Sand Pack:
596.9 to 583.9ft AMSL
3.0 to 16.0ft BGS
Material: #5 SAND

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841-07
CLIENT: EXELON
LOCATION: BRACEVILLE, ILLINOIS
DRILLING CONTRACTOR: ALTECH

HOLE DESIGNATION: MW-108
DATE COMPLETED: July 26, 2005
DRILLING METHOD: 4 1/4" HSA
FIELD PERSONNEL: DAVID CRUICKSHANK
DRILLER: DAN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
	TOP OF CASING GROUND SURFACE	603.1 599.8						
	GRASS & TOPSOIL	599.6						
	SP-SAND, trace mica, fine grained, loose, tan brown, dry		BENTONITE CHIPS	1SS	X		6	N/A
2	- black, organic at 1.8ft BGS		2" DIAMETER WELL CASING	2SS	X		13	N/A
4			8" DIAMETER BOREHOLE					
	- moist at 5.0ft BGS			3SS	X		6	N/A
6			SAND PACK					
	- saturated at 7.0ft BGS			4SS	X		4	N/A
8			2" DIAMETER WELL SCREEN					
				5SS	X		8	N/A
10								
				6SS	X		8	N/A
12								
				7SS	X		11	N/A
14								
				8SS	X		10	N/A
16	END OF BOREHOLE @ 16.0ft BGS	583.8						
18								
20								

WELL DETAILS
Screened interval:
594.8 to 584.8ft AMSL
5.0 to 15.0ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 10
Material: Perforated Schedule 40 PVC
Sand Pack:
596.8 to 583.8ft AMSL
3.0 to 16.0ft BGS
Material: #5 SAND

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE: REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841-07
CLIENT: EXELON
LOCATION: BRACEVILLE, ILLINOIS
DRILLING CONTRACTOR: ALTECH

HOLE DESIGNATION: MW-109
DATE COMPLETED: July 26, 2005
DRILLING METHOD: 4 1/4" HSA
FIELD PERSONNEL: DAVID CRUICKSHANK
DRILLER: DAN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
	TOP OF CASING GROUND SURFACE	601.2 598.8						
	GRASS & TOPSOIL	598.6						
	SP-SAND, *trace mica, fine grained,* homogeneous, tan brown, dry to moist		BENTONITE CHIPS	1SS			4	N/A
2			2" DIAMETER WELL CASING	2SS			9	N/A
4			8" DIAMETER BOREHOLE	3SS			8	N/A
	- moist to wet, dark brown at 5.5ft BGS							
6			SAND PACK	4SS			16	N/A
8	- NO RECOVERY at 8.0ft BGS		2" DIAMETER WELL SCREEN					
	- saturated at 9.0ft BGS			5SS			9	N/A
10				6SS			8	N/A
12				7SS			13	N/A
14				8SS			13	N/A
16	END OF BOREHOLE @ 16.0ft BGS	582.8						
18								
20								

WELL DETAILS
Screened interval:
593.8 to 583.8ft AMSL
5.0 to 15.0ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 10
Material: Perforated Schedule 40 PVC
Sand Pack:
595.8 to 582.8ft AMSL
3.0 to 16.0ft BGS
Material: #5 SAND

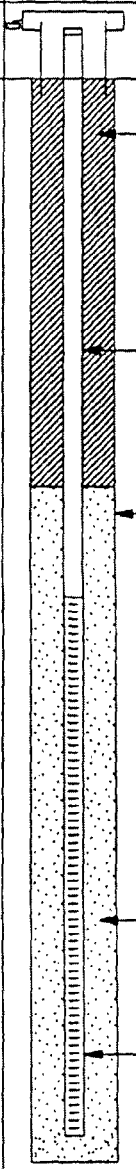
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: EXELON-BRAIDWOOD
PROJECT NUMBER: 16841-07
CLIENT: EXELON
LOCATION: BRACEVILLE, ILLINOIS
DRILLING CONTRACTOR: ALTECH

HOLE DESIGNATION: MW-110
DATE COMPLETED: September 18, 2005
DRILLING METHOD: PROBE/AUGER
FIELD PERSONNEL: D. CRUICKSHANK
DRILLER: CHRIS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE	SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
	GRASS & TOPSOIL	0.2						
	SP-SAND, fine grained, trace gravel, trace small cobbles, tan brown, moist		BENTONITE CHIPS	1GP	P/S			NA
2				2GP	P/S			NA
4			2" DIAMETER WELL CASING	3GP	P/S			NA
6				4GP	P/S			NA
8	- wet, iron staining at 8.5ft BGS		8" DIAMETER BOREHOLE	5GP	P/S			NA
10	- black staining at 10.5ft BGS			6GP	P/S			NA
12				7GP	P/S			NA
14	- saturated at 14.0ft BGS		SAND PACK	8GP	P/S			NA
16				9GP	P/S			NA
18			2" DIAMETER WELL SCREEN	10GP	P/S			NA
20	END OF BOREHOLE @ 20.0ft BGS	20.0						
22								
24								



WELL DETAILS
Screened interval:
9.5 to 19.5ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 10
Material: Perforated Schedule 40 PVC
Sand Pack:
7.5 to 20.0ft BGS
Material: #5 SAND

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: EXELON-BRAIDWOOD
PROJECT NUMBER: 16841-07
CLIENT: EXELON
LOCATION: BRACEVILLE, ILLINOIS
DRILLING CONTRACTOR: ALTECH

HOLE DESIGNATION: MW-111
DATE COMPLETED: September 18, 2005
DRILLING METHOD: PROBE/AUGER
FIELD PERSONNEL: D. CRUICKSHANK
DRILLER: CHRIS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE	SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
	GRASS & TOPSOIL	0.2						
	SP-SAND, fine grained, trace gravel, trace small cobbles, tan brown, moist			1GP	P/S			NA
2			BENTONITE CHIPS					
				2GP	P/S			NA
4			2" DIAMETER WELL CASING					
				3GP	P/S			NA
6								
	- wet, dark brown at 7.0ft BGS		8" DIAMETER BOREHOLE	4GP	P/S			NA
8								
			SAND PACK	5GP	P/S			NA
10	- saturated at 10.0ft BGS							
				6GP	P/S			NA
12			2" DIAMETER WELL SCREEN					
				7GP	P/S			NA
14								
				8GP	P/S			NA
16	END OF BOREHOLE @ 16.0ft BGS	16.0						
18								
20								
22								
24								

WELL DETAILS
Screened interval:
5.5 to 15.5ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 10
Material: Perforated Schedule 40 PVC
Sand Pack:
3.5 to 16.0ft BGS
Material: #5 SAND

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: MW-111D
DATE COMPLETED: January 9, 2006
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: J. LUZWICK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	TOP OF CASING GROUND SURFACE	605.1 603.2					
	SP SAND, fine grained, brown						
2							
4							
6			Bentonite Chips				
8							
10							
12							
14			1" Well Casing				
16							
18							
20							
22			Sand Pack				
24			1" Well Screen				
26			2.25" Borehole				
	END OF BOREHOLE @ 26.5ft BGS	576.7					
28							
30							
32							
34							
36							
38							
40							

WELL DETAILS
Screened interval:
581.7 to 576.7ft AMSL
21.5 to 26.5ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
603.2 to 582.7ft AMSL
0.0 to 20.5ft BGS
Material: Bentonite Chips
Sand Pack:
582.7 to 576.7ft AMSL
20.5 to 26.5ft BGS
Material: Global #5

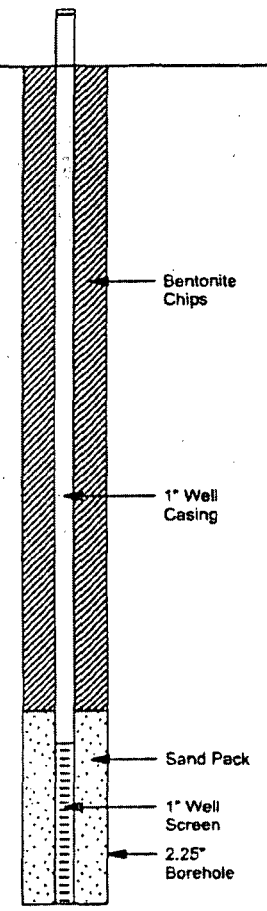
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME:. EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: MW-112D
DATE COMPLETED: January 9, 2006
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: J. LUZWICK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	INTERVAL	REC (ft)	"N" VALUE
	TOP OF CASING GROUND SURFACE	600.9 598.6					
	SP SAND, fine grained, brown						
26	END OF BOREHOLE @ 26.0ft BGS	572.6					



WELL DETAILS
Screened interval:
577.6 to 572.6ft AMSL
21.0 to 26.0ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
598.6 to 578.6ft AMSL
0.0 to 20.0ft BGS
Material: Bentonite Chips
Sand Pack:
578.6 to 572.6ft AMSL
20.0 to 26.0ft BGS
Material: Global #5

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: EXELON-BRAIDWOOD
PROJECT NUMBER: 16841-07
CLIENT: EXELON
LOCATION: BRACEVILLE, ILLINOIS
DRILLING CONTRACTOR: ALTECH

HOLE DESIGNATION: MW-112
DATE COMPLETED: September 17, 2005
DRILLING METHOD: PROBE/AUGER
FIELD PERSONNEL: D. CRUICKSHANK
DRILLER: CHRIS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE	SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
	GRASS & TOPSOIL	0.2						
	SP-SAND, trace gravel, small rocks, tan brown, moist			1GP	P/S			NA
2			BENTONITE CHIPS					
				2GP	P/S			NA
4			2" DIAMETER WELL CASING					
				3GP	P/S			NA
6	- wet at 6.0ft BGS							
			8" DIAMETER BOREHOLE	4GP	P/S			NA
8	- saturated, gray at 8.5ft BGS							
			SAND PACK	5GP	P/S			NA
10								
				6GP	P/S			NA
12			2" DIAMETER WELL SCREEN					
				7GP	P/S			NA
14								
				8GP	P/S			NA
16	END OF BOREHOLE @ 16.0ft BGS	16.0						
18								
20								
22								
24								

WELL DETAILS
Screened interval:
5.5 to 15.5ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 10
Material: Perforated Schedule 40 PVC
Sand Pack:
3.5 to 16.0ft BGS
Material: #5 SAND

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

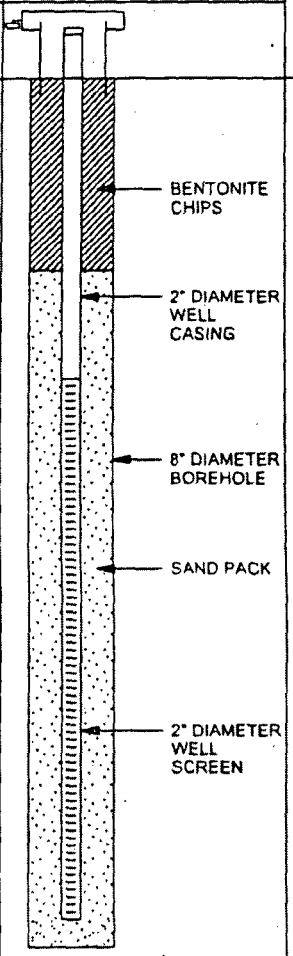
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: EXELON-BRAIDWOOD
PROJECT NUMBER: 16841-07
CLIENT: EXELON
LOCATION: BRACEVILLE, ILLINOIS
DRILLING CONTRACTOR: ALTECH

HOLE DESIGNATION: MW-113
DATE COMPLETED: September 18, 2005
DRILLING METHOD: PROBE/AUGER
FIELD PERSONNEL: D. CRUICKSHANK
DRILLER: CHRIS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS
	GRASS & TOPSOIL	0.2
	SP-SAND, fine grained, trace gravel, some small cobbles, tan brown, moist	
2		
4	- saturated, dark brown, small gray patches at 4.0ft BGS	
6		
8		
10		
12		
14		
16	END OF BOREHOLE @ 16.0ft BGS	16.0
18		
20		
22		
24		

BOREHOLE



WELL DETAILS
Screened interval:
5.5 to 15.5ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 10
Material: Perforated Schedule 40 PVC
Sand Pack:
3.5 to 16.0ft BGS
Material: #5 SAND

SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
1GP	P/S			NA
2GP	P/S			NA
3GP	P/S			NA
4GP	P/S			NA
5GP	P/S			NA
6GP	P/S			NA
7GP	P/S			NA
8GP	P/S			NA

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: MW-113D
DATE COMPLETED: December 14, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: J. LUZWICK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	TOP OF CASING GROUND SURFACE	596.9 596.1					
2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24	SP SAND, fine grained, brown		Bentonite Chips; 1" Well Casing; Sand Pack; 1" Well Screen; 2.25" Borehole				
26, 28, 30, 32, 34, 36, 38, 40	END OF BOREHOLE @ 25.0ft BGS Clay at 25 ft BGS	571.1					

WELL DETAILS
Screened Interval:
577.1 to 572.1ft AMSL
19.0 to 24.0ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
596.1 to 578.1ft AMSL
0.0 to 18.0ft BGS
Material: Bentonite Chips
Sand Pack:
578.1 to 571.1ft AMSL
18.0 to 25.0ft BGS
Material: Global #5

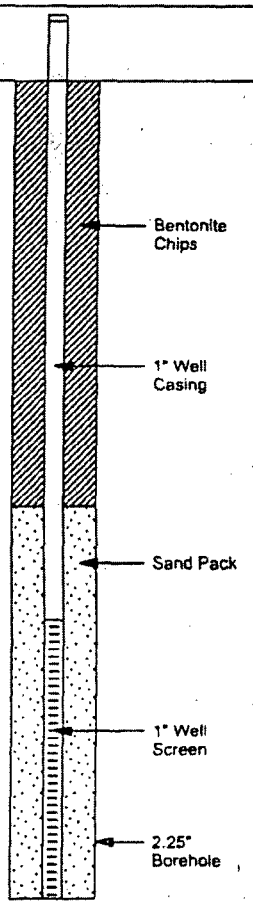
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: P-1
DATE COMPLETED: December 1, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: D. SOUTTER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE
	TOP OF CASING GROUND SURFACE	595.6 594.9					
	SP SAND, fine grained, brown						
14	END OF BOREHOLE @ 14.5ft BGS	580.4					



WELL DETAILS
Screened interval:
585.4 to 580.4ft AMSL
9.5 to 14.5ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
594.9 to 587.4ft AMSL
0.0 to 7.5ft BGS
Material: Bentonite Chips
Sand Pack:
587.4 to 580.4ft AMSL
7.5 to 14.5ft BGS
Material: Global #5

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: P-2
DATE COMPLETED: December 2, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: J. LUZWICK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	TOP OF CASING GROUND SURFACE	596.3 595.7					
2, 4, 6, 8, 10, 12, 14	SP SAND, fine grained, brown		Bentonite Chips; 1" Well Casing; Sand Pack; 1" Well Screen; 2.25" Borehole				
	END OF BOREHOLE @ 14.5ft BGS	581.2					
16, 18, 20, 22							

WELL DETAILS
Screened interval:
586.2 to 581.2ft AMSL
9.5 to 14.5ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
595.7 to 586.2ft AMSL
0.0 to 7.5ft BGS
Material: Bentonite Chips
Sand Pack:
586.2 to 581.2ft AMSL
7.5 to 14.5ft BGS
Material: Global #5

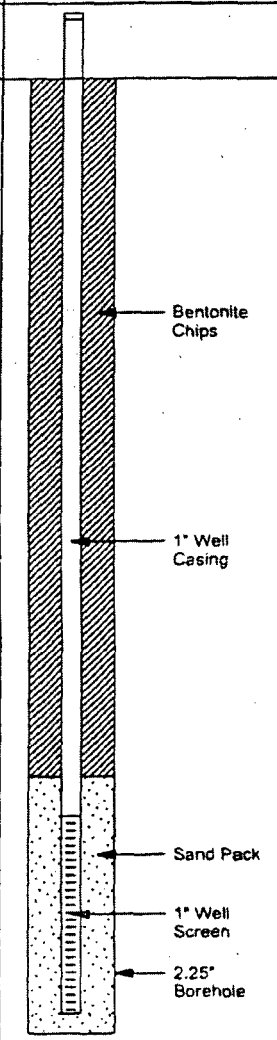
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: P-2D
DATE COMPLETED: December 12, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: J. LUZWICK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE
	TOP OF CASING GROUND SURFACE	596.6 595.9					
	SP SAND, fine grained, brown						
24	END OF BOREHOLE @ 24.0ft BGS	571.9					



WELL DETAILS
Screened interval:
577.4 to 572.4ft AMSL
18.5 to 23.5ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
595.9 to 578.4ft AMSL
0.0 to 17.5ft BGS
Material: Bentonite Chips
Sand Pack:
578.4 to 571.9ft AMSL
17.5 to 24.0ft BGS
Material: Global #5

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: P-3
DATE COMPLETED: December 2, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: J. LUZWICK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	TOP OF CASING GROUND SURFACE	596.3 595.7					
2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22	SP SAND, fine grained, brown		Bentonite Chips; 1" Well Casing; Sand Pack; 1" Well Screen; 2.25" Borehole				
	END OF BOREHOLE @ 14.5ft BGS	581.2					

WELL DETAILS
Screened interval:
586.2 to 581.2ft AMSL
9.5 to 14.5ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
595.7 to 588.2ft AMSL
0.0 to 7.5ft BGS
Material: Bentonite Chips
Sand Pack:
588.2 to 581.2ft AMSL
7.5 to 14.5ft BGS
Material: Global #5

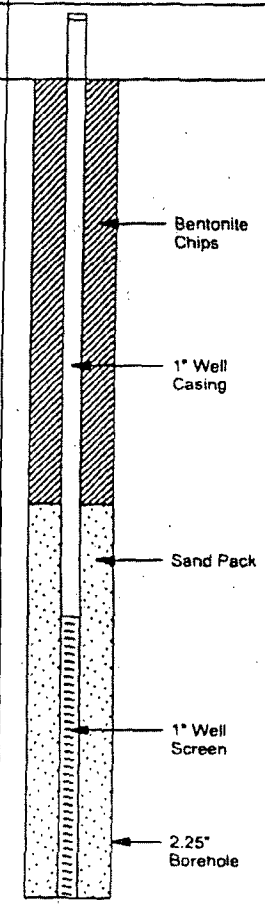
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: P-4
DATE COMPLETED: December 1, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: D. SOUTTER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	RUN NUMBER	CORE RECOVERY %	RQD %
	TOP OF CASING GROUND SURFACE	597.1 595.7				
	SP SAND, fine grained, brown					
14	END OF BOREHOLE @ 14.5ft BGS	581.2				



WELL DETAILS
Screened interval:
586.2 to 581.2ft AMSL
9.5 to 14.5ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
595.7 to 588.2ft AMSL
0.0 to 7.5ft BGS
Material: Bentonite Chips
Sand Pack:
588.2 to 581.2ft AMSL
7.5 to 14.5ft BGS
Material: Global #5

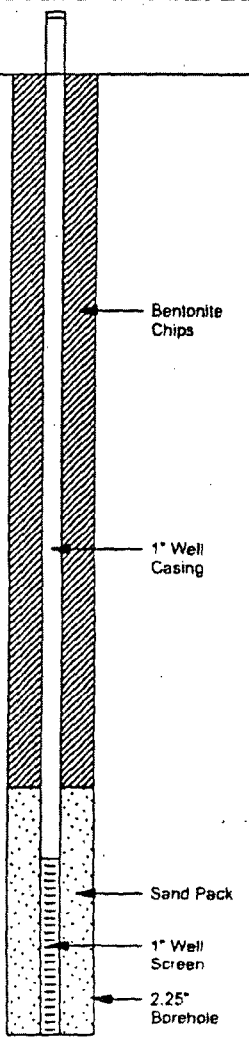
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: P-4D
DATE COMPLETED: December 20, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: J. LUZWICK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	TOP OF CASING GROUND SURFACE	599.2 596.5					
2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26	SP SAND, fine grained, brown						
28, 30, 32, 34, 36	END OF BOREHOLE @ 27.0ft BGS	569.5					



WELL DETAILS
Screened interval:
574.5 to 569.5ft AMSL
22.0 to 27.0ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
596.5 to 576.5ft AMSL
0.0 to 20.0ft BGS
Material: Bentonite Chips
Sand Pack:
576.5 to 569.5ft AMSL
20.0 to 27.0ft BGS
Material: Global #5

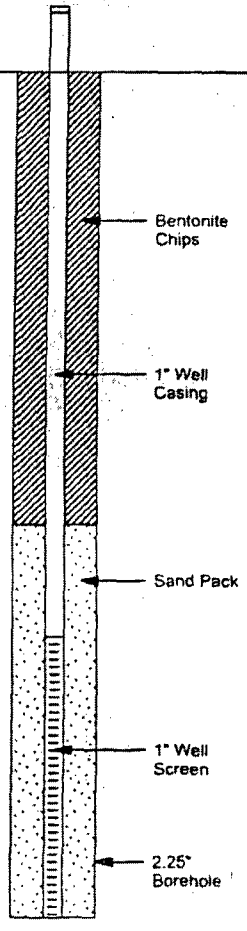
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG
(BEDROCK)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: P-5
DATE COMPLETED: December 1, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: D. SOUTTER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	RUN NUMBER	CORE RECOVERY %	RQD %
	TOP OF CASING GROUND SURFACE	597.1 596.3				
	SP SAND, fine grained, brown					
14	END OF BOREHOLE @ 15.0ft BGS	581.3				



WELL DETAILS
Screened interval:
586.3 to 581.3ft AMSL
10.0 to 15.0ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
596.3 to 588.3ft AMSL
0.0 to 8.0ft BGS
Material: Bentonite Chips
Sand Pack:
588.3 to 581.3ft AMSL
8.0 to 15.0ft BGS
Material: Global #5

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: P-5D
DATE COMPLETED: December 20, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: J. LUZWICK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	TOP OF CASING GROUND SURFACE	599.4 596.3					
	SP SAND, fine grained, brown						
2							
4							
6			Bentonite Chips				
8							
10							
12							
14			1" Well Casing				
16							
18							
20							
22			Sand Pack				
24			1" Well Screen				
26			2.25" Borehole				
	END OF BOREHOLE @ 27.0ft BGS	569.3					
28							
30							
32							
34							
36							

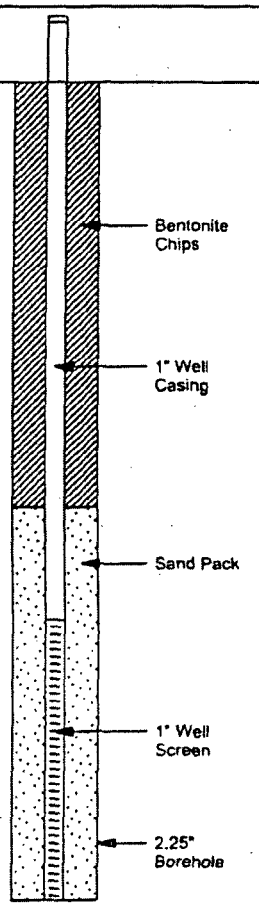
WELL DETAILS
Screened interval:
574.3 to 569.3ft AMSL
22.0 to 27.0ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
596.3 to 576.3ft AMSL
0.0 to 20.0ft BGS
Material: Bentonite Chips
Sand Pack:
576.3 to 569.3ft AMSL
20.0 to 27.0ft BGS
Material: Global #5

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: P-6
DATE COMPLETED: December 1, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: D. SOUTTER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	MONITOR WELL	SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE
2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22	SP SAND, fine grained, brown	14.5					
	END OF BOREHOLE @ 14.5ft BGS						

WELL DETAILS
Screened interval:
9.5 to 14.5ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
0.0 to 7.5ft BGS
Material: Bentonite Chips
Sand Pack:
7.5 to 14.5ft BGS
Material: Global #5

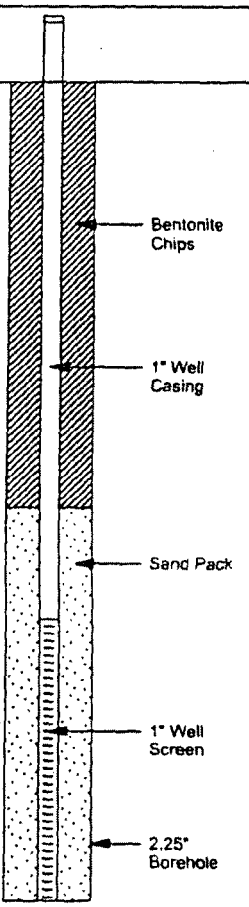
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE: REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: P-7
DATE COMPLETED: December 1, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: D. SOUTTER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	TOP OF CASING GROUND SURFACE	600.2 599.8					
	SP SAND, fine grained, brown						
14	END OF BOREHOLE @ 14.5ft BGS	585.3					



WELL DETAILS
Screened interval:
590.3 to 585.3ft AMSL
9.5 to 14.5ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
599.8 to 592.3ft AMSL
0.0 to 7.5ft BGS
Material: Bentonite Chips
Sand Pack:
592.3 to 585.3ft AMSL
7.5 to 14.5ft BGS
Material: Global #5

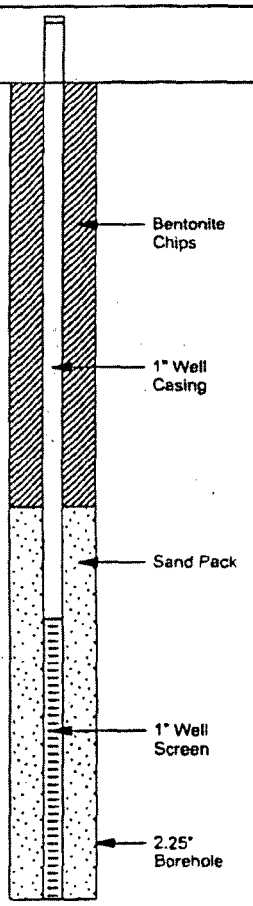
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: P-8
DATE COMPLETED: December 1, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: D. SOUTTER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	TOP OF CASING *GROUND SURFACE*	596.2 595.5					
2 4 6 8 10 12 14	SP SAND, fine grained, brown						
	END OF BOREHOLE @ 14.5ft BGS	581.0					
16 18 20 22							



WELL DETAILS
Screened interval:
586.0 to 581.0ft AMSL
9.5 to 14.5ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
595.5 to 588.0ft AMSL
0.0 to 7.5ft BGS
Material: Bentonite Chips
Sand Pack:
588.0 to 581.0ft AMSL
7.5 to 14.5ft BGS
Material: Global #5

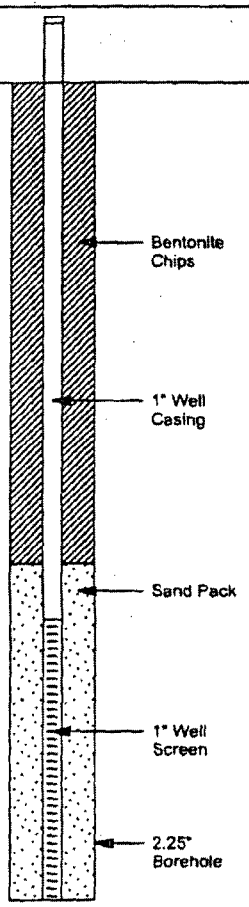
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: P-9
DATE COMPLETED: December 5, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: J. LUZWICK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	TOP OF CASING GROUND SURFACE	599.2 598.6					
	SP SAND, fine grained, brown						
2							
4							
6							
8							
10							
12							
14							
	END OF BOREHOLE @ 14.5ft BGS	584.1					
16							
18							
20							
22							



WELL DETAILS
Screened interval:
589.1 to 584.1ft AMSL
9.5 to 14.5ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
598.6 to 590.1ft AMSL
0.0 to 8.5ft BGS
Material: Bentonite Chips
Sand Pack:
590.1 to 584.1ft AMSL
8.5 to 14.5ft BGS
Material: Global #5

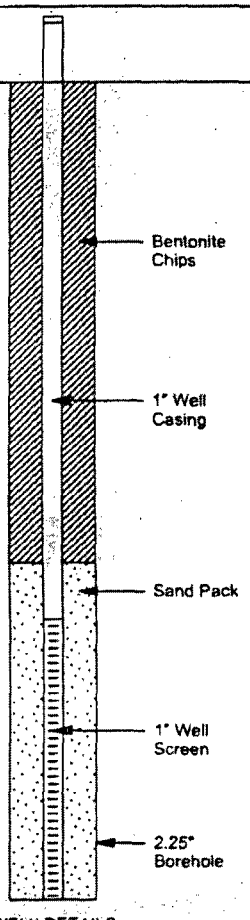
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: P-10
DATE COMPLETED: December 5, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: J. LUZWICK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE
	TOP OF CASING GROUND SURFACE	596.6 596.1					
	SP SAND, fine grained, brown						
14	END OF BOREHOLE @ 14.5ft BGS	581.6					



WELL DETAILS
Screened interval:
586.6 to 581.6ft AMSL
9.5 to 14.5ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
596.1 to 587.6ft AMSL
0.0 to 8.5ft BGS
Material: Bentonite Chips
Sand Pack:
587.6 to 581.6ft AMSL
8.5 to 14.5ft BGS
Material: Global #5

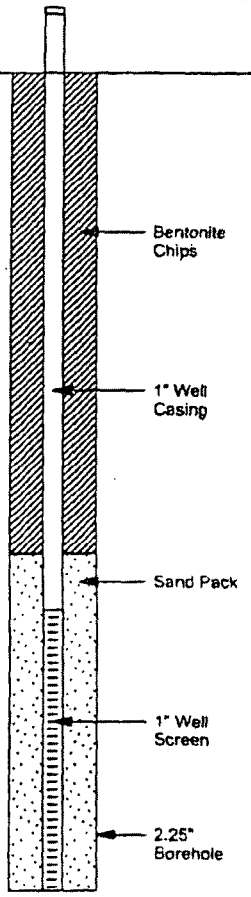
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: P-11
DATE COMPLETED: December 5, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: J. LUZWICK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	TOP OF CASING GROUND SURFACE	596.2 595.2					
	SP SAND, fine grained, brown						
2							
4							
6							
8							
10							
12							
14							
	END OF BOREHOLE @ 14.5ft BGS	580.7					
16							
18							
20							
22							



WELL DETAILS
Screened interval:
585.7 to 580.7ft AMSL
9.5 to 14.5ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
595.2 to 586.7ft AMSL
0.0 to 8.5ft BGS
Material: Bentonite Chips
Sand Pack:
586.7 to 580.7ft AMSL
8.5 to 14.5ft BGS
Material: Global #5

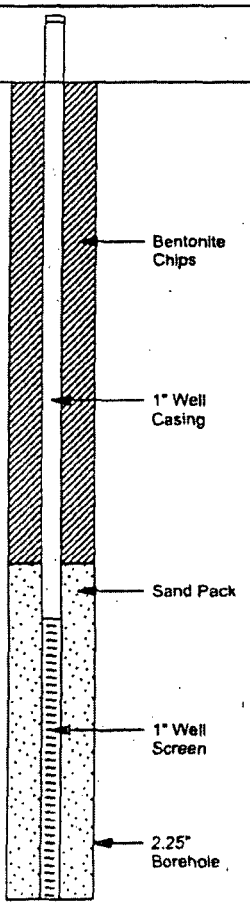
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: P-12
DATE COMPLETED: December 5, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: J. LUZWICK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	TOP OF CASING GROUND SURFACE	596.1 595.6					
	SP SAND, fine grained, brown						
2							
4							
6							
8							
10							
12							
14							
	END OF BOREHOLE @ 14.5ft BGS	581.1					
16							
18							
20							
22							



WELL DETAILS
Screened interval:
586.1 to 581.1ft AMSL
9.5 to 14.5ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
595.6 to 587.1ft AMSL
0.0 to 8.5ft BGS
Material: Bentonite Chips
Sand Pack:
510.6 to 581.1ft AMSL
85.0 to 14.5ft BGS
Material: Global #5

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: P-13D
DATE COMPLETED: December 20, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: J. LUZWICK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE
	TOP OF CASING GROUND SURFACE	598.8 596.1					
	SP SAND, fine grained, brown						
2							
4							
6			Bentonite Chips				
8							
10							
12							
14			1" Well Casing				
16							
18							
20							
22			Sand Pack				
24			1" Well Screen				
26			2.25" Borehole				
	END OF BOREHOLE @ 27.0ft BGS	569.1					
28							
30							
32							
34							
36							

WELL DETAILS
Screened interval:
574.1 to 569.1ft AMSL
22.0 to 27.0ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
596.1 to 576.1ft AMSL
0.0 to 20.0ft BGS
Material: Bentonite Chips
Sand Pack:
576.1 to 569.1ft AMSL
20.0 to 27.0ft BGS
Material: Global #5

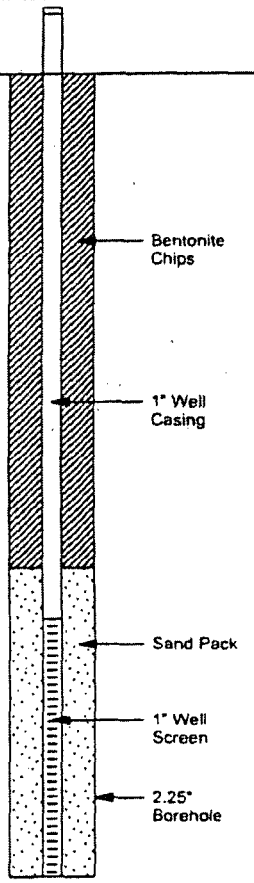
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: P-14
DATE COMPLETED: January 24, 2006
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. KUHL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE
	TOP OF CASING GROUND SURFACE	599.1 596.5					
	SP SAND, fine grained, brown						
2							
4							
6							
8							
10							
12							
14							
	END OF BOREHOLE @ 15.5ft BGS	581.0					
16							
18							
20							
22							
24							



WELL DETAILS
Screened interval:
586.0 to 581.0ft AMSL
10.5 to 15.5ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
596.5 to 587.0ft AMSL
0.0 to 9.5ft BGS
Material: Bentonite Chips
Sand Pack:
587.0 to 581.0ft AMSL
9.5 to 15.5ft BGS
Material: Global #5

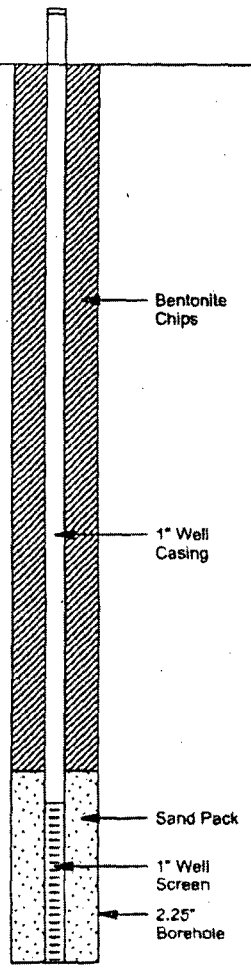
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: P-14D
DATE COMPLETED: January 24, 2006
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. KUHL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE
	TOP OF CASING GROUND SURFACE	598.5 596.7					
2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40	SP SAND, fine grained, brown						
	END OF BOREHOLE @ 28.0ft BGS	568.7					



WELL DETAILS
Screened interval:
573.7 to 568.7ft AMSL
23.0 to 28.0ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
596.7 to 574.7ft AMSL
0.0 to 22.0ft BGS
Material: Bentonite Chips
Sand Pack:
574.7 to 568.7ft AMSL
22.0 to 28.0ft BGS
Material: Global #5

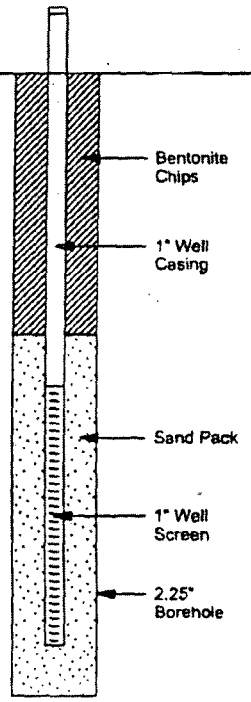
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: PS-1
DATE COMPLETED: December 22, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. BORKOWSKI

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE
	TOP OF CASING GROUND SURFACE	546.1 544.0					
	SP SAND, fine grained, brown						
12	END OF BOREHOLE @ 12.0ft BGS	532.0					



WELL DETAILS
Screened interval:
538.0 to 533.0ft AMSL
6.0 to 11.0ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
544.0 to 539.0ft AMSL
0.0 to 5.0ft BGS
Material: Bentonite Chips
Sand Pack:
539.0 to 532.0ft AMSL
5.0 to 12.0ft BGS
Material: Global #5

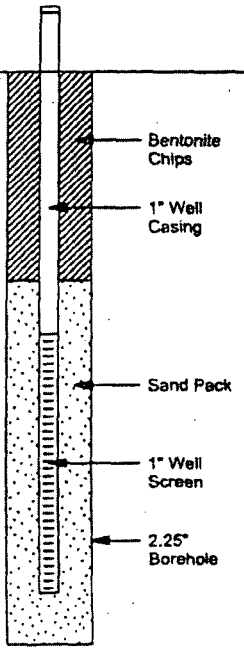
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: PS-2
DATE COMPLETED: December 22, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. BORKOWSKI

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE
	TOP OF CASING GROUND SURFACE	546.8 542.1					
	SP SAND, fine grained, brown						
2							
4							
6							
8							
10							
	END OF BOREHOLE @ 11.0ft BGS	531.1					
12							
14							
16							
18							
20							
22							
24							



WELL DETAILS
Screened interval:
537.1 to 532.1ft AMSL
5.0 to 10.0ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
542.1 to 538.1ft AMSL
0.0 to 4.0ft BGS
Material: Bentonite Chips
Sand Pack:
538.1 to 531.1ft AMSL
4.0 to 11.0ft BGS
Material: Global #5

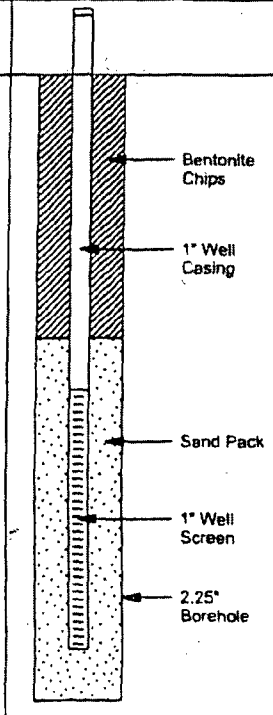
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: PS-3
DATE COMPLETED: December 21, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. BORKOWSKI

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	TOP OF CASING GROUND SURFACE	550.1 547.2					
	SP SAND, fine grained, brown						
12	END OF BOREHOLE @ 12.0ft BGS	535.2					



WELL DETAILS
Screened Interval:
541.2 to 536.2ft AMSL
6.0 to 11.0ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
547.2 to 542.2ft AMSL
0.0 to 5.0ft BGS
Material: Bentonite Chips
Sand Pack:
542.2 to 535.2ft AMSL
5.0 to 12.0ft BGS
Material: Global #5

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: PS-3
DATE COMPLETED: December 21, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. BORKOWSKI

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE
	GROUND SURFACE 547.2 TOP OF CASING 541.2						
2, 4, 6, 8, 10	SP SAND, fine grained, brown		Bentonite Chips 1" Well Casing Sand Pack 1" Well Screen 2.25" Borehole				
12	END OF BOREHOLE @ 12.0ft BGS	535.2					
14, 16, 18, 20, 22, 24							

WELL DETAILS
Screened interval:
541.2 to 536.2ft AMSL
6.0 to 11.0ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
547.2 to 542.2ft AMSL
0.0 to 5.0ft BGS
Material: Bentonite Chips
Sand Pack:
542.2 to 535.2ft AMSL
5.0 to 12.0ft BGS
Material: Global #5

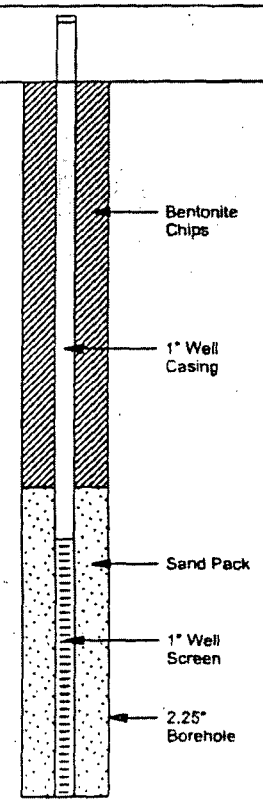
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: PS-4
DATE COMPLETED: January 9, 2006
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. KUHL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE
	TOP OF CASING GROUND SURFACE	548.9 547.8					
	SP SAND, fine grained, brown						
14	END OF BOREHOLE @ 13.8ft BGS	534.0					



WELL DETAILS
Screened interval:
539.0 to 534.0ft AMSL
8.8 to 13.8ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
547.8 to 540.0ft AMSL
0.0 to 7.8ft BGS
Material: Bentonite Chips
Sand Pack:
540.0 to 534.0ft AMSL
7.8 to 13.8ft BGS
Material: Global #5

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: PS-5
DATE COMPLETED: January 10, 2006
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. KUHL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	TOP OF CASING GROUND SURFACE	550.2 548.4					
	SP SAND, fine grained, brown						
2			Bentonite Chips				
4			1" Well Casing				
6							
8			Sand Pack				
10			1" Well Screen				
12			2.25" Borehole				
	END OF BOREHOLE @ 13.0ft BGS	535.4					
14							
16							
18							
20							
22							
24							

WELL DETAILS
Screened interval:
540.4 to 535.4ft AMSL
8.0 to 13.0ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
548.4 to 541.4ft AMSL
0.0 to 7.0ft BGS
Material: Bentonite Chips
Sand Pack:
541.4 to 535.4ft AMSL
7.0 to 13.0ft BGS
Material: Global #5

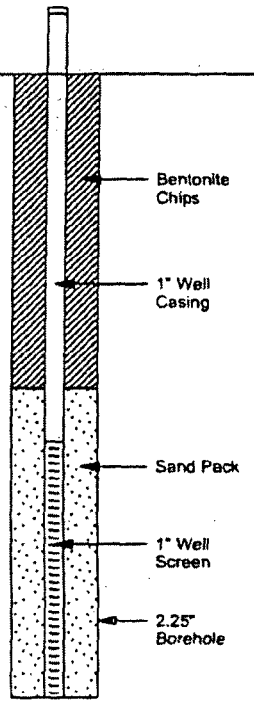
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: PS-6
DATE COMPLETED: January 10, 2006
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. KUHL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	TOP OF CASING GROUND SURFACE	547.4 543.9					
	SP SAND, fine grained, brown						
12	END OF BOREHOLE @ 12.0ft BGS	531.9					



WELL DETAILS
Screened interval:
536.9 to 531.9ft AMSL
7.0 to 12.0ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
543.9 to 537.9ft AMSL
0.0 to 6.0ft BGS
Material: Bentonite Chips
Sand Pack:
537.9 to 531.9ft AMSL
6.0 to 12.0ft BGS
Material: Global #5

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

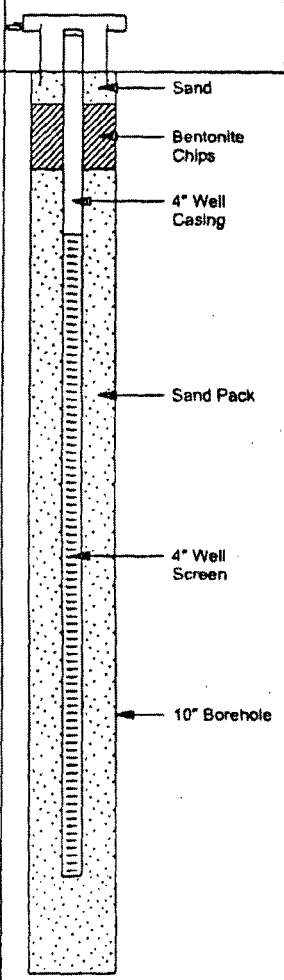
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: BOART LONGYEAR

HOLE DESIGNATION: RW-1
DATE COMPLETED: December 1, 2005
DRILLING METHOD: 6¼" ID HSA
FIELD PERSONNEL: J. LUZWICK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL
	TOP OF CASING GROUND SURFACE	599.4 596.7
	SP SAND, fine grained, no plasticity, black, moist	
2	- brown at 2.0ft BGS	
4		
6	- wet at 6.0ft BGS	
8	- saturated at 8.0ft BGS	
10	- moist at 10.0ft BGS	
12	- wet at 12.0ft BGS	
14		
16		
18		
20	- gray at 20.0ft BGS	
22		
24		
26		
28	CL SILTY CLAY, trace sand, soft, low plasticity, gray, moist	569.2 568.7
	END OF BOREHOLE @ 28.0ft BGS	
30		
32		
34		
36		
38		
40		

MONITOR WELL



WELL DETAILS
Screened interval:
591.7 to 571.7ft AMSL
5.0 to 25.0ft BGS
Length: 20ft
Diameter: 4in
Slot Size: 10
Material: PVC
Seal:
595.7 to 593.7ft AMSL
1.0 to 3.0ft BGS
Material: Bentonite Chips
Sand Pack:
593.7 to 568.7ft AMSL
3.0 to 28.0ft BGS
Material: Badger #40

SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE
1	X		
2	X		
3	X		
4	X		
5	X		
6	X		
7	X		
8	X		
9	X		
10	X		
11	X		
12	X		
13	X		
14	X		

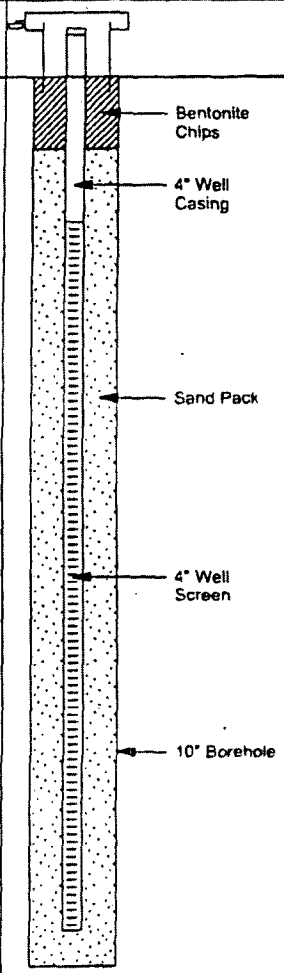
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: BOART LONGYEAR

HOLE DESIGNATION: RW-2
DATE COMPLETED: December 1, 2005
DRILLING METHOD: 6¼" ID HSA
FIELD PERSONNEL: J. LUZWICK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	TOP OF CASING GROUND SURFACE	599.3 596.6					
2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36	Blind drilled						
	Top of clay at 25 ft bgs						
	END OF BOREHOLE @ 25.0ft BGS	571.6					



WELL DETAILS
Screened interval:
592.6 to 572.6ft AMSL
4.0 to 24.0ft BGS
Length: 20ft
Diameter: 4in
Slot Size: 10
Material: PVC
Seal:
596.6 to 594.6ft AMSL
0.0 to 2.0ft BGS
Material: Bentonite Chips
Sand Pack:
594.6 to 571.6ft AMSL
2.0 to 25.0ft BGS
Material: Badger #40

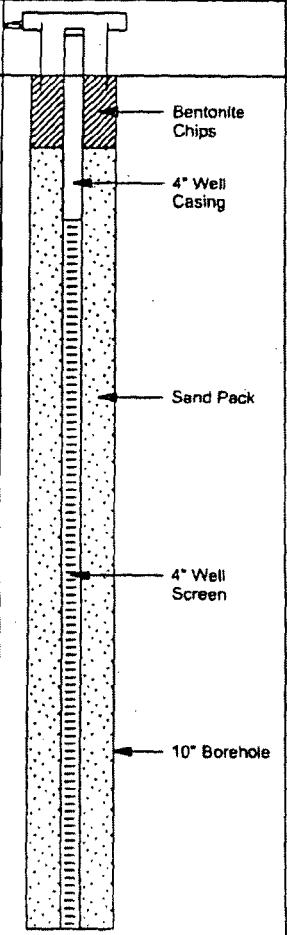
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: BOART LONGYEAR

HOLE DESIGNATION: RW-3
DATE COMPLETED: December 2, 2005
DRILLING METHOD: 6¼" ID HSA
FIELD PERSONNEL: J. LUZWICK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	TOP OF CASING GROUND SURFACE	599.2 596.2					
2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36	Blind drilled						
	Top of clay at 24 ft bgs END OF BOREHOLE @ 24.0ft BGS	572.2					



WELL DETAILS
Screened interval:
592.2 to 572.2ft AMSL
4.0 to 24.0ft BGS
Length: 20ft
Diameter: 4in
Slot Size: 10
Material: PVC
Seal:
596.2 to 594.2ft AMSL
0.0 to 2.0ft BGS
Material: Bentonite Chips
Sand Pack:
594.2 to 572.2ft AMSL
2.0 to 24.0ft BGS
Material: Badger #40

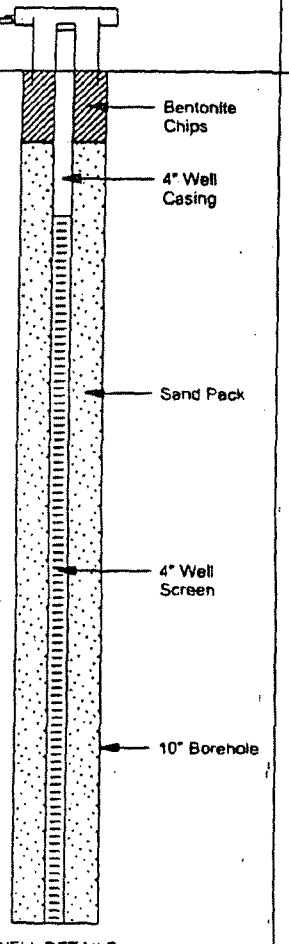
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: BOART LONGYEAR

HOLE DESIGNATION: RW-4
DATE COMPLETED: December 2, 2005
DRILLING METHOD: 6¼" ID HSA
FIELD PERSONNEL: J. LUZWICK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	TOP OF CASING GROUND SURFACE	598.8 596.3					
2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36	Blind drilled						
	Top of clay at 24 ft bgs						
	END OF BOREHOLE @ 24.0ft BGS	572.3					



WELL DETAILS
Screened interval:
592.3 to 572.3ft AMSL
4.0 to 24.0ft BGS
Length: 20ft
Diameter: 4in
Slot Size: 10
Material: PVC
Seal:
596.3 to 594.3ft AMSL
0.0 to 2.0ft BGS
Material: Bentonite Chips
Sand Pack:
594.3 to 572.3ft AMSL
2.0 to 24.0ft BGS
Material: Badger #40

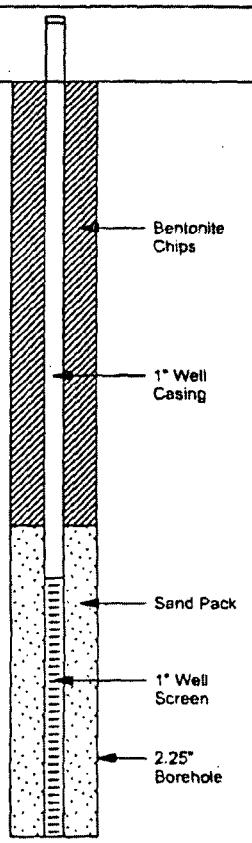
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: S-1
DATE COMPLETED: December 5, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: J. LUZWICK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	TOP OF CASING GROUND SURFACE	595.6 595.0					
	SP SAND, fine grained, brown						
14	END OF BOREHOLE @ 14.5ft BGS	580.5					



WELL DETAILS
Screened interval:
585.5 to 580.5ft AMSL
9.5 to 14.5ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
595.0 to 586.5ft AMSL
0.0 to 8.5ft BGS
Material: Bentonite Chips
Sand Pack:
586.5 to 580.5ft AMSL
8.5 to 14.5ft BGS
Material: Global #5

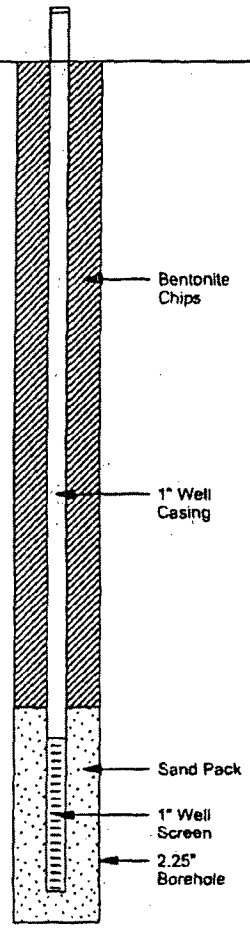
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: S-1D
DATE COMPLETED: January 26, 2006
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. BORKOWSKI

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	TOP OF CASING GROUND SURFACE	596.9 594.9					
	SP SAND, fine grained, brown						
28	END OF BOREHOLE @ 28.0ft BGS	566.9					



WELL DETAILS
Screened interval:
572.9 to 567.9ft AMSL
22.0 to 27.0ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
594.9 to 573.9ft AMSL
0.0 to 21.0ft BGS
Material: Bentonite Chips
Sand Pack:
573.9 to 566.9ft AMSL
21.0 to 28.0ft BGS
Material: Global #5

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: S-2
DATE COMPLETED: December 5, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: J. LUZWICK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	TOP OF CASING GROUND SURFACE	593.3 592.7					
2, 4, 6, 8, 10, 12, 14	SP SAND, fine grained, brown		Bentonite Chips; 1" Well Casing; Sand Pack; 1" Well Screen; 2.25" Borehole				
	END OF BOREHOLE @ 15.0ft BGS	577.7					
16, 18, 20, 22, 24							

WELL DETAILS
Screened interval:
582.7 to 577.7ft AMSL
10.0 to 15.0ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
592.7 to 583.7ft AMSL
0.0 to 9.0ft BGS
Material: Bentonite Chips
Sand Pack:
583.7 to 577.7ft AMSL
9.0 to 15.0ft BGS
Material: Global #5

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: S-2D
DATE COMPLETED: December 12, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: J. LUZWICK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE
	TOP OF CASING GROUND SURFACE	594.0 592.7					
	SP SAND, fine grained, brown						
2							
4							
6			Bentonite Chips				
8							
10							
12			1" Well Casing				
14							
16							
18							
20			Sand Pack				
22			1" Well Screen 2.25" Borehole				
24	END OF BOREHOLE @ 24.0ft BGS	568.7					
26	Clay at 24 ft BGS						
28							
30							
32							
34							
36							
38							

WELL DETAILS
Screened interval:
574.2 to 569.2ft AMSL
18.5 to 23.5ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
592.7 to 575.2ft AMSL
0.0 to 17.5ft BGS
Material: Bentonite Chips
Sand Pack:
575.2 to 568.7ft AMSL
17.5 to 24.0ft BGS
Material: Global #5

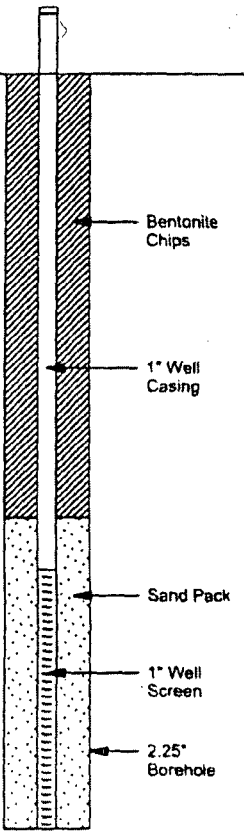
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: S-3
DATE COMPLETED: December 5, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: J. LUZWICK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	TOP OF CASING GROUND SURFACE	593.4 592.7					
2, 4, 6, 8, 10, 12, 14	SP SAND, fine grained, brown						
	END OF BOREHOLE @ 14.5ft BGS	578.2					
16, 18, 20, 22, 24							



WELL DETAILS
Screened interval:
583.2 to 578.2ft AMSL
9.5 to 14.5ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
592.7 to 584.2ft AMSL
0.0 to 8.5ft BGS
Material: Bentonite Chips
Sand Pack:
584.2 to 578.2ft AMSL
8.5 to 14.5ft BGS
Material: Global #5

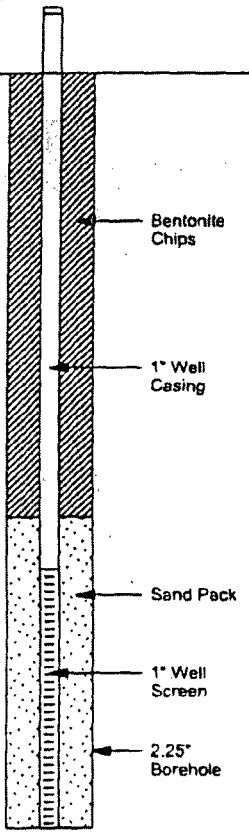
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: S-4
DATE COMPLETED: December 5, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: J. LUZWICK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE
	TOP OF CASING GROUND SURFACE	594.6 594.2					
	SP SAND, fine grained, brown						
2							
4							
6							
8							
10							
12							
14		579.7					
	END OF BOREHOLE @ 14.5ft BGS						
16							
18							
20							
22							
24							



WELL DETAILS
Screened interval:
584.7 to 579.7ft AMSL
9.5 to 14.5ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
594.2 to 585.7ft AMSL
0.0 to 8.5ft BGS
Material: Bentonite Chips
Sand Pack:
585.7 to 579.7ft AMSL
8.5 to 14.5ft BGS
Material: Global #5

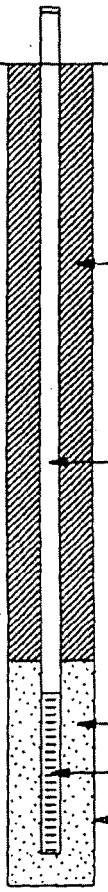
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: S-4D
DATE COMPLETED: January 26, 2006
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. BORKOWSKI

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE
	TOP OF CASING GROUND SURFACE	596.7 593.9					
	SP SAND, fine grained, brown						
2							
4							
6			Bentonite Chips				
8							
10							
12			1" Well Casing				
14							
16							
18							
20			Sand Pack				
22			1" Well Screen				
24			2.25" Borehole				
26	END OF BOREHOLE @ 25.5ft BGS	568.4					
28							
30							
32							
34							
36							
38							
40							



WELL DETAILS
Screened interval:
574.4 to 569.4ft AMSL
19.5 to 24.5ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
593.9 to 575.4ft AMSL
0.0 to 18.5ft BGS
Material: Bentonite Chips
Sand Pack:
575.4 to 568.4ft AMSL
18.5 to 25.5ft BGS
Material: Global #5

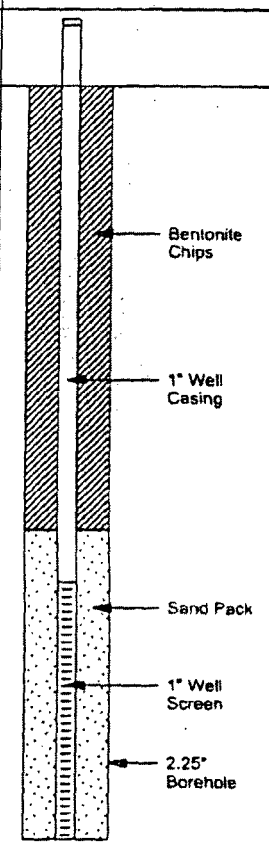
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: S-5
DATE COMPLETED: December 5, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: J. LUZWICK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE
	TOP OF CASING GROUND SURFACE	593.4 592.8					
	SP SAND, fine grained, brown						
14	END OF BOREHOLE @ 14.5ft BGS	578.3					



WELL DETAILS
Screened interval:
583.3 to 578.3ft AMSL
9.5 to 14.5ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
592.8 to 584.3ft AMSL
0.0 to 8.5ft BGS
Material: Bentonite Chips
Sand Pack:
584.3 to 578.3ft AMSL
8.5 to 14.5ft BGS
Material: Global #5

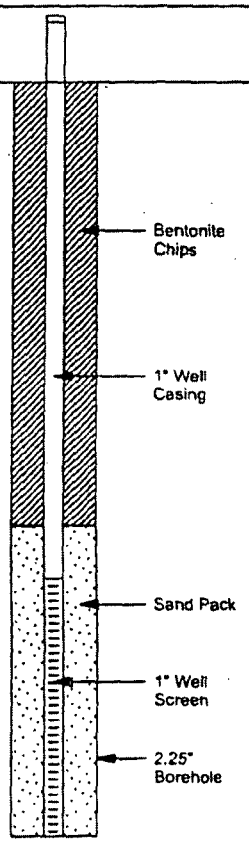
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: S-6
DATE COMPLETED: December 5, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: J. LUZWICK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	TOP OF CASING GROUND SURFACE	595.6 595.0					
	SP SAND, fine grained, brown						
2							
4							
6							
8							
10							
12							
14							
	END OF BOREHOLE @ 14.5ft BGS	580.5					
16							
18							
20							
22							
24							



WELL DETAILS
Screened interval:
585.5 to 580.5ft AMSL
9.5 to 14.5ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
595.0 to 586.5ft AMSL
0.0 to 8.5ft BGS
Material: Bentonite Chips
Sand Pack:
586.5 to 580.5ft AMSL
8.5 to 14.5ft BGS
Material: Global #5

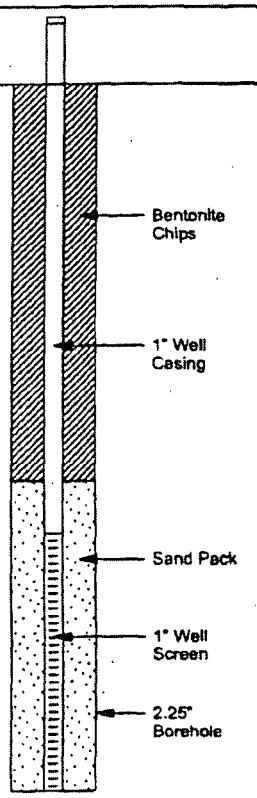
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: S-7
DATE COMPLETED: January 24, 2006
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. KUHL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE
	TOP OF CASING GROUND SURFACE	594.7 593.5					
	SP SAND, fine grained, brown						
2							
4							
6							
8							
10							
12							
14	END OF BOREHOLE @ 13.6ft BGS	579.9					
16							
18							
20							
22							
24							



WELL DETAILS
Screened interval:
584.9 to 579.9ft AMSL
8.6 to 13.6ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
593.5 to 585.9ft AMSL
0.0 to 7.6ft BGS
Material: Bentonite Chips
Sand Pack:
585.9 to 579.9ft AMSL
7.6 to 13.6ft BGS
Material: Global #5

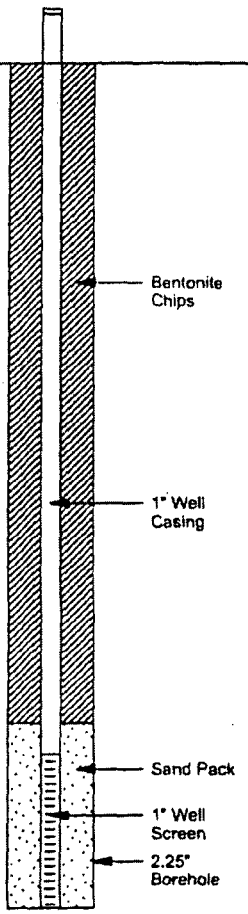
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: S-7D
DATE COMPLETED: January 24, 2006
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. KUHL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE
	TOP OF CASING GROUND SURFACE	596.5 593.5					
	SP SAND, fine grained, brown						
2							
4							
6							
8							
10							
12							
14							
16							
18							
20							
22							
24							
26							
28	END OF BOREHOLE @ 27.5ft BGS	566.0					
30							
32							
34							
36							
38							
40							
42							



WELL DETAILS
Screened interval:
571.0 to 566.0ft AMSL
22.5 to 27.5ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
593.5 to 572.0ft AMSL
0.0 to 21.5ft BGS
Material: Bentonite Chips
Sand Pack:
572.0 to 566.0ft AMSL
21.5 to 27.5ft BGS
Material: Global #5

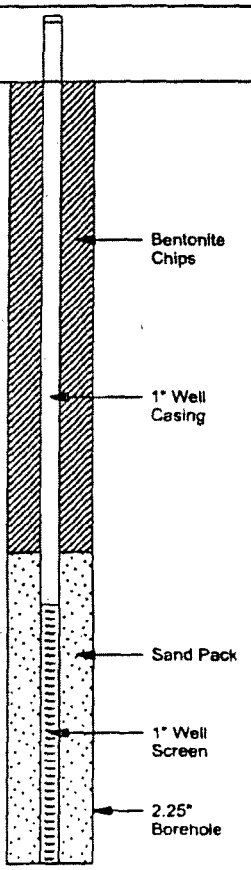
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: VB-1-1
DATE COMPLETED: November 16, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: D. CRUICKSHANK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	TOP OF CASING GROUND SURFACE	605.6 602.1					
	SP SAND, fine grained, brown						
2							
4							
6							
8							
10							
12							
14							
	END OF BOREHOLE @ 15.0ft BGS	587.1					
16							
18							
20							
22							
24							



WELL DETAILS
Screened interval:
592.1 to 587.1ft AMSL
10.0 to 15.0ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
602.1 to 593.1ft AMSL
0.0 to 9.0ft BGS
Material: Bentonite Chips
Sand Pack:
593.1 to 587.1ft AMSL
9.0 to 15.0ft BGS
Material: Global #5

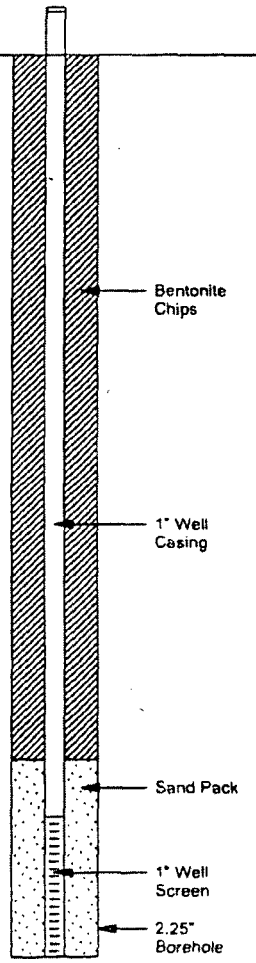
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: VB-1-1D
DATE COMPLETED: December 16, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: J. LUZWICK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	RUN NUMBER	CORE RECOVERY %	RQD %
	TOP OF CASING GROUND SURFACE	604.5 602.1				
	SP SAND, fine grained, brown					
32	END OF BOREHOLE @ 32.0ft BGS	570.1				



WELL DETAILS
Screened interval:
575.1 to 570.1ft AMSL
27.0 to 32.0ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
602.1 to 577.1ft AMSL
0.0 to 25.0ft BGS
Material: Bentonite Chips
Sand Pack:
577.1 to 570.1ft AMSL
25.0 to 32.0ft BGS
Material: Global #5

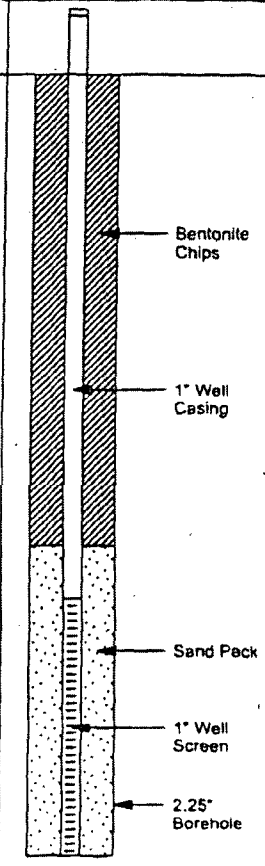
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: VB-1-2
DATE COMPLETED: November 16, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: D. CRUICKSHANK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	TOP OF CASING GROUND SURFACE	604.7 599.9					
	SP SAND, fine grained, brown						
2							
4							
6							
8							
10							
12							
14							
	END OF BOREHOLE @ 15.0ft BGS	584.9					
16							
18							
20							
22							
24							



WELL DETAILS
Screened interval:
589.9 to 584.9ft AMSL
10.0 to 15.0ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
599.9 to 590.9ft AMSL
0.0 to 9.0ft BGS
Material: Bentonite Chips
Sand Pack:
590.9 to 584.9ft AMSL
9.0 to 15.0ft BGS
Material: Global #5

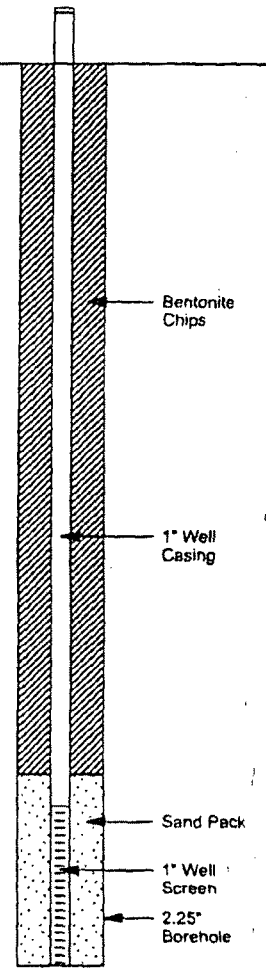
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: VB-1-2D
DATE COMPLETED: January 13, 2006
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. KUHL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE
	TOP OF CASING GROUND SURFACE	601.9 600.0					
2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40	SP SAND, fine grained, brown						
28	END OF BOREHOLE @ 28.0ft BGS	572.0					



WELL DETAILS
Screened interval:
577.0 to 572.0ft AMSL
23.0 to 28.0ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
600.0 to 578.0ft AMSL
0.0 to 22.0ft BGS
Material: Bentonite Chips
Sand Pack:
578.0 to 572.0ft AMSL
22.0 to 28.0ft BGS
Material: Global #5

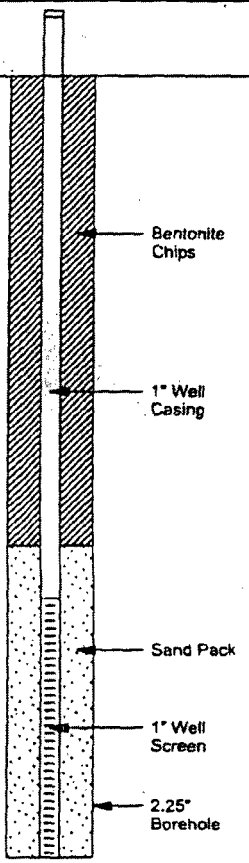
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: VB-1-3
DATE COMPLETED: November 16, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: D. CRUICKSHANK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	TOP OF CASING GROUND SURFACE	603.6 599.6					
	SP SAND, fine grained, brown						
2							
4							
6							
8							
10							
12							
14							
	END OF BOREHOLE @ 15.0ft BGS	584.6					
16							
18							
20							
22							
24							



WELL DETAILS
Screened interval:
589.6 to 584.6ft AMSL
10.0 to 15.0ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
599.6 to 590.6ft AMSL
0.0 to 9.0ft BGS
Material: Bentonite Chips
Sand Pack:
590.6 to 584.6ft AMSL
9.0 to 15.0ft BGS
Material: Global #5

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: VB-1-3D
DATE COMPLETED: January 13, 2006
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. KUHL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE
	TOP OF CASING GROUND SURFACE	602.0 599.6					
2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26	SP SAND, fine grained, brown		Bentonite Chips; 1" Well Casing; Sand Pack; 1" Well Screen; 2.25" Borehole				
28, 30, 32, 34, 36, 38, 40	END OF BOREHOLE @ 27.5ft BGS	572.1					

WELL DETAILS
Screened interval:
577.1 to 572.1ft AMSL
22.5 to 27.5ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
599.6 to 578.1ft AMSL
0.0 to 21.5ft BGS
Material: Bentonite Chips
Sand Pack:
578.1 to 572.1ft AMSL
21.5 to 27.5ft BGS
Material: Global #5

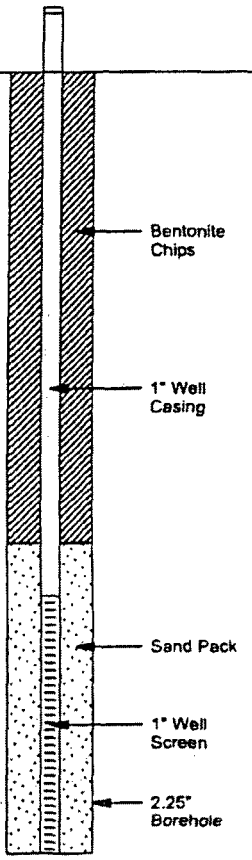
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: VB-1-4
DATE COMPLETED: November 16, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: D. CRUICKSHANK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE
	TOP OF CASING GROUND SURFACE	601.5 599.3					
2, 4, 6, 8, 10, 12, 14	SP SAND, fine grained, brown						
	END OF BOREHOLE @ 15.0ft BGS	584.3					
16, 18, 20, 22, 24							



WELL DETAILS
Screened interval:
589.3 to 584.3ft AMSL
10.0 to 15.0ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
599.3 to 590.3ft AMSL
0.0 to 9.0ft BGS
Material: Bentonite Chips
Sand Pack:
590.3 to 584.3ft AMSL
9.0 to 15.0ft BGS
Material: Global #5

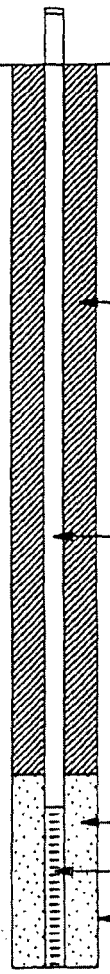
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: VB-1-4D
DATE COMPLETED: January 13, 2006
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. KUHL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	TOP OF CASING GROUND SURFACE	602.0 599.9					
	SP SAND, fine grained, brown						
2							
4							
6							
8			Bentonite Chips				
10							
12							
14			1" Well Casing				
16							
18							
20							
22							
24			Sand Pack 1" Well Screen				
26			2.25" Borehole				
28	END OF BOREHOLE @ 28.0ft BGS	571.9					
30							
32							
34							
36							
38							
40							



WELL DETAILS
Screened interval:
576.9 to 571.9ft AMSL
23.0 to 28.0ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
599.9 to 577.9ft AMSL
0.0 to 22.0ft BGS
Material: Bentonite Chips
Sand Pack:
577.9 to 571.9ft AMSL
22.0 to 28.0ft BGS
Material: Global #5

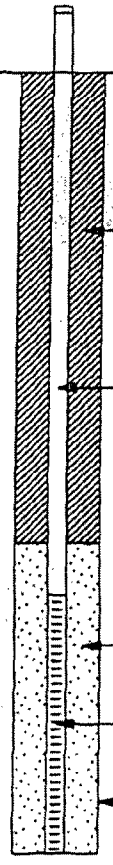
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: VB-1-5
DATE COMPLETED: November 16, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: D. CRUICKSHANK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE
	TOP OF CASING GROUND SURFACE	603.9 600.2					
	SP SAND, fine grained, brown						
2							
4			Bentonite Chips				
6			1" Well Casing				
8							
10			Sand Pack				
12			1" Well Screen				
14			2.25" Borehole				
	END OF BOREHOLE @ 15.0ft BGS	585.2					
16							
18							
20							
22							
24							



WELL DETAILS
Screened interval:
590.2 to 585.2ft AMSL
10.0 to 15.0ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
600.2 to 591.2ft AMSL
0.0 to 9.0ft BGS
Material: Bentonite Chips
Sand Pack:
591.2 to 585.2ft AMSL
9.0 to 15.0ft BGS
Material: Global #5

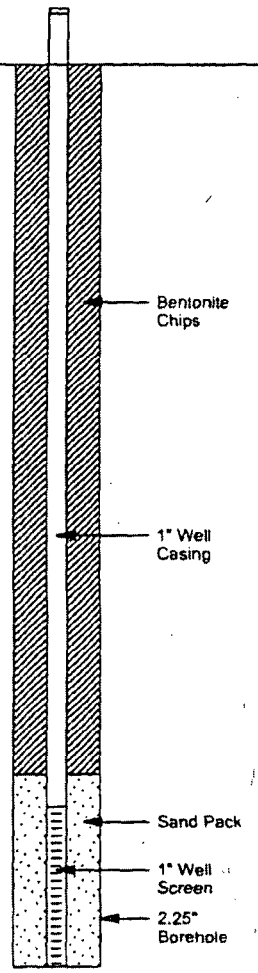
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: VB-1-5D
DATE COMPLETED: January 13, 2006
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. KUHL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE
	TOP OF CASING GROUND SURFACE	602.3 600.3					
2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40	SP SAND, fine grained, brown		Bentonite Chips 1" Well Casing Sand Pack 1" Well Screen 2.25" Borehole				
	END OF BOREHOLE @ 28.0ft BGS	572.3					



WELL DETAILS
Screened Interval:
577.3 to 572.3ft AMSL
23.0 to 28.0ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
600.3 to 578.3ft AMSL
0.0 to 22.0ft BGS
Material: Bentonite Chips
Sand Pack:
578.3 to 572.3ft AMSL
22.0 to 28.0ft BGS
Material: Global #5

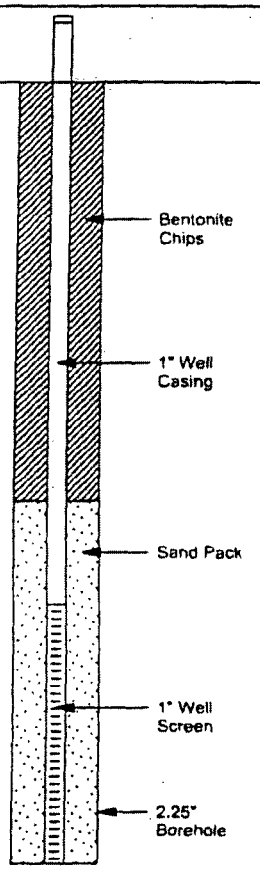
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE: REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG
(BEDROCK)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: VB-1-6
DATE COMPLETED: November 22, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: J. LUZWICK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	RUN NUMBER	CORE RECOVERY %	RQD %
	TOP OF CASING GROUND SURFACE	605.3 602.2				
	SP SAND, fine grained, brown					
15	END OF BOREHOLE @ 15.0ft BGS	587.2				



WELL DETAILS
Screened interval:
592.2 to 587.2ft AMSL
10.0 to 15.0ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
602.2 to 594.2ft AMSL
0.0 to 8.0ft BGS
Material: Bentonite Chips
Sand Pack:
594.2 to 587.2ft AMSL
8.0 to 15.0ft BGS
Material: Global #5

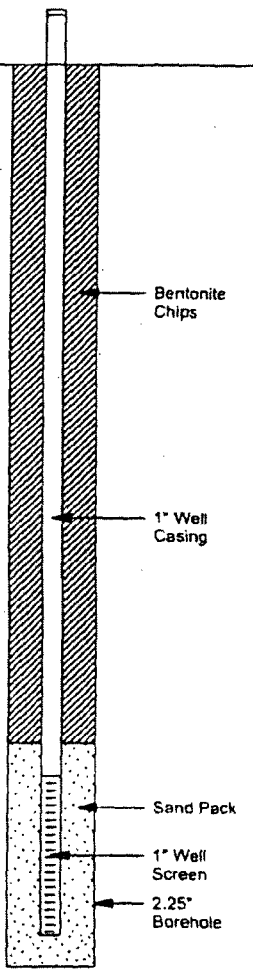
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: VB-1-6D
DATE COMPLETED: January 13, 2006
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. KUHL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	TOP OF CASING GROUND SURFACE	605.6 601.9					
2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40	SP SAND, fine grained, well sorted, gray/brown - coarse grained sand, trace fine gravel, no fine grained sand at 23.8ft BGS - 2-inch layer of cobbles at 26.8ft BGS CL SILTY CLAY, trace gravel, hard, low plasticity, gray, dry END OF BOREHOLE @ 28.0ft BGS	574.9 573.9		1 2 3	P/S P/S P/S		



WELL DETAILS
Screened interval:
579.9 to 574.9ft AMSL
22.0 to 27.0ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
601.9 to 580.9ft AMSL
0.0 to 21.0ft BGS
Material: Bentonite Chips
Sand Pack:
580.9 to 573.9ft AMSL
21.0 to 28.0ft BGS
Material: Global #5

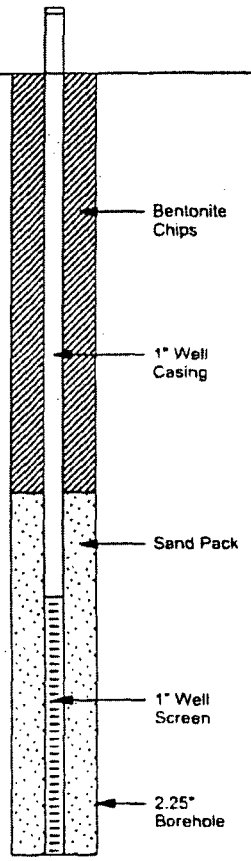
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: VB-1-7
DATE COMPLETED: November 22, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: J. LUZWICK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	RUN NUMBER	CORE RECOVERY %	RQD %
	TOP OF CASING GROUND SURFACE	603.6 600.6				
	SP SAND, fine grained, brown					
2			Bentonite Chips			
4						
6			1" Well Casing			
8						
10			Sand Pack			
12			1" Well Screen			
14			2.25" Borehole			
	END OF BOREHOLE @ 15.0ft BGS	585.6				
16						
18						
20						
22						
24						



WELL DETAILS
Screened interval:
590.6 to 585.6ft AMSL
10.0 to 15.0ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
600.6 to 592.6ft AMSL
0.0 to 8.0ft BGS
Material: Bentonite Chips
Sand Pack:
592.6 to 585.6ft AMSL
8.0 to 15.0ft BGS
Material: Global #5

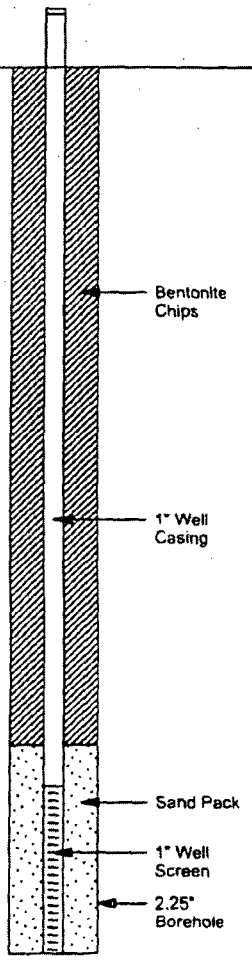
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: VB-1-7D
DATE COMPLETED: January 9, 2006
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: J. LUZWICK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE
	TOP OF CASING GROUND SURFACE	602.8 600.5					
2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38	SP SAND, fine grained, brown						
	END OF BOREHOLE @ 26.2ft BGS	574.3					



WELL DETAILS
Screened interval:
579.3 to 574.3ft AMSL
21.2 to 26.2ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
600.5 to 580.5ft AMSL
0.0 to 20.0ft BGS
Material: Bentonite Chips
Sand Pack:
580.5 to 574.3ft AMSL
20.0 to 26.2ft BGS
Material: Global #5

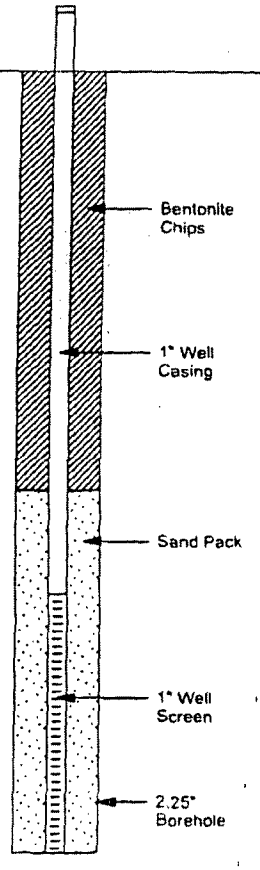
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG
(BEDROCK)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: VB-1-8
DATE COMPLETED: November 22, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: J. LUZWICK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	RUN NUMBER	CORE RECOVERY %	RQD %
	TOP OF CASING GROUND SURFACE	603.4 600.3				
	SP SAND, fine grained, brown					
15.0	END OF BOREHOLE @ 15.0ft BGS	585.3				



WELL DETAILS
Screened interval:
590.3 to 585.3ft AMSL
10.0 to 15.0ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
600.3 to 592.3ft AMSL
0.0 to 8.0ft BGS
Material: Bentonite Chips
Sand Pack:
592.3 to 585.3ft AMSL
8.0 to 15.0ft BGS
Material: Global #5

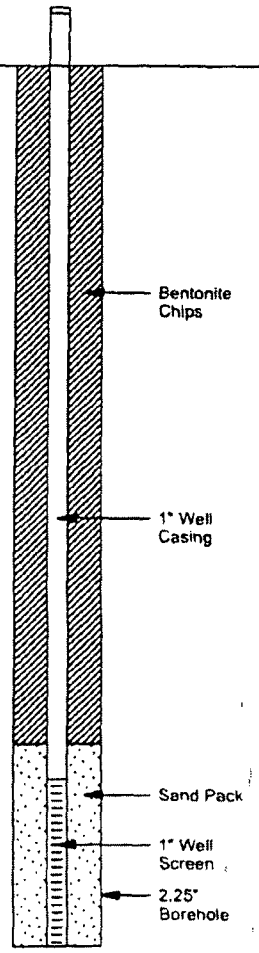
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: VB-1-8D
DATE COMPLETED: January 9, 2006
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: J. LUZWICK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE
	TOP OF CASING *GROUND SURFACE*	602.5 600.2					
	SP SAND, fine grained, brown						
26	END OF BOREHOLE @ 26.0ft BGS	574.2					



WELL DETAILS
Screened interval:
579.2 to 574.2ft AMSL
21.0 to 26.0ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
600.2 to 580.2ft AMSL
0.0 to 20.0ft BGS
Material: Bentonite Chips
Sand Pack:
580.2 to 574.2ft AMSL
20.0 to 26.0ft BGS
Material: Global #5

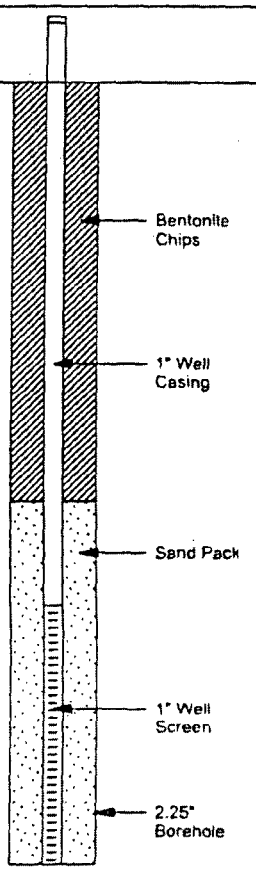
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: VB-1-9
DATE COMPLETED: November 22, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: J. LUZWICK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	RUN NUMBER	CORE RECOVERY %	RQD %
	TOP OF CASING GROUND SURFACE	601.9 598.9				
	SP SAND, fine grained, brown					
15	END OF BOREHOLE @ 15.0ft BGS	583.9				



WELL DETAILS
Screened interval:
588.9 to 583.9ft AMSL
10.0 to 15.0ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
598.9 to 590.9ft AMSL
0.0 to 8.0ft BGS
Material: Bentonite Chips
Sand Pack:
590.9 to 583.9ft AMSL
8.0 to 15.0ft BGS
Material: Global #5

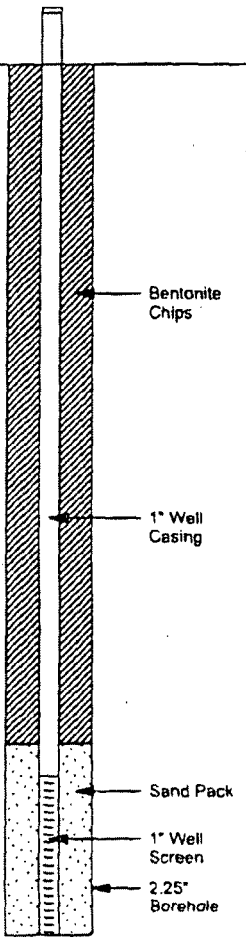
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: VB1-9D
DATE COMPLETED: January 13, 2006
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: J. LUZWICK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	TOP OF CASING GROUND SURFACE	601.6 598.7					
2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26	SP SAND, fine grained, brown		Bentonite Chips; 1" Well Casing; Sand Pack; 1" Well Screen; 2.25" Borehole				
28, 30, 32, 34, 36, 38, 40	END OF BOREHOLE @ 27.0ft BGS	571.7					



WELL DETAILS
Screened interval:
576.7 to 571.7ft AMSL
22.0 to 27.0ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
598.7 to 577.7ft AMSL
0.0 to 21.0ft BGS
Material: Bentonite Chips
Sand Pack:
577.7 to 571.7ft AMSL
21.0 to 27.0ft BGS
Material: Global #5

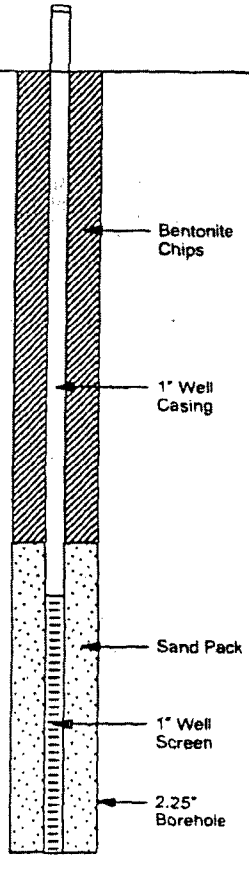
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: VB-2-1
DATE COMPLETED: November 15, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: D. CRUICKSHANK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE
	TOP OF CASING GROUND SURFACE	605.7 601.3					
	SP SAND, fine grained, brown						
2							
4							
6							
8							
10							
12							
14							
	END OF BOREHOLE @ 15.0ft BGS	586.3					
16							
18							
20							
22							
24							



WELL DETAILS
Screened interval:
591.3 to 586.3ft AMSL
10.0 to 15.0ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
601.3 to 592.3ft AMSL
0.0 to 9.0ft BGS
Material: Bentonite Chips
Sand Pack:
592.3 to 586.3ft AMSL
9.0 to 15.0ft BGS
Material: Global #5

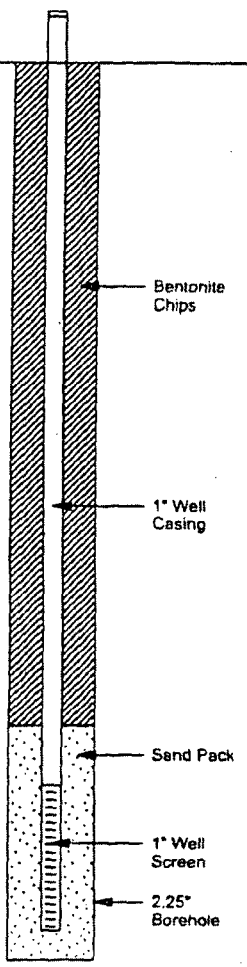
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: VB-2-2D
DATE COMPLETED: December 21, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: J. LUZWICK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE
	TOP OF CASING GROUND SURFACE	599.0 596.5					
	SP SAND, fine grained, brown						
30	END OF BOREHOLE @ 30.5ft BGS	566.0					



WELL DETAILS
Screened interval:
572.0 to 567.0ft AMSL
24.5 to 29.5ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
596.5 to 574.0ft AMSL
0.0 to 22.5ft BGS
Material: Bentonite Chips
Sand Pack:
574.0 to 566.0ft AMSL
22.5 to 30.5ft BGS
Material: Global #5

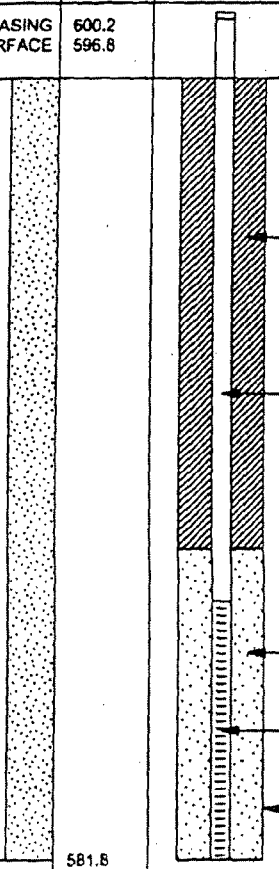
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: VB-2-2
DATE COMPLETED: November 15, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: D. CRUICKSHANK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE
	TOP OF CASING GROUND SURFACE	600.2 596.8					
	SP SAND, fine grained, brown						
2							
4			Bentonite Chips				
6			1" Well Casing				
8							
10			Sand Pack				
12			1" Well Screen				
14			2.25" Borehole				
	END OF BOREHOLE @ 15.0ft BGS	581.8					
16							
18							
20							
22							
24							



WELL DETAILS
Screened interval:
586.8 to 581.8ft AMSL
10.0 to 15.0ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
596.8 to 587.8ft AMSL
0.0 to 9.0ft BGS
Material: Bentonite Chips
Sand Pack:
587.8 to 581.8ft AMSL
9.0 to 15.0ft BGS
Material: Global #5

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: VB-2-3
DATE COMPLETED: November 15, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: D. CRUICKSHANK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	TOP OF CASING GROUND SURFACE	600.2 596.0					
	SP SAND, fine grained, brown						
2							
4			Bentonite Chips				
6			1" Well Casing				
8							
10							
12			Sand Pack 1" Well Screen				
14			2.25" Borehole				
	END OF BOREHOLE @ 15.0ft BGS	581.0					
16							
18							
20							
22							
24							

WELL DETAILS
Screened interval:
586.0 to 581.0ft AMSL
10.0 to 15.0ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
596.0 to 587.0ft AMSL
0.0 to 9.0ft BGS
Material: Bentonite Chips
Sand Pack:
587.0 to 581.0ft AMSL
9.0 to 15.0ft BGS
Material: Global #5

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: VB-2-4
DATE COMPLETED: November 15, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: D. CRUICKSHANK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE
	TOP OF CASING GROUND SURFACE	600.8 596.1					
	SP SAND, fine grained, brown						
2							
4			Bentonite Chips				
6			1" Well Casing				
8							
10			Sand Pack				
12			1" Well Screen				
14			2.25" Borehole				
	END OF BOREHOLE @ 15.0ft BGS	581.1					
16							
18							
20							
22							
24							

WELL DETAILS
Screened interval:
586.1 to 581.1ft AMSL
10.0 to 15.0ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
596.1 to 587.1ft AMSL
0.0 to 9.0ft BGS
Material: Bentonite Chips
Sand Pack:
587.1 to 581.1ft AMSL
9.0 to 15.0ft BGS
Material: Global #5

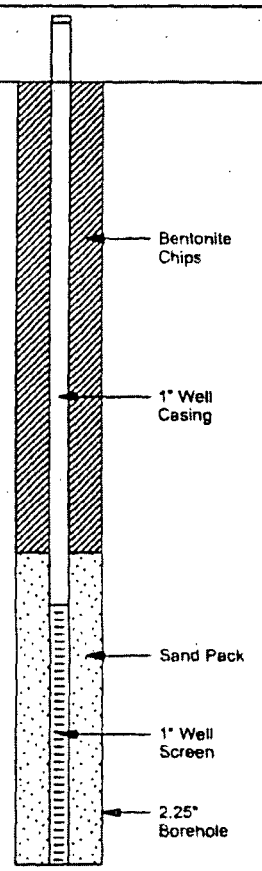
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: VB-2-5
DATE COMPLETED: November 15, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: D. CRUICKSHANK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE
	TOP OF CASING GROUND SURFACE	599.8 595.8					
	SP SAND, fine grained, brown						
2							
4							
6							
8							
10							
12							
14							
	END OF BOREHOLE @ 15.0ft BGS	580.8					
16							
18							
20							
22							
24							



WELL DETAILS
Screened interval:
585.8 to 580.8ft AMSL
10.0 to 15.0ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
595.8 to 586.8ft AMSL
0.0 to 9.0ft BGS
Material: Bentonite Chips
Sand Pack:
586.8 to 580.8ft AMSL
9.0 to 15.0ft BGS
Material: Global #5

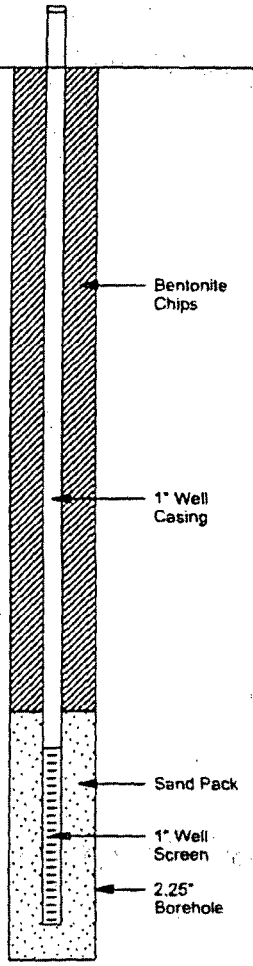
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: VB-2-5D
DATE COMPLETED: December 14, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: J. LUZWICK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	TOP OF CASING GROUND SURFACE	596.8 595.8					
	SP SAND, fine grained, brown.						
2							
4							
6							
8							
10							
12							
14							
16							
18							
20							
22							
24							
	END OF BOREHOLE @ 25.0ft BGS	570.8					
26							
28							
30							
32							
34							
36							



WELL DETAILS
Screened interval:
576.8 to 571.8ft AMSL
19.0 to 24.0ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
595.8 to 577.8ft AMSL
0.0 to 18.0ft BGS
Material: Bentonite Chips
Sand Pack:
577.8 to 570.8ft AMSL
18.0 to 25.0ft BGS
Material: Global #5

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: VB-2-6
DATE COMPLETED: November 15, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: D. CRUICKSHANK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE
	TOP OF CASING GROUND SURFACE	601.4 596.0					
	SP SAND, fine grained, brown						
2							
4			Bentonite Chips				
6			1" Well Casing				
8							
10							
12			Sand Pack 1" Well Screen				
14			2.25" Borehole				
	END OF BOREHOLE @ 15.0ft BGS	581.0					
16							
18							
20							
22							
24							

WELL DETAILS
Screened interval:
586.0 to 581.0ft AMSL
10.0 to 15.0ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
596.0 to 587.0ft AMSL
0.0 to 9.0ft BGS
Material: Bentonite Chips
Sand Pack:
587.0 to 581.0ft AMSL
9.0 to 15.0ft BGS
Material: Global #5

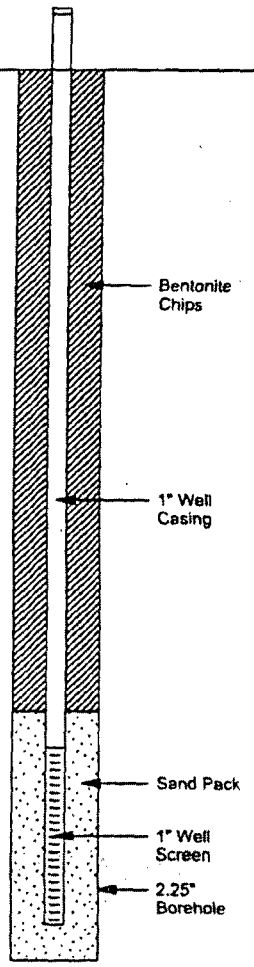
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: VB-2-6D
DATE COMPLETED: December 14, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: J. LUZWICK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	TOP OF CASING GROUND SURFACE	596.8 596.0					
2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24	SP SAND, fine grained, brown		Bentonite Chips; 1" Well Casing; Sand Pack; 1" Well Screen; 2.25" Borehole				
26, 28, 30, 32, 34, 36	END OF BOREHOLE @ 25.0ft BGS Clay at 25 ft BGS	571.0					



WELL DETAILS
Screened interval:
577.0 to 572.0ft AMSL
19.0 to 24.0ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
596.0 to 578.0ft AMSL
0.0 to 18.0ft BGS
Material: Bentonite Chips
Sand Pack:
415.0 to 571.0ft AMSL
181.0 to 25.0ft BGS
Material: Global #5

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: VB-2-7
DATE COMPLETED: December 14, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: J. LUZWICK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE
	TOP OF CASING GROUND SURFACE	602.0 600.5					
	SP SAND, fine grained, brown						
2							
4			Bentonite Chips				
6			1" Well Casing				
8							
10			Sand Pack				
12			1" Well Screen				
14			2.25" Borehole				
	END OF BOREHOLE @ 15.0ft BGS	585.5					
16							
18							
20							
22							
24							

WELL DETAILS
Screened interval:
590.5 to 585.5ft AMSL
10.0 to 15.0ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
600.5 to 591.5ft AMSL
0.0 to 9.0ft BGS
Material: Bentonite Chips
Sand Pack:
591.5 to 585.5ft AMSL
9.0 to 15.0ft BGS
Material: Global #5

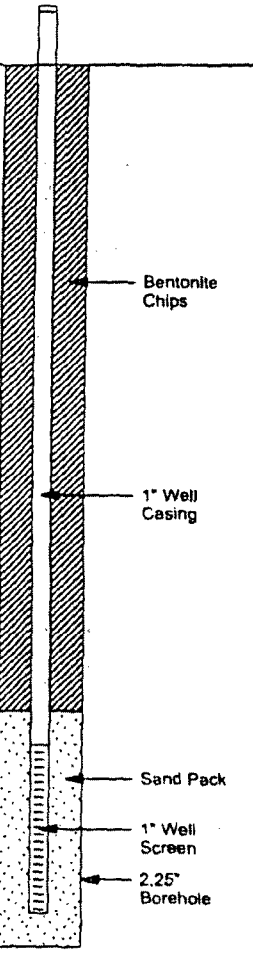
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: VB-2-7D
DATE COMPLETED: December 14, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: J. LUZWICK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE
	TOP OF CASING GROUND SURFACE	602.3 600.5					
2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38	SP SAND, fine grained, brown						
26	END OF BOREHOLE @ 26.0ft BGS Clay at 26 ft BGS	574.5					



WELL DETAILS
Screened interval:
580.5 to 575.5ft AMSL
20.0 to 25.0ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
600.5 to 581.5ft AMSL
0.0 to 19.0ft BGS
Material: Bentonite Chips
Sand Pack:
581.5 to 574.5ft AMSL
19.0 to 26.0ft BGS
Material: Global #5

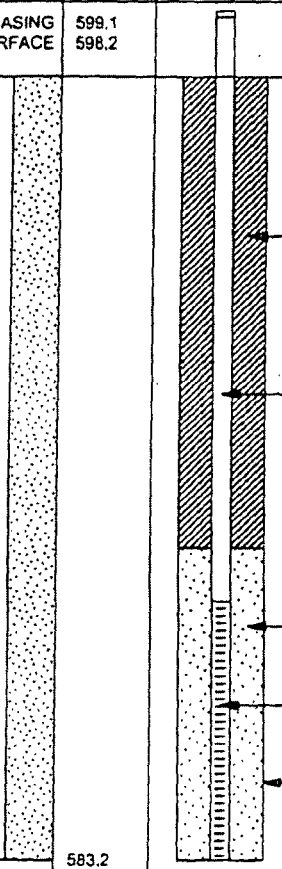
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: VB-2-8
DATE COMPLETED: December 14, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: J. LUZWICK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE
	TOP OF CASING GROUND SURFACE	599.1 598.2					
	SP SAND, fine grained, brown						
2							
4			Bentonite Chips				
6			1" Well Casing				
8							
10			Sand Pack				
12			1" Well Screen				
14			2.25" Borehole				
	END OF BOREHOLE @ 15.0ft BGS	583.2					
16							
18							
20							
22							
24							



WELL DETAILS
Screened interval:
588.2 to 583.2ft AMSL
10.0 to 15.0ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
598.2 to 589.2ft AMSL
0.0 to 9.0ft BGS
Material: Bentonite Chips
Sand Pack:
589.2 to 583.2ft AMSL
9.0 to 15.0ft BGS
Material: Global #5

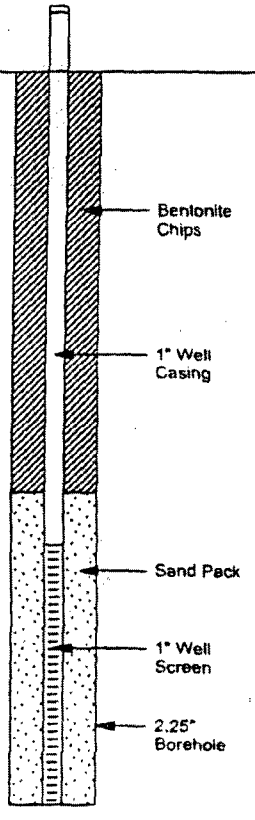
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: VB-2-9
DATE COMPLETED: January 12, 2006
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. KUHL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE
	TOP OF CASING GROUND SURFACE	599.5 596.3					
	SP SAND, fine grained, brown						
14	END OF BOREHOLE @ 14.0ft BGS	582.3					



WELL DETAILS
Screened interval:
587.3 to 582.3ft AMSL
9.0 to 14.0ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
596.3 to 588.3ft AMSL
0.0 to 8.0ft BGS
Material: Bentonite Chips
Sand Pack:
588.3 to 582.3ft AMSL
8.0 to 14.0ft BGS
Material: Global #5

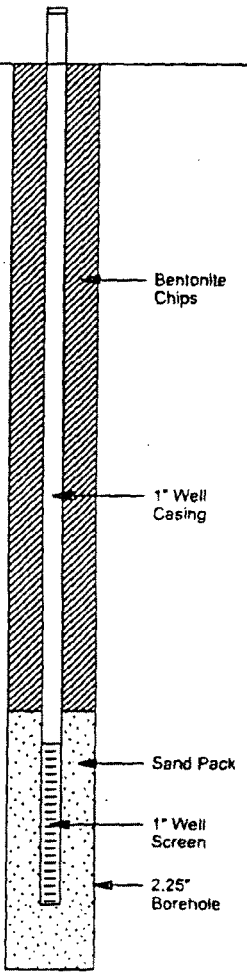
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: VB-2-9D
DATE COMPLETED: January 12, 2006
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. KUHL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	TOP OF CASING GROUND SURFACE	599.9 596.3					
	SP SAND, fine grained, well sorted, brown						
26	- 2-inch thick gravel and cobble layer with trace sand at 26.0ft BGS	570.1					
	CL SILTY CLAY, trace gravel, hard, low plasticity, gray, dry						
28	END OF BOREHOLE @ 28.0ft BGS	568.3					



SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE
1	P/S		
2	P/S		
3	P/S		

WELL DETAILS
Screened interval:
575.3 to 570.3ft AMSL
21.0 to 26.0ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
596.3 to 576.3ft AMSL
0.0 to 20.0ft BGS
Material: Bentonite Chips
Sand Pack:
576.3 to 568.3ft AMSL
20.0 to 28.0ft BGS
Material: Global #5

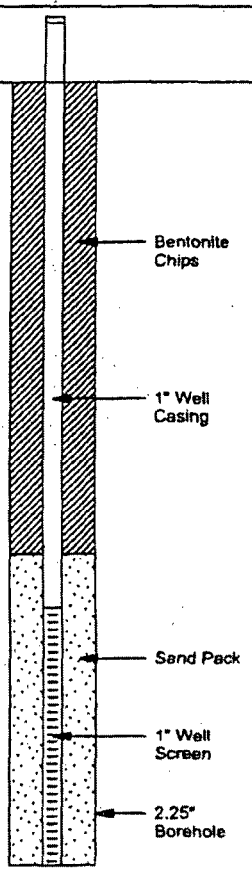
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: VB-3-1
DATE COMPLETED: November 15, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: D. CRUICKSHANK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	TOP OF CASING GROUND SURFACE	601.0 596.4					
	SP SAND, fine grained, brown						
2							
4							
6							
8							
10							
12							
14							
	END OF BOREHOLE @ 15.0ft BGS	581.4					
16							
18							
20							
22							
24							



WELL DETAILS
Screened interval:
586.4 to 581.4ft AMSL
10.0 to 15.0ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
596.4 to 587.4ft AMSL
0.0 to 9.0ft BGS
Material: Bentonite Chips
Sand Pack:
587.4 to 581.4ft AMSL
9.0 to 15.0ft BGS
Material: Global #5

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: VB-3-2
DATE COMPLETED: November 15, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: D. CRUICKSHANK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE
	TOP OF CASING GROUND SURFACE	601.5 596.5					
	SP SAND, fine grained, brown						
2							
4			Bentonite Chips				
6			1" Well Casing				
8							
10							
12			Sand Pack 1" Well Screen				
14			2.25" Borehole				
	END OF BOREHOLE @ 15.0ft BGS	581.5					
16							
18							
20							
22							
24							

WELL DETAILS
Screened interval:
586.5 to 581.5ft AMSL
10.0 to 15.0ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
596.5 to 587.5ft AMSL
0.0 to 9.0ft BGS
Material: Bentonite Chips
Sand Pack:
587.5 to 581.5ft AMSL
9.0 to 15.0ft BGS
Material: Global #5

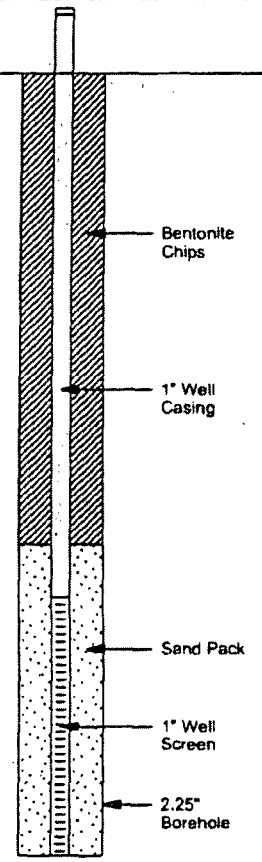
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: VB-3-3
DATE COMPLETED: November 16, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: D. CRUICKSHANK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	TOP OF CASING GROUND SURFACE	600.0 596.3					
	SP SAND, fine grained, brown						
2							
4							
6							
8							
10							
12							
14							
	END OF BOREHOLE @ 15.0ft BGS	581.3					
16							
18							
20							
22							
24							



WELL DETAILS
Screened interval:
586.3 to 581.3ft AMSL
10.0 to 15.0ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
596.3 to 587.3ft AMSL
0.0 to 9.0ft BGS
Material: Bentonite Chips
Sand Pack:
587.3 to 581.3ft AMSL
9.0 to 15.0ft BGS
Material: Global #5

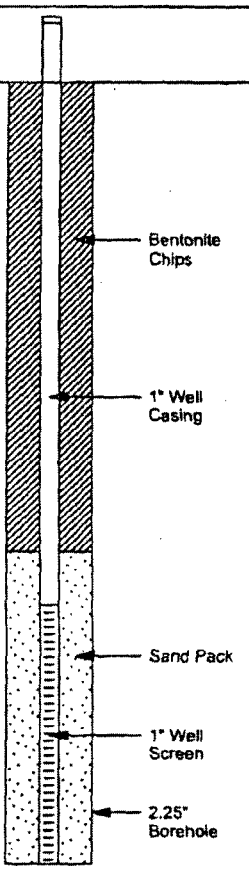
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: VB-3-4
DATE COMPLETED: November 16, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: D. CRUICKSHANK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	TOP OF CASING GROUND SURFACE	601.4 596.2					
	SP SAND, fine grained, brown						
2							
4							
6							
8							
10							
12							
14							
	END OF BOREHOLE @ 15.0ft BGS	581.2					
16							
18							
20							
22							
24							



WELL DETAILS
Screened interval:
586.2 to 581.2ft AMSL
10.0 to 15.0ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
596.2 to 587.2ft AMSL
0.0 to 9.0ft BGS
Material: Bentonite Chips
Sand Pack:
587.2 to 581.2ft AMSL
9.0 to 15.0ft BGS
Material: Global #5

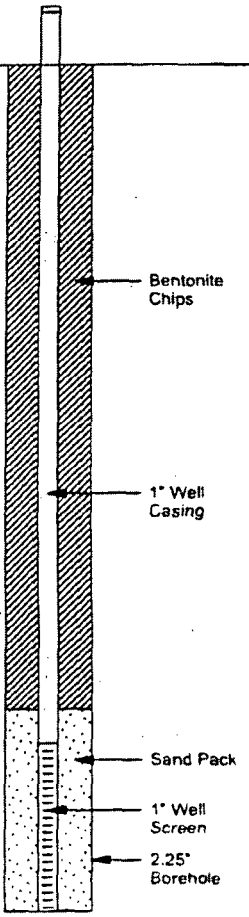
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: VB-3-4D
DATE COMPLETED: December 14, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: J. LUZWICK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	TOP OF CASING GROUND SURFACE	600.8 596.2					
2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24	SP SAND, fine grained, brown		Bentonite Chips; 1" Well Casing; Sand Pack; 1" Well Screen; 2.25" Borehole				
26, 28, 30, 32, 34, 36, 38	END OF BOREHOLE @ 25.0ft BGS	571.2					



WELL DETAILS
Screened interval:
576.2 to 571.2ft AMSL
20.0 to 25.0ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
596.2 to 577.2ft AMSL
0.0 to 19.0ft BGS
Material: Bentonite Chips
Sand Pack:
577.2 to 571.2ft AMSL
19.0 to 25.0ft BGS
Material: Global #5

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG
(BEDROCK)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: VB-3-5
DATE COMPLETED: November 22, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: J. LUZWICK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	RUN NUMBER	CORE RECOVERY %	RQD %
	TOP OF CASING GROUND SURFACE	599.2 595.9				
	SP SAND, fine grained, brown					
2			Bentonite Chips			
4						
6			1" Well Casing			
8						
10			Sand Pack			
12			1" Well Screen			
14			2.25" Borehole			
	END OF BOREHOLE @ 15.0ft BGS	580.9				
16						
18						
20						
22						
24						

WELL DETAILS
Screened interval:
585.9 to 580.9ft AMSL
10.0 to 15.0ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
595.9 to 587.9ft AMSL
0.0 to 8.0ft BGS
Material: Bentonite Chips
Sand Pack:
587.9 to 580.9ft AMSL
8.0 to 15.0ft BGS
Material: Global #5

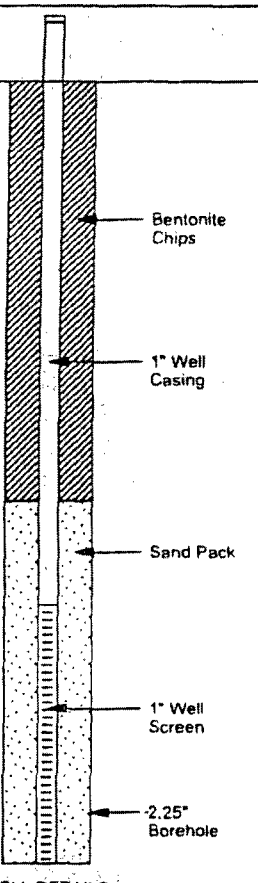
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG
(BEDROCK)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: VB-3-6
DATE COMPLETED: November 22, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: J. LUZWICK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	RUN NUMBER	CORE RECOVERY %	RQD %
	TOP OF CASING GROUND SURFACE	599.2 595.9				
	SP SAND, fine grained, brown					
2			Bentonite Chips			
4						
6			1" Well Casing			
8						
10			Sand Pack			
12			1" Well Screen			
14			2.25" Borehole			
	END OF BOREHOLE @ 15.0ft BGS	580.9				
16						
18						
20						
22						
24						



WELL DETAILS
Screened interval:
585.9 to 580.9ft AMSL
10.0 to 15.0ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
595.9 to 587.9ft AMSL
0.0 to 8.0ft BGS
Material: Bentonite Chips
Sand Pack:
587.9 to 580.9ft AMSL
8.0 to 15.0ft BGS
Material: Global #5

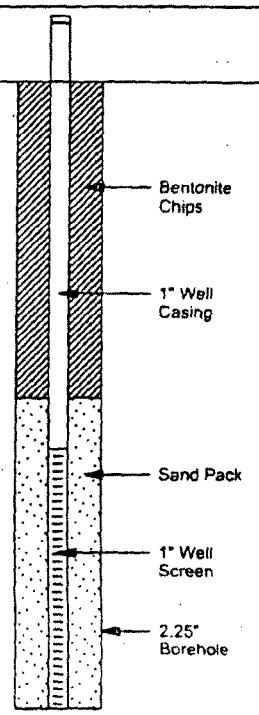
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: VB-3-7
DATE COMPLETED: December 2, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: J. LUZWICK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	TOP OF CASING GROUND SURFACE	599.5 596.2					
	SP SAND, fine grained, brown						
2			Bentonite Chips				
4			1" Well Casing				
6							
8			Sand Pack				
10			1" Well Screen				
12	END OF BOREHOLE @ 12.0ft BGS	584.2	2.25" Borehole				
14							
16							
18							
20							
22							
24							



WELL DETAILS
Screened interval:
589.2 to 584.2ft AMSL
7.0 to 12.0ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
596.2 to 590.2ft AMSL
0.0 to 6.0ft BGS
Material: Bentonite Chips
Sand Pack:
590.2 to 584.2ft AMSL
6.0 to 12.0ft BGS
Material: Global #5

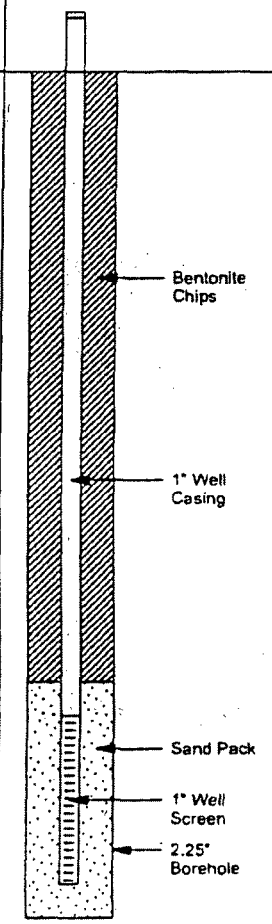
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: VB-3-7D
DATE COMPLETED: December 14, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: J. LUZWICK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE
	TOP OF CASING GROUND SURFACE	597.0 596.2					
	SP SAND, fine grained, brown						
25	END OF BOREHOLE @ 25.0ft BGS	571.2					



WELL DETAILS
Screened interval:
577.2 to 572.2ft AMSL
19.0 to 24.0ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
596.2 to 578.2ft AMSL
0.0 to 18.0ft BGS
Material: Bentonite Chips
Sand Pack:
578.2 to 571.2ft AMSL
18.0 to 25.0ft BGS
Material: Global #5

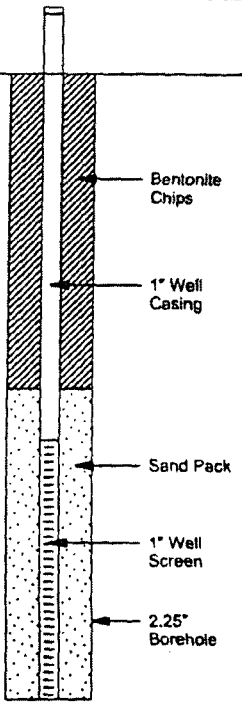
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: VB3-8
DATE COMPLETED: December 2, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: J. LUZWICK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	TOP OF CASING GROUND SURFACE	599.5 596.4					
	SP SAND, fine grained, brown						
12	END OF BOREHOLE @ 12.0ft BGS	584.4					



WELL DETAILS
Screened interval:
589.4 to 584.4ft AMSL
7.0 to 12.0ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
596.4 to 590.4ft AMSL
0.0 to 6.0ft BGS
Material: Bentonite Chips
Sand Pack:
590.4 to 584.4ft AMSL
6.0 to 12.0ft BGS
Material: Global #5

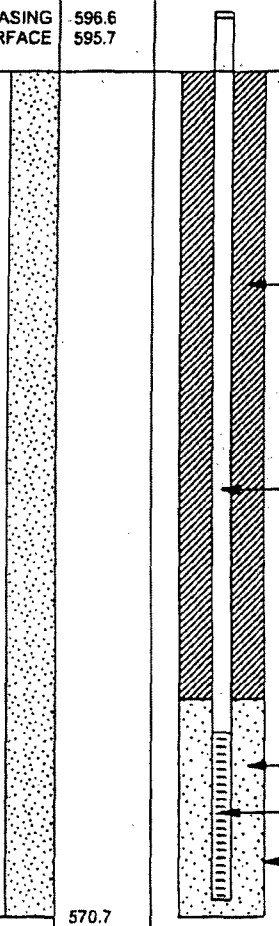
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: VB-3-9D
DATE COMPLETED: December 13, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: J. LUZWICK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE
	TOP OF CASING GROUND SURFACE	596.6 595.7					
2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24	SP SAND, fine grained, brown		Bentonite Chips 1" Well Casing Sand Pack 1" Well Screen 2.25" Borehole				
26, 28, 30, 32, 34, 36, 38	END OF BOREHOLE @ 25.0ft BGS	570.7					



WELL DETAILS
Screened interval:
576.2 to 571.2ft AMSL
19.5 to 24.5ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
595.7 to 577.2ft AMSL
0.0 to 18.5ft BGS
Material: Bentonite Chips
Sand Pack:
577.2 to 570.7ft AMSL
18.5 to 25.0ft BGS
Material: Global #5

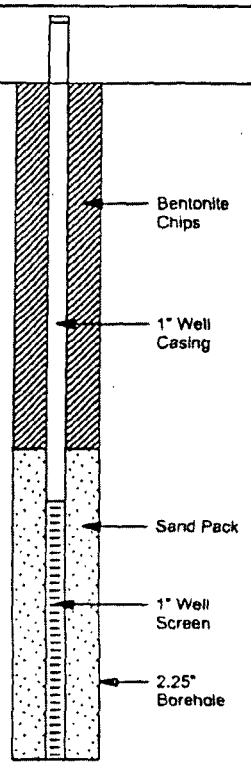
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: VB-3-10
DATE COMPLETED: December 16, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: J. LUZWICK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE
	TOP OF CASING GROUND SURFACE	599.3 596.4					
	SP SAND, fine grained, brown						
13	END OF BOREHOLE @ 13.0ft BGS	583.4					



WELL DETAILS
Screened interval:
588.4 to 583.4ft AMSL
8.0 to 13.0ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
596.4 to 589.4ft AMSL
0.0 to 7.0ft BGS
Material: Bentonite Chips
Sand Pack:
589.4 to 583.4ft AMSL
7.0 to 13.0ft BGS
Material: Global #5

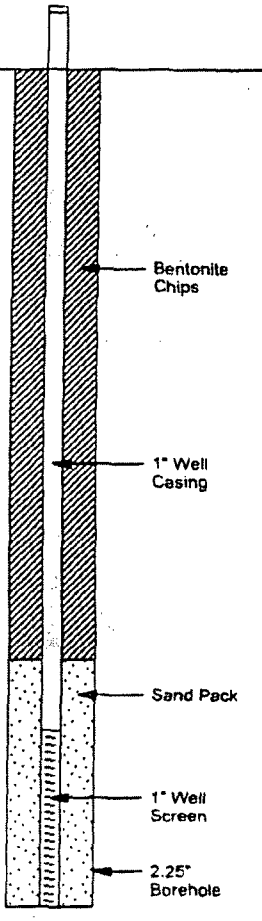
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: EXELON GENERATION
PROJECT NUMBER: 16841
CLIENT: EXELON
LOCATION: BRAIDWOOD, ILLINOIS
DRILLING CONTRACTOR: TERRA-TRACE

HOLE DESIGNATION: VB-3-10D
DATE COMPLETED: December 16, 2005
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: J. LUZWICK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITOR WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	TOP OF CASING GROUND SURFACE	598.4 596.5					
	SP SAND, fine grained, brown						
2							
4							
6							
8							
10							
12							
14							
16							
18							
20							
22							
24	END OF BOREHOLE @ 23.5ft BGS	573.0					
26							
28							
30							
32							
34							
36							



WELL DETAILS
Screened interval:
578.0 to 573.0ft AMSL
18.5 to 23.5ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 10
Material: PVC
Seal:
596.5 to 580.0ft AMSL
0.0 to 16.5ft BGS
Material: Bentonite Chips
Sand Pack:
580.0 to 573.0ft AMSL
16.5 to 23.5ft BGS
Material: Global #5

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

D

APPENDIX D

RESULTS FROM RADIOISOTOPE ANALYSES

D.1 TRITIUM

D.2 OTHER RADIOISOTOPES

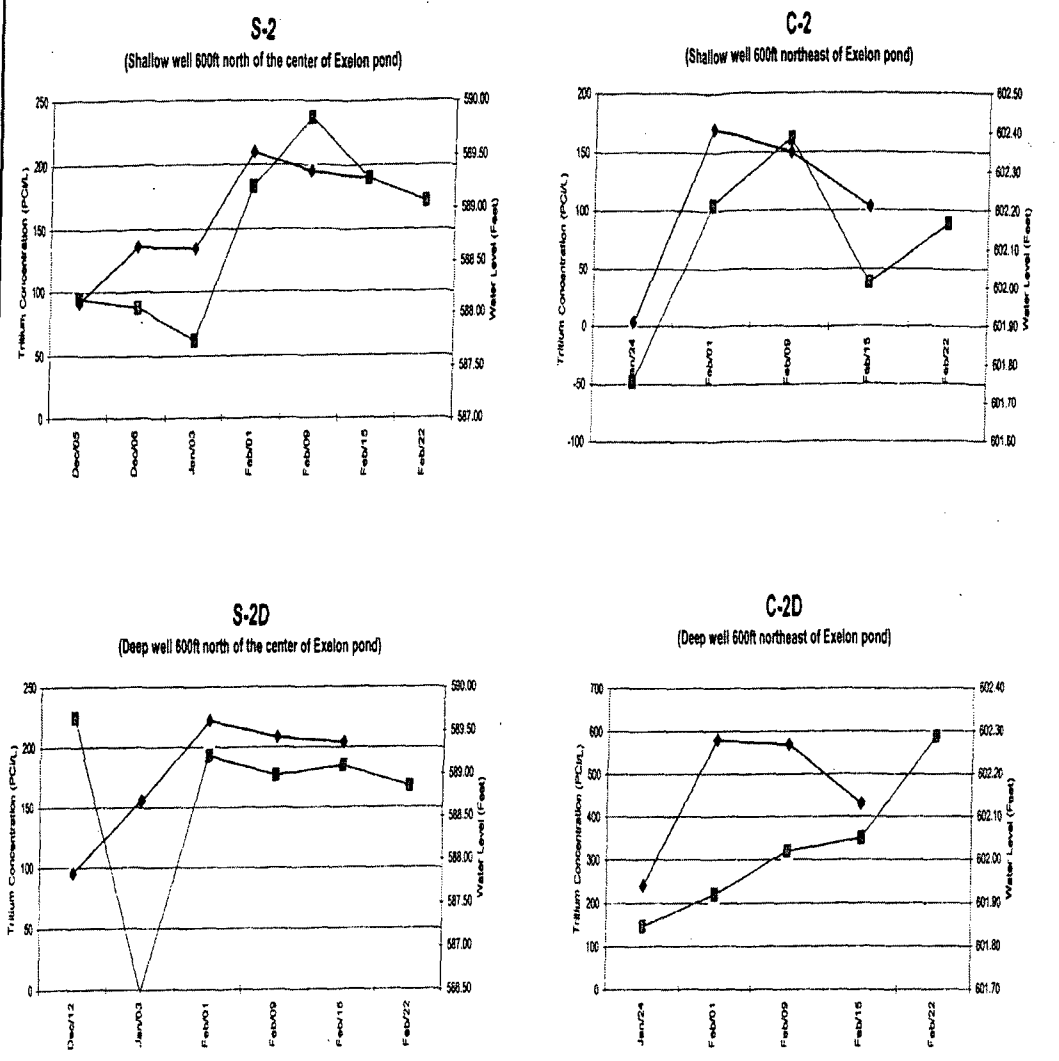


figure D.2
WEEKLY TRITIUM TRENDS - WELLS SOUTH OF EXELON POND
EXELON GENERATION BRAIDWOOD STATION
Braceville, Illinois

N:\HEG\16841\Report12\figres\Weekly Trend Results-Lxls \Figure D.2\3/8/2006

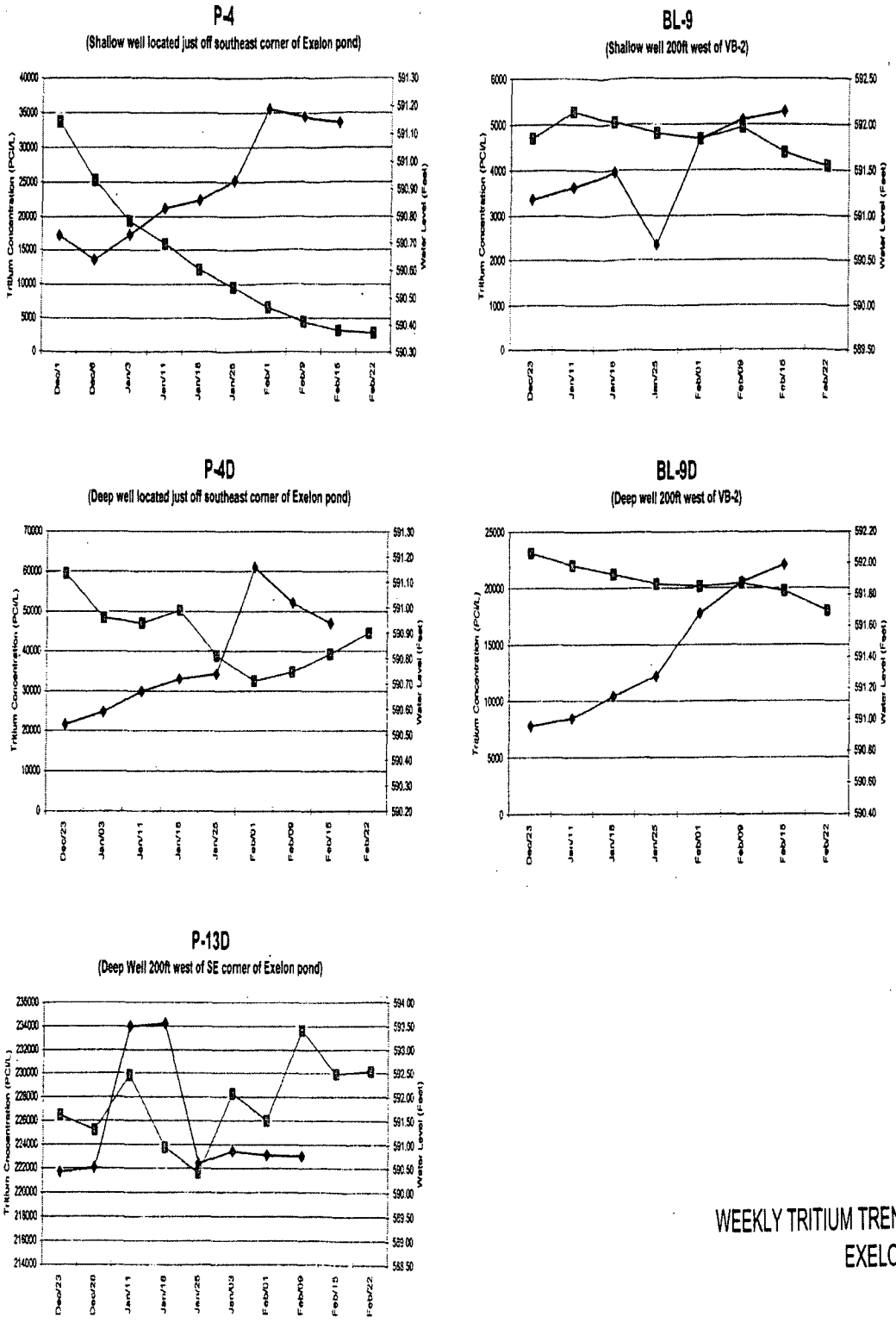


figure D.1
WEEKLY TRITIUM TRENDS - WELLS SOUTH OF EXELON POND
EXELON GENERATION BRAIDWOOD STATION
Braceville, Illinois

N:\HEG\16843\Report12\figres\Weekly Trend Results-2.xls \Figure D.1\3/8/2006

E

APPENDIX E

ENVIRONMENTAL, INC. QUALITY ASSURANCE PROGRAM

Environmental, Inc.
Midwest Laboratory
an Allegheny Technologies Co.

700 Landwehr Road • Northbrook, IL 60062-2310
ph. (847) 564-0700 • fax (847) 564-4517

UNCONTROLLED COPY

QUALITY ASSURANCE PROGRAM

QAP-1

Copy No. _____

Issued To:. _____

Issue Date:. _____

QUALITY POLICY

It is the policy of the Environmental, Inc., Midwest Laboratory to perform all technical work in accordance with specific written requirements. The requirements are contained in the quality assurance program manual, technical procedures and study plans. This policy applies to all employees of Environmental, Inc. and will be enforced in all areas of the laboratory. If it is determined that the needs of the laboratory or our clients are not adequately met, the requirements may be revised.

AUTHORIZATION AND APPROVAL

The Quality Assurance Program defined herein has been approved by the management of Environmental, Inc., Midwest Laboratory. The Quality Assurance Manager is authorized to develop and implement the procedures required to attain these goals. This program defines the quality related operations of the Environmental, Inc., Midwest Laboratory.

Quality Assurance Manager

S. A. Coorlim

Laboratory Manager

Bronia Grob

DOCUMENT ISSUE AND REVISION CONTROL FORM

DOCUMENT: Quality Assurance Program Manual (QAP-1)
Environmental, Inc. - Midwest Laboratory

Issue and Revisions	Pages	Prepared by:	Date	Effective Date	Approved by:
Re-issue		S. A. Coorlim	10/1/2000	10/11/2000	B. Grob
1	1-2, 8-1, 18-1,2,3,4,5,6		10/1/2003	10/15/2003	B Grob

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1.4 DUTIES

The duties of various levels of responsibility are listed below: Duties may be delegated to qualified personnel.

1.4.1 Laboratory Manager

1.4.1.1 Provide quality control of all analytical results.

1.4.1.2 Establish, maintain and review analytical procedures.

1.4.1.3 Write and / or approve programming for data reduction.

1.4.1.4 Hire personnel sufficient to handle sample work load.

1.4.1.5 Review contract specifications and monitor laboratory compliance to the specifications.

1.4.1.6 Assist in training personnel.

1.4.1.7 Provide general supervision to assure good laboratory practice is followed.

1.4.1.8 Effect and monitor required corrective actions subsequent to external and internal audits.

1.4.2 Quality Assurance Manager

1.4.2.1 Maintain and/or review control charts for instrument performance and backgrounds. Investigate any out-of control conditions and issue corrective action requests when necessary.

1.4.2.2 Maintain up to date postings and provide proper notification and training in accordance with applicable regulations and contract commitments.

1.4.2.3 Perform and maintain QA / QC scheduled checks. | 1

1.4.2.4 Investigate and initiate non-conformances or out-of control conditions and issue corrective action requests when necessary.

1.4.2.5 Maintain a schedule for in-house quality control samples. Review spike, blank and cross-check results. Initiate corrective action for non-conformances and out of limit results.

1.4.2.6 Participate in all client and agency audits.

1.4.2.7 Effect and monitor required corrective actions subsequent to external and internal audits.

1.4.3 Project Coordinator

1.4.3.1 Compile and review reports of analyses to clients.

1.4.3.2 Review data for accuracy and reasonableness.

1.4.3.3 Assist in quality control of analytical results.

1.4.3.4 Review contract specifications and monitor laboratory compliance to specifications.

1.4.3.5 Assist in audits by contractors.

1.4.4 Laboratory Supervisor

1.4.4.1 Ensure that analytical procedures are followed.

1.4.4.2 Assist the Laboratory Manager in maintaining quality control.

1.4.4.3 Inspect laboratory notebooks.

1.4.4.4 Train personnel.

1.4.4.5 Schedule work of laboratory including quality control samples.

1.4.4.6 Prepare standard reference material and check sources for calibration of equipment. Establish counter efficiencies as required.

1.4.4.7 See that good laboratory and housekeeping practices are followed.

1.4.4.8 Inform management of problems or the need for equipment maintenance or personnel. Order necessary supplies.

1.4.4.10 Inspect the work of technicians at hold points, if necessary, to assure accuracy of analyses.

1.4.5 Laboratory Technician

1.4.5.1 Perform analyses in accordance with analytical procedures.

1.4.5.2 Follow good laboratory practices and maintain clean, organized work area.

1.4.5.3 Enter all data on a work sheet according to an identifying number specifying the analysis, dates of analysis and data necessary to trace accuracy of measurement.

1.4.5.4 Schedule sample counting so that delivery dates may be met.

1.4.5.5 Inform supervisor of supplies required and any problems with equipment used.

1.4.5.6 Perform required calibration or performance tests on instrumentation which could affect accuracy of measurement.

1.4.5.7 Perform quality control samples, as required, for recertification.

1.4.5.8 Follow safe laboratory practice, including knowledge of fire regulations and actions required in case of a chemical or radioactive material spill.

1.4.6 Counting Room

1.4.6.1 Schedule sample counting and data reduction. Perform special requests for data reduction and sample counting as needed.

1.4.6.2 Run performance checks and background measurements as required.

1.4.6.3 Maintain adequate supplies for functioning of counting room instrumentation. Order liquid nitrogen and other counting room gases, as required.

1.4.6.4 Maintenance and repair of counting room equipment.

1.4.6.5 Perform energy and efficiency calibrations, as required. Establish counter efficiencies, as required. Inform management if these are not within prescribed limits.

1.4.6.6 Review data for accuracy and reasonableness. Check for compliance to contract specifications.

1.4.6.7 Maintain instrumentation files.

SECTION 2.0 QUALITY ASSURANCE PROGRAM

CRITERIA II IN NRC 10 CFR 50, APPENDIX B

2.1 PURPOSE

To describe the specific objectives of the Environmental, Inc. Midwest Laboratory Quality Assurance Program (QAP-1).

2.2 PROGRAM OBJECTIVES

The QAP is designed to provide the necessary procedures and actions taken by management to ensure that results of studies and analyses are acceptable to both clients and regulatory agencies. The specific objectives are as follows:

2.2.1 To ensure that technical personnel who collect and analyze samples and generate data are adequately trained.

2.2.2 To provide confidence in the methods, techniques, and procedures used to collect and analyze samples and generate data.

2.2.3 To provide assurance that methods, techniques, and procedures are documented and approved.

2.2.4 To ensure that groups and individuals who collect and analyze samples and generate data comply with contractual specifications and quality assurance/control requirements in performance of their work.

2.2.5 To ensure that the required QA/QC documentation is generated and that such records are adequate and complete.

2.2.6 To ensure that prompt corrective action measures are implemented by management to correct conditions of unacceptable quality.

2.2.7 To provide a quality assurance documentation file which is identifiable and traceable to each item.

2.3 PROGRAM REQUIREMENTS

Individual and General Subcontractor agreements must identify any applicable quality assurance requirements to be incorporated in the supplier's quality assurance program. Procurement documents must require the supplier to incorporate appropriate quality assurance program requirements into their subtier procurement documents. All procurement documents and any changes to these documents are reviewed and approved prior to release by the Project Manager or his/her designee.

Technical procedures are prepared for all activities involving the following:

2.3.1 Performance, calibration, and maintenance of field and laboratory equipment.

2.3.2 Sample collection, analyses, storage, and disposition.

2.3.3 Data collection, reduction, processing, storage and disposition.

2.4 PERSONNEL QUALIFICATIONS and TRAINING

Laboratory procedures are performed by qualified personnel. The qualifications and training necessary to become a staff member at EIML are as follows:

2.4.1 Qualifications

The qualifications necessary to become a staff member of Environmental, Inc. are listed in the Quality Control Program (QCP-1).

2.4.2 Training

Personnel shall be trained in the principles of the quality assurance program or other quality programs as they apply to their duties. The Quality Assurance Manager or a qualified designee shall perform quality assurance program training.

Personnel shall be trained in quality control and analytical procedures before analyzing samples submitted by clients. Training shall be performed by the laboratory supervisor or a qualified designee and documented on Orientation and Training Form, GOF:A-8, and shall consist of the following steps:

2.4.2.1 Employees shall familiarize themselves with the written procedures.

2.4.2.2 Observe the procedures as performed by a qualified analyst.

2.4.2.3 Performance of the procedure under the instructions of a qualified analyst.

2.4.2.4 Demonstration of competence in the procedure by analysis of quality control samples, with the attainment of specified precision and accuracy.

2.4.3 Certification

Personnel shall be considered certified to a procedure upon completion of training. The laboratory supervisor or qualified designee will review the data and the analyst's technical understanding of the procedures.
If employee performance during training is acceptable, the certification form (GOF:A-8) shall be completed, including a description and the number of the procedure for which the person is being certified, signed, and dated by the laboratory supervisor or qualified designee. Each procedure for which a technician is certified shall be listed separately. A copy of the certification form for each technician shall be kept on file and available for inspection.

2.4.4 Performance Review

Annual performance reviews shall be conducted to ensure that laboratory performance is in accordance with quality assurance requirements, written procedures and accepted laboratory practice. Performance reviews shall be documented on Form GOF/A-29.

SECTION 3.0 DESIGN CONTROL

CRITERIA III IN NRC 10 CFR 50, APPENDIX B

Design control is not applicable.

SECTION 4.0 PROCUREMENT DOCUMENT CONTROL

CRITERIA IV IN NRC 10 CFR 50, APPENDIX B

4.1. PURPOSE

To describe the quality provisions to be incorporated into procurement documents for the purchase of materials, equipment and services.

4.2 RESPONSIBILITY

The department responsible for purchase of materials, equipment and/or services shall identify and document quality provisions as required on procurement documents (e.g., agreements, purchase requisitions/orders). This is the responsibilty of the Laboratory Manager.

4.3 QUALITY PROVISIONS

Provisions to be included in the various types of procurement documents are described as follows:

4.3.1 Work Scope

A statement of the scope of the work to be performed by the supplier shall be included in procurement documents for calibration services, instrument repair services and all agreements.

4.3.2 Technical Requirements

Procurement documents shall contain or reference applicable technical requirements that describe the material, equipment or service to be furnished. These requirements may include equipment specifications, drawings, codes, regulations, procedures, instructions and required quality assurance documentation.

4.3.3 Documentation Required

Procurement documents must reference those documents and records to be submitted by the supplier to EIML for information, review or approval.

4.3.4 Quality Assurance Requirements

All procurement documents and any changes to these documents are reviewed and approved by the Quality Assurance Manager or designee prior to release. All purchase orders for quality related items must include a reference to the reporting requirements of 10 CFR 21 and, when applicable, traceability to known standards.

Subcontractor agreements may identify additional quality assurance program requirements to be incorporated into sub-tier procurement documents (e.g. 10CFR50, App. B).

SECTION 5.0 INSTRUCTIONS, PROCEDURES, AND DRAWINGS

CRITERIA V IN NRC 10 CFR 50, APPENDIX B

5.1 PURPOSE

To describe responsibilities and requirements for the preparation of manuals and study plans.

5.2 RESPONSIBILITY

The Laboratory Manager or designee is responsible for the preparation of procedures manuals and study plans.

5.3 REQUIREMENTS

Technical procedures may be presented in either quality control manuals, procedures manuals, sampling manuals, study plans, or other document type.

5.3.1 Title Page

Each manual or study plan shall contain a title page with the following information, as appropriate:

5.3.1.1 Document type and Document title.

5.3.1.2 Approver's signature.

5.3.1.3 Revision number and date.

5.3.1.4 A statement of proprietary nature, if applicable.

5.3.2 Study Plans

A Study plan, prepared for a client, shall describe the activities or tasks to be accomplished, and contain the following information:

5.3.2.1 Client name.

5.3.2.2 Project title and Project number.

5.3.2.3 Contractual background and/or commitments.

5.3.2.4 Statement of work to be accomplished.

5.3.2.5 Federal, State, or local regulations or regulatory guides to be satisfied, as applicable.

The Proposal, accepted by the client, satisfies most requirements for a study plan.

5.4 QUALITY ASSURANCE

All quality related documents undergo a periodic review. The time between successive reviews shall not exceed 36 months. The reviewer documents the review of the quality related document by completing the information on the Document Review Log. The review is performed to ensure that:

5.4.1 The latest edition for all technical procedures are included.

5.4.2 Technical procedures support the requirement of the EIML Quality Assurance Manual.

5.4.3 Technical procedures are updated to reflect changes in methods or operations of the laboratory.

SECTION 6.0 DOCUMENT CONTROL

CRITERIA VI IN NRC 10 CFR 50, APPENDIX B

6.1 PURPOSE

To describe the controlled and non-controlled copies of the quality-related documents and procedures and the individuals responsible for their preparation, review, approval, issuance, revision, and distribution. These documents may include procedure manuals, quality control/assurance manuals, document change notices, study plans, etc.

6.2 LIST OF DOCUMENTS

The documents and the individuals responsible for preparation, review and approval are identified in the Quality Assurance Program Manual sections as listed below:

Procurement Documents	QAP 4.0
Study Plans	QAP 5.0
Technical Procedures	QAP 5.0
Supplier Documents	QAP 7.0
Quality Inspections	QAP 10.0
Project Reports	QAP 10.0
Calculation Control Procedures	QAP 10.0
Test Programs	QAP 11.0
Calibration Records	QAP 12.0
Sample Control Procedures	QAP 13.0
Data Control Procedures	QAP 13.0
Record Storage	QAP 13.0
Nonconformance Reports	QAP 15.0
Quality Assurance Records	QAP 17.0

6.3 DOCUMENT DISTRIBUTION PROCEDURES

6.3.1 Documents and procedures distributed internally to EIML personnel shall be issued as CONTROLLED documents. Recipients of documents shall acknowledge receipt by initialing the Document Control Log. Individuals distributing revised documents shall physically remove older versions of the document at the time of distribution to ensure that only the latest revisions remain in the laboratory.

6.3.2 Procedures distributed externally shall be marked NON-CONTROLLED and shall be issued for information only. The distribution list shall be kept on file. Acknowledgment by the recipient is not required.

6.3.3 Record the individual to whom the document is distributed and their affiliation, the identification number and title of the document, the revision or issue date, and the date of distribution in the Document Control Log.

6.3.4 Send the document or revised and updated materials to the individuals listed. Include any special information as to handling.

6.3.5 Maintain a file for each document. The file shall include a record of each revision, the original document and the Document Control Log listing the person to whom the document was issued, date of distribution and affiliation.

6.4 DOCUMENT REVISION PROCEDURES

6.4.1 If a portion of a document page is revised, the revised portion will be indicated with a vertical line on the right hand side of the page, followed by the latest revision number.

6.4.2 If the entire page is revised, the latest revision number and revision date need only be indicated on the revised page.

6.4.3 Revision numbers and dates are presented on the title page and on each page of all controlled documents. If a different method of revision is used, it will be noted in the respective controlled document.

6.4.4 Revisions to each controlled document are reviewed and approved by the Laboratory or Quality Assurance manager. Revised documents to individuals then replace the original documents.

6.4.5 Handwritten changes to documents will be permitted if the revision is documented and approved on an "EIML Bulletin", form QA-07. The form is distributed to clients requiring approval of procedures prior to implementation. The "Bulletin Records Log", form QA-08, will document distribution of the bulletin. A procedural revision must be completed by the time of the next scheduled document review.

SECTION 7.0 CONTROL OF PURCHASED MATERIAL, EQUIPMENT AND SERVICES

CRITERIA VII IN NRC 10 CFR 50, APPENDIX B

7.1 PURPOSE

To describe several methods which may be utilized, if necessary, to evaluate the capability of suppliers to meet procurement document requirements, to accept purchased items or services, including receipt inspection and certificate review and to identify and control nonconforming items and services. Technical personnel and the purchasing department are responsible for choosing and implementing the appropriate supplier evaluation methods.

7.2 SUPPLIER EVALUATION METHODS

7.2.1 Initial Performance

A product of chemical, reagent, standard or other laboratory equipment should demonstrate satisfactory performance upon analysis of quality control samples.

7.2.2 Past Experience

Evaluate past ability of the supplier to provide a satsfactory product. The information to be evaluated can include, but not be limited to the following:

7.2.2.1 Experience of known user of supplier's product.

7.2.2.2 In-house records of previous procurement actions, product operating experience, and analytical results.

7.2.3 Supplier Product Information

7.2.4 Supplier's Quality Documents

Review and evaluate a supplier's quality-related documents and records (such as Quality Assurance Manuals, procedure manuals, etc.)

7.2.5 Surveillance Audits of Subcontractors and/or Suppliers

Acceptance of procured items shall be based on conformance to recognized quality, previous performance and grade as specified in purchase requisition and shall show no adverse reactions when used for analysis of blanks and spiked samples. Purchased items shall be reagent grade chemicals (where applicable) of recognized formulation. Audits of suppliers shall be conducted only if warranted by conditions.

7.2.6 Supplier Quality Survey

Estimate the supplier's capabilities by direct evaluation of supplier's facility, personnel and quality assurance programs, if applicable.

7.3 RECEIPT INSPECTION

The receipt inspection procedure described below shall be followed by EIML personnel.

7.3.1 Check the procurement document against the item or service received.

7.3.2 Document the disposition (accepted, rejected) etc.) of item or service by issuing a Receiving Report describing item briefly and initialing.

7.3.3 If item or service is rejected, state the reason on the procurement document. Notify the Purchasing Department and Laboratory manager to contact the supplier for their recommended disposition and technical justification.

7.4 NONCONFORMING ITEMS

The procedures specified below shall be followed in the identification and control of nonconforming items or services.

7.4.1 Inform the Laboratory Manager of any suspected nonconforming item or service.

7.4.2 Segregate and label the nonconforming purchased items or services to preclude their use.

7.4.3 Document nonconformance on the appropriate form, such as copy of procurement document and file a copy with supplier evaluation records. Indicate the requirements violated.

7.4.4 Notify the Purchasing Department to initiate appropriate action.

SECTION 8.0 IDENTIFICATION AND CONTROL OF MATERIALS, PARTS, COMPONENTS

CRITERIA VIII IN NRC 10 CFR 50, APPENDIX B

8.1 PURPOSE

To describe the requirements for the identification and control of samples, data, reports, calculations, and purchased items or services.

8.2 PROCEDURES

Procedures for the identification and control of materials, parts and components shall be approved by the Laboratory Manager or his/her designee.

8.3 SAMPLES AND DATA

Samples and / or data collected shall be controlled and identified as to type, client, project number, unique number, date, and location according to the EIML Quality Control and Technical Procedures Manuals.

8.4 REPORTS

All reports are submitted for review to the Laboratory or Quality Assurance manager. Signature by the reviewer is required.

Reports referred to in the sections below are compilations of data, usually in a monthy, quarterly or annual format.

8.4.1 Draft reports submitted for review shall be identified and paginated. The author shall provide the client, project number, date and project name on the first page.

8.4.2 A draft report, final report or report section are accompanied through the review process by a Report Review Record form, 800-1. The form is initiated by the author, completed by the reviewer, and retained as a quality assurance record. 1

8.4.3 Commentary on reports are recorded by the reviewer on the Editorial Comment and Revision form, 800-2. These records shall be retained as quality assurance records.

8.5 PURCHASED ITEMS

8.5.1 Purchased items shall have their identity established either on the item or on a record traceable to the item. Identification of purchased items shall be unique.

8.5.2 For items which do not fall into off-shelf items and standard chemicals and reagents, the status of any inspection and tests performed on the item shall be noted. Off-shelf items shall be checked against the purchase order and the receiving date will be marked on the container. Other purchased items which are inspected or tested by or for EIML shall be identified as either accepted, reworked to specifications, or rejected.

8.5.3. Certificates shall be traceable to the item, or to test results and analyses.

SECTION 9.0 CONTROL OF SPECIAL PROCESSES
CRITERIA IX IN NRC 10 CFR 50, APPENDIX B

This section is not applicable.

SECTION 10.0 INSPECTION

CRITERIA X IN NRC 10 CFR 50, APPENDIX B

10.1 PURPOSE

To describe the requirements for the inspection and verification of the quality of work.

10.2 REQUIREMENTS

10.2.1 Inspection is the responsibility of the Laboratory Manager or designee. Data is reviewed for validity, compliance with the study plan and for quality assurance/control requirements. Quality related documents applicable to the work will be identified in the quality inspection.

10.2.2 Inspections are performed by individuals outside of the activity process being inspected. The reviewer should possess adequate knowledge and experience in the procedures, processes and activities of the technical area under review. The reviewer should verify that:

10.2.2.1 Analyses were completed.

10.2.2.2 The technical approach was proper.

10.2.2.3 Quality assurance/control tasks were performed.

10.2.2.4 Calculations were verified.

10.2.2.5 Review forms were signed and dated.

10.2.3 Questions concerning draft reports are recorded by the reviewer on an Editorial Comment and Revision form, 800-2. The comments are then returned to the author for resolution of comments or correction.

10.2.4 Documents returned to the author for review and resolution are resubmitted for the same level of review and approval as the original document. The author indicates his / her review and resolution by signing and dating the Report Review Record form, 800-1.

10.2.5 Final review and approval is made by the Laboratory Manager, who indicates approval of the report by signing the title page. Final reports are dated as to month, day and year.

10.2.6 If draft reports are submitted to the client for review and comments, the reports will be unsigned and have the words, "DRAFT SUBJECT TO CHANGE", or words to that effect printed on the title page.

SECTION 11.0 TEST CONTROL

CRITERIA XI IN NRC 10 CFR 50, APPENDIX B

11.1 PURPOSE

To describe the requirements for the control of Test Programs.

11.2 REQUIREMENTS

11.2.1 All testing is performed in accordance with approved method procedures. The written test procedures include or reference the requirements or acceptance limits contained in applicable design, procurement, or regulatory comment. The Laboratory Manager or qualified designee is responsible for the implementation of test control programs. The test procedure shall include:

11.2.1.1 A description of the testing method, and instructions for using test equipment and instrumentation.

11.2.1.2 Instrumentation, maintenance and calibration.

11.2.1.3 Equipment required.

11.2.1.4 Environmental conditions (where required).

11.2.1.5 Acceptance and rejection criteria.

11.2.1.6 Procedures for data collection and storage.

11.2.1.7 Methods for documenting or recording test data and results, and review of test results.

11.2.2 Environmental, Inc. participates in Interlaboratory Comparison (crosscheck) studies administered by Environmental Resources Associates, and others, and based on previous programs conducted by the USEPA. Any results which are outside the two sigma level from the known shall be reviewed to find the cause of the deviation. Results outside the 3 sigma level shall be investigated and the reason for deviation and any corrective action shall be documented.

11.2.3 Internal spike and blank samples shall be analyzed in accordance with the schedule specified on form, 1100-1. This schedule may be revised depending on the availability of standards.

11.2.4 Evaluation of duplicate and split sample analyses are used to assure reproducibility of measurements within established limits of precision and variation. Between five and ten percent of all samples received by the laboratory are analyzed in duplicate.

SECTION 12.0 CONTROL OF MEASURING AND TEST EQUIPMENT

CRITERIA XII IN NRC 10 CFR 50, APPENDIX B

12.1 PURPOSE

To describe the requirements for the control of measuring, test inspection, and other data-gathering equipment. Equipment maintenance and calibration shall be the responsibility of the Laboratory Manager and subject to requirements of the Quality Control Procedures Manual.

12.2 EQUIPMENT PROCUREMENT

Equipment used for analyses, studies, and reports and testing shall be procured and controlled by the Laboratory Manager or designee.

12.3 EQUIPMENT IDENTIFICATION

A unique identification number shall be assigned to each piece of equipment. The identification number of equipment used for data or sample collection shall be recorded by the user on appropriate laboratory data sheets. This will serve as a basis for determining the past performance of an instrument if it is found to be "out of calibration".

12.4 CALIBRATION PROCEDURES

Written procedures, either furnished by the manufacturer, or approved by the Laboratory Manager, shall be used for the calibration of equipment.

12.5 CALIBRATION

Equipment shall be initially calibrated and shall be recalibrated at regularly scheduled intervals against certified measurement standards that have known and valid traceability to recognize national standards.

12.6 EFFICIENCY CALIBRATION STANDARDS

Efficiency calibration standards shall be used that are traceable to the National Institute of Standards and Technology (NIST). Should no national standard exist, the basis (standard used) for the calibration shall be documented.

12.7 EFFICIENCY CALIBRATION FREQUENCY

Efficiency calibration frequency for equipment shall be based upon the type of equipment, its accuracy, use and stability characteristics, and on other conditions affecting measurement control. Calibration frequency can be adjusted on the basis of historical calibration requirements. Frequency can either be shortened or lengthened only when the results of previous calibration data provide definite indications that each action will not adversely affect the accuracy of the equipment as used. Counting equipment shall be calibrated at least annually or before each use, if applicable, or after repair, if such repair could influence the calibration.

12.8 PERFORMANCE STANDARDS

Performance standards need not have an accurately known disintegration rate, e.g., need not be a standard source traceable to NIST. Performance standards should be of relatively long half-life, such as strontium-90 or cesium-137, should be of sufficient radiochemical purity to allow correction for decay. Standards should be prepared in such a way as to prevent physical damage or loss of activity from handling.

12.9 PERFORMANCE CHECK FREQUENCY

Instrument performance is checked according to the schedule in the Quality Control Procedures Manual (QCPM), Section 4.0

12.10 CALIBRATION STATUS

Equipment requiring periodic calibration shall be identified with a calibration label, showing the equipment's calibration status, date calibrated, due date and initials of the technician. Equipment requiring calibration, without the calibration status indicated, or whose calibration due date has passed, is considered "out-of-calibration".

12.11 CALIBRATION / MAINTENANCE RECORD

Calibration and Maintenance Records shall be maintained for each piece of equipment subject to calibration and for each associated calibration standard. Active records will be maintained and accessible for review as needed. Inactive records are filed separately.

12.12 FILES

Files shall be maintained by the Quality Assurance Manager, or designee, for each piece of equipment and for each standard. Files shall include, where applicable, the following records or information.

12.12.1 procurement documents

12.12.2 company assigned identification number

12.12.3 description of item,

12.12.4 manufacturer's serial number, if applicable

12.12.5 acceptance and / or test data

12.13 CALIBRATION SERVICE

Outside calibration sources may be used if they can demonstrate their ability to perform the work satisfactorily and can demonstrate their capability of tracing their calibration standards to a recognized national or known source. EIML shall require outside calibration sources (suppliers) to furnish objective evidence that calibration standards are traceable to national or known source prior to use.

12.14 OUT-OF-CALIBRATION EQUIPMENT

If at the end of a calibration frequency period, equipment is found to be "out-of-calibration", an investigation shall be conducted to determine the application of the equipment since the last calibration. The investigation shall also determine if corrective action is necessary to provide assurances that the quality of data generated by the use of the equipment has not been compromised.

12.15 USER TRAINING

Users shall be trained in the proper use and application of the equipment.

12.16 USER RESPONSIBILITY

Users of equipment are responsible for proper use and care. Any equipment whose calibration is suspect because of failure, damage, or mishandling or whose calibration due date has passed shall not be used. The equipment shall be marked "out-of-service".

SECTION 13.0 HANDLING, STORAGE AND SHIPPING

CRITERIA XIII IN NRC 10 CFR 50, APPENDIX B

13.1 PURPOSE

To describe the requirements for the handling, shipping and preservation of samples, data, and records.

13.2 SAMPLE AND DATA CONTROL

13.2.1 Handling, storage, shipping, prevention from contamination, and preservation of samples, and original field data shall be accomplished by qualified individuals according to written technical procedures approved by the Laboratory Manager of EIML or his/her designee.

13.2.2 Procedures for sample and / or data control shall includefrom collection through analysis to storage and final disposition. All samples will be disposed in accordance with procedures given in EIML Quality Control Program.

13.3 SAMPLE STORAGE

Samples will be retained as follows:

13.3.1 For analysis of short-lived isotopes only, samples will be held two months after collection or until any detected activity has decayed to below the required minimum sensitivity.

13.3.2 Samples requiring storage in a cooler or freezer will be held three months after collection.

13.3.3 No sample will be disposed of until at least 30 days after analyses have been completed, reviewed and reported to the client.

13.3.3 Other processed and unprocessed samples will be held for a minimum six months from the date of collection. These samples will be discarded unless alternative instruction are received from the client.

13.4 RECORD STORAGE

Original data records shall be stored in such a manner as to minimize the risk of loss by fire, flood, etc., and from possible deterioration by extreme conditions of temperature and humidity. The identification, storage, and retrieval of quality records shall be performed according to Section 17.0 of this manual.

13.5 QUALITY ASSURANCE

The identification, storage, and retrieval of quality records shall be performed according to Section 17.0 of this manual.

SECTION 14.0 INSPECTION, TEST, AND OPERATING STATUS

CRITERIA XIV IN NRC 10 CFR 50, APPENDIX B

14.1 PURPOSE

To describe the requirements for reporting the status of programs with respect to equipment operating condition and maintenance requirements.

14.2 EQUIPMENT STATUS

Copies of equipment status records shall be maintained by EIML personnel. Equipment which is non-conforming, inoperative, malfunctioning, or out-of-service for repair, maintenance, or calibration shall be so identified by tagging to prevent its inadvertent use.

SECTION 15.0 NONCONFORMING ITEMS

CRITERIA XV IN NRC 10 CFR 50, APPENDIX B

15.1 PURPOSE

To describe the procedure for reporting project nonconformance identified through means other than audit.

15.2 PROCEDURES

Approved methods of reporting non-conformance as described in the Quality Control Procedures Manual (QCPM), Section 12.0, may be used in lieu of a Nonconformance Report. Nonconformance records shall be maintained by the Quality Assurance Manager.

15.2.1 Originator

15.2.1.1 Inform the Laboratory Manager of the non-conformance. Initiate a Nonconformance Report Form.

15.2.1.2 Describe the nonconformance and reference the document which specifies the requirement. Sign and date the Nonconformance Report.

15.2.1.3 Send report to the Quality Assurance Manager for review and completion.

15.2.2 Quality Assurance

15.2.2.1 Segregate the nonconforming item or service to prevent its inadvertent use.

15.2.2.2 Complete the remainder of the Nonconformance Report form. Record the nonconformance in the appropriate log.

15.2.2.3 State the corrective action to be taken and include the date on which corrective action was or will be completed.

15.2.2.4 Describe the objective evidence reviewed to verify implementation of corrective action. Sign and date the Nonconformance Report Form.

15.2.2.5 Send the non-conformance report to the Laboratory Manager for final processing.

15.2.3 Laboratory Manager

15.2.3.1 Notify the client, if necessary, on the nonconformity and any corrective action to be taken. Record clients comments and suggestions or any agreements made with the client.

NOTE: The client shall be notified only after suitable in-house action is taken to correct the nonconformity.

15.2.3.2 Sign and date the Nonconformance Report Form.

15.2.3.3 Return original to the Quality Assurance Manager.

15.2.4 In such instances where departmental approval control forms for reporting problems (e.g., "Malfunction Report Form for Instrumentation") are utilized, the same basic procedure is followed, with copies of the pertinent documents sent to the appropriate individuals.

SECTION 16.0 CORRECTIVE ACTION

CRITERIA XVI IN NRC 10 CFR 50, APPENDIX B

16.1 PURPOSE

To describe corrective action measures for non-conformances to work.

16.2 REPORTING NON-CONFORMANCES

Non-conformances are reported to the Laboratory Manager. A nonconformance to a study plan and/or quality assurance/control requirement shall be reported on the appropriate forms, including Nonconformance Report, Audit Finding Report, or EIML-specific problem report form. The report shall contain a concise statement of the requirement and the nonconformance.

16.3 CORRECTIVE ACTION STATEMENT

Within five days of notification of a nonconformance, the Quality Assurance Manager in concurrence with the laboratory manager will complete a corrective action statement. The statement shall contain the following:

16.3.1 The apparent cause of the condition.

16.3.2 The action taken to prevent recurrence of the condition.

16.3.3 The scheduled date for completion of corrective action.

16.4 SIGNIFICANT NON-CONFORMANCES

16.4.1 Description

16.4.1.1 Deviation from prescribed requirements contained in study plans or technical manuals.

16.4.1.2 Data, or the lack of data, which does not meet predetermined technical limits and could jeopardize project goals.

16.4.1.3 Use of obsolete materials and/or data.

16.4.1.4 Non-conformances of a repetitive nature.

16.4.2 Response

Significant non-conformances shall be reported immediately to the Laboratory Manager. The Laboratory Manager or designee shall investigate the nonconformity, and respond promptly with a corrective action statement.

16.5 DRAFT REPORTS

16.5.1 Corrections and Commentary

Drafts of reports for which corrections or comment resolutions are required shall be returned to the author for corrective action.

16.5.2 Review

Documents which are corrected or modified shall be reviewed by the individual or department that reviewed the original draft report. Any comments or corrections, not incorporated into the document, shall be addressed on the Report Review Record form, 800-1.

SECTION 17.0 QUALITY ASSURANCE RECORDS

CRITERIA XVII IN NRC 10 CFR 50, APPENDIX B

17.1 PURPOSE

To define and describe the quality assurance records and general requirements for their custody and disposition, the procedure for processing project records into a quality assurance records file, and the requirements for their storage, preservation, and safekeeping.

17.2 QUALITY ASSURANCE RECORDS

17.2.1 Quality assurance records are defined as that minimum amount of documentation necessary to support the validity of work, and which would allow the work to be recreated, if necessary.

17.2.2 Quality assurance records (Project-specific) are maintained under control of the Quality Assurance Manager or designee (for the duration of the Project.

17.2.3 Records common to all projects shall be stored in generic record files. Records include quality control sample data, instrument charts, calibration records, etc.

17.2.4 Records necessary to document activities performed in the monitoring program are described in the Quality Control Procedures Manual QCPM-1. These sections describe calibration of equipment, analysis of duplicates, spiked and standard solutions, control of counting equipment, data reductions, reporting of data and records storage.

17.3 PROJECT RECORDS

17.3.1 Project records shall be moved to storage promptly after project completion. Project-specific records may be dispositioned to the client on a periodic (annual) basis at the client's discretion. Data not shipped to the client will be dispositioned according to Section 17.4.

17.3.2 Organization of project records for submission to storage is the responsibility of the Laboratory Manager or designee.

17.3.3 All project-specific records shall be packed in containers so as to preserve the quality and integrity of the records. Each container shall clearly identify its contents as to project name and number, client, and specific records contained therein.

17.4 RECORDS STORAGE

17.4.1 Records shall be stored in such a manner as to prevent deterioration, damage from condensation, and theft or vandalism.

17.4.2 After completion of the study or submission of the annual report, project-specific records shall be packed in appropriately labeled containers, and stored temporarily in a fireproof safe (no more than two years). Access to the safe is limited to EIML management.

17.4.3 After one to two years the records shall be transferred to general storage and maintained for a minimum of five years. After five years, a written request to dispose of the records may be made to the client. If the client requires the records to be retained, the Laboratory Manager may choose to either continue storing them or return them to the client. Records may be returned to the client at any time after the five year retention period in the general storage area.

SECTION 18.0 AUDITS

CRITERIA XVIII IN NRC 10 CFR 50, APPENDIX B

18.1 PURPOSE

To describe the auditor training program and the responsibilities of those who participate in the audit function, the method for scheduling audits (internal and external), the requirements for audit preparation and notification, including audit plan development, applicable document review, audit checklist preparation, and audit notification, performance of audits, including the pre-audit conference, preparation and documentation of audit findings, the post-audit conference, the preparation and distribution of the audit reports and to describe the steps to be taken to assure that corrective action on audit findings is adequate and complete.

18.2 AUDITOR TRAINING

18.2.1 Basic Training

Internal and external audits shall be performed by persons who have either a degree in a technical field, satisfactory work experience in a technical field, or knowledge and experience in the field of quality assurance. Auditors shall have or be given training to achieve the required level of competence. Training shall, as minimum, include the following.

18.2.1.1 Specific training in the content and objectives of the Quality Assurance Program Manual, QAP-1.

18.2.1.2 Participation, as a team member, in at least two internal or external audits led by an experienced auditor.

18.2.2 Supplemental Training

Training shall be supplemented where necessary by participation in professional short courses covering quality assurance principles, including auditing.

18.2.3 Documentation

A training file will be maintained for each auditor with appropriate documentation of training phases, courses and experience.

18.3 RESPONSIBILITIES

18.3.1 Auditors

Audits are performed by the Quality Assurance Manager and assisted by, if required, a technical specialist. Auditors shall have the organizational freedom to identify problems, to initiate, recommend or provide solutions to quality problems, and to verify implementation of corrective action. Auditors shall have no direct responsibilities for the technical aspects of the study audited. 1

18.3.2 Quality Assurance Manager

The Quality Assurance Manager has the overall authority and responsibility for implementing the requirements of Section 18.0 and insuring that the requirements are followed by each auditor. The duties of the Quality Assurance Manager include the following.

18.3.2.1 Plan, schedule, conduct, and analyze audits.

18.3.2.2 Insure that all audits are performed and closed-out according to written procedures.

18.3.2.3 Report the status of audit programs to upper management on a regular basis.

18.3.2.4 Document the results of each audit. 1

18.3.2.5 Review the results of each audit with laboratory management.

18.3.2.6 Prepare an Audit Finding Report for each nonconformance.

18.3.2.7 Maintain a file for all Audit Reports and all Audit Finding Reports.

18.3.2.8 Verify that corrective action has been implemented to resolve non-conformances.

18.4 AUDIT SCHEDULES

18.4.1 The audit program shall be scheduled and implemented to ensure coverage of the applicable elements of the Quality Assurance Program.

18.4.2 Audits of the Quality Assurance Program shall be performed periodically. Audits shall be performed more frequently if results of previous audits indicate a greater frequency is necessary. The need for more frequent audits shall be based on the following considerations:

18.4.2.1 The importance of the activity to the successful completion of the program.

18.4.2.2 Significant changes in the functional areas of the quality assurance program, such as significant re-organization or procedural revisions.

18.4.2.3 A suspected nonconformance in an item or service.

18.4.2.4 The necessity to verify implementation of required corrective action.

18.4.3 Audits for projects shall be performed according to contractual agreements. Comprehensive audits performed in support of a project may, at the discretion of the Quality Assurance Manager, serve to satisfy the requirements of the annual audit.

18.5 AUDIT PREPARATION

18.5.1 The auditor shall develop a written audit plan. It shall include, but not be limited to, the following information:

18.5.1.1 Organization to be audited.

18.5.1.2 Purpose of Audit.

18.5.1.3 Reference to applicable documents.

18.5.2 The auditor shall prepare an audit checklist to cover the activities to be audited. The activities to be compared, verified, or identified shall be listed on the checklist.

18.5.3 Pertinent information shall be obtained and reviewed by the auditor. This information can be found in study plans, technical procedures, quality control / assurance manuals and specifications.

18.5.4 The auditee shall be notified at least two weeks prior to the planned date of the audit. 1

18.6 AUDIT PERFORMANCE

18.6.1 Pre-audit Conference

The auditor may conduct a pre-audit conference at the audit site with the management of the organization to be audited. The purpose of the meeting will be to:

18.6.1.1 Introduce auditors.

18.6.1.2 Meet counterparts.

18.6.1.3 Confirm the purpose and scope of the audit.

18.6.1.4 Discuss the sequence and duration of the audit.

18.6.1.5 Review previous audit results.

18.6.1.6 Establish channels of communication.

18.6.1.7 Arrange post-audit conference.

18.6.2 Audit Checklist

The audit checklist prepared by the auditor shall be used to provide a systematic approach to the assessment. The checklist shall be used as a guide and shall not restrict the audit. Audit results may necessitate that additional information be added to assure that an activity is adequately controlled.

18.6.3 Audit Findings

18.6.3.1 The auditor shall record each finding on an Audit Finding Report form. The form shall be prepared according to procedures in Section 18.7.

18.6.3.2 When a finding is detected, sufficient investigation shall be conducted to identify the basic cause of the finding.

18.6.3.3 Any finding requiring immediate corrective action shall be reported to the auditee. 1

18.6.3.4 Audit findings shall be stated in clear, concise statements of fact, which identify the problem. Persons in the audited organization who can attest to the validity of the findings shall be identified by name.

18.6.4 Post-audit Conference

At the conclusion of the audit, a post-audit conference may be held with the audited organization. Those persons should attend who can verify the validity of the findings and can assist in correcting any problems identified. The objectives of the post audit conference shall be to:

18.6.4.1 Discuss audit findings.

18.6.4.2 Determine and resolve any errors or misunderstanding regarding the findings.

18.6.4.3 Reach agreement on validity of the findings.

18.6.4.4 Recommend corrective action for findings and improvements for observations.

18.6.4.5 Establish a tentative plan for corrective action and implementation.

18.7 AUDIT FINDING REPORTS

18.7.1 Completion of the Audit Finding Report form shall be the responsibility of the auditor and the management of the audited organization. 1

18.7.2 The Audit Finding Report shall be used to record all findings identified during audits, including their resolution.

18.7.3 Each Audit Finding Report shall be assigned an audit finding number which consists of the audit identification number and a sequential number.

18.7.4 Quality Assurance

The Quality Assurance Manager maintains audit files, containing original Audit Finding Reports, documentation of corrective action responses, and final audit reports. Closed Audit Finding Reports are filed as quality assurance records.

18.8 AUDIT REPORTS

18.8.1 The auditor shall be responsible for the preparation and distribution of an audit report within 30 days of the post-audit conference.

18.8.2 An audit report shall contain the following elements:

18.8.2.1 The name of the audited organization (laboratory, technical discipline, project or supplier), project number and the date on which the audit was conducted.

18.8.2.3 The name of each auditor.

18.8.2.4 Personnel contacted during the pre- and post-audit conferences, and during the performance of the audit.

18.8.2.5 Documents which serve as a basis for the audit (title, revision number and revision date).

18.8.2.6 A brief statement of the purpose of the audit.

18.8.2.7 A general statement based on results of the audit, including a brief statement of any findings.

18.8.2.8 Recommendations for correcting non-conformances or improving the quality of work.

18.8.2.9 Observations of problem elements that could be improved, but which require no corrective action response.

18.8.2.10 An itemized list of audit findings together with assigned Audit Finding Report numbers.

18.9 AUDIT FOLLOW-UP

18.9.1 Corrective Action Responses

The auditor shall review any response to findings to assure corrective action has been adequately completed or scheduled.

18.9.2 Classification of Responses

The auditor shall classify each finding as either "unresolved", "open", or "closed".

18.9.2.1 Unresolved Status

"Unresolved" status is reserved for findings with unacceptable planned corrective actions, or those findings not responded to in the time specified. The auditor shall inform the auditee in writing of any unsatisfactory response and specify a reply due date. 1

18.9.2.2. Open Status

The "open" status is reserved for those findings that have acceptable planned corrective action, but remain open pending verification..

18.9.2.3. Closed Status

The "closed" status is reserved for those findings for which corrective action has been implemented.

18.9.3 Verification Methods

Verification of corrective actions shall be made by one of the following methods:

18.9.3.1 Review of the documentation or certification that corrective action has been implemented.

18.9.3.2 Examination of the affected area in the next scheduled audit.

18.9.3.3 Re-audit of the affected area.

18.9.4 Closure Procedures

18.9.4.1 Audit Findings

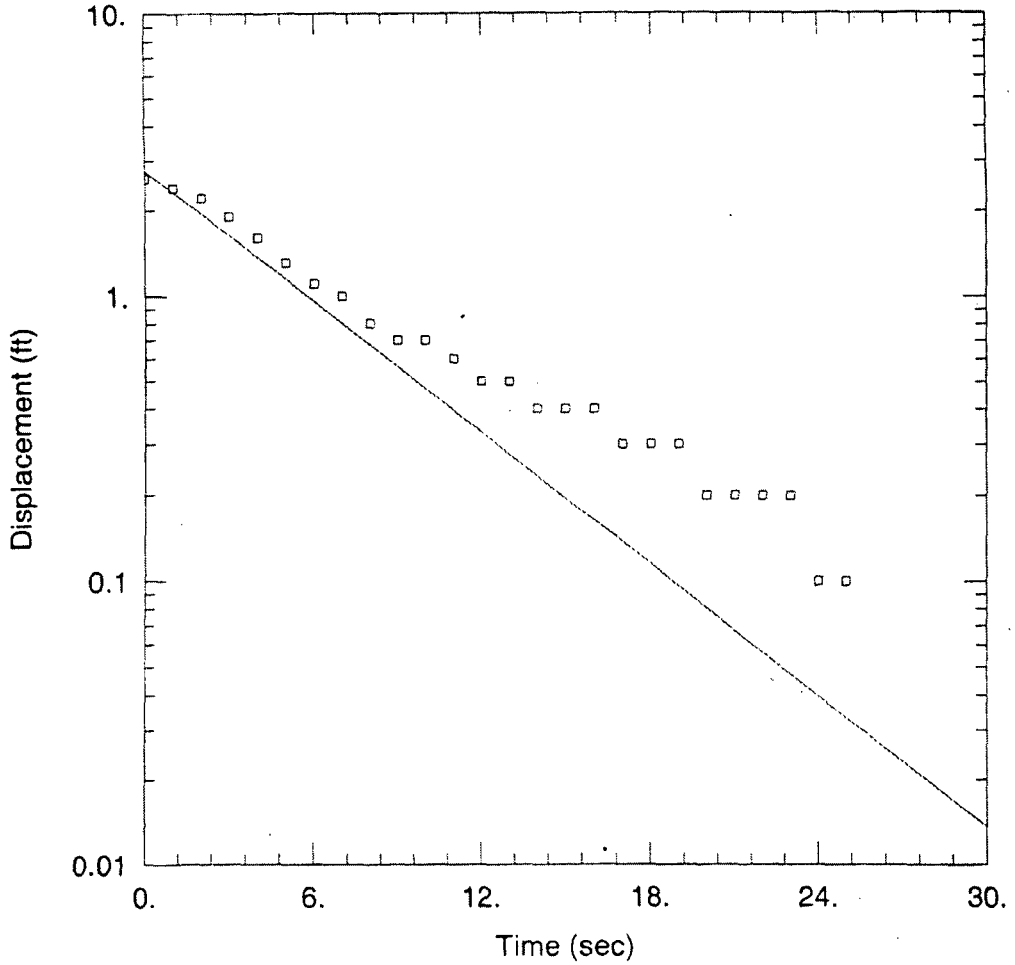
The auditor shall indicate closure of audit findings by indicating the method used to verify implementation of corrective action on the AUDIT FINDING REPORT and signing and dating the form.

18.9.4.2 Audit Report

The Audit Report will be closed upon satisfactory completion of corrective actions for all findings.

APPENDIX F

HYDRAULIC CONDUCTIVITY ANALYSES



RISING HEAD TEST

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Date: 03/15/06 Time: 14:28:04

PROJECT INFORMATION

Company: CRA
Client: Exelon - Braidwood Station
Project: 16841-07
Location: Braceville, Illinois
Test Well: MW-105
Test Date: 10/20/2005

AQUIFER DATA

Saturated Thickness: 25. ft
Anisotropy Ratio (Kz/Kr): 1.

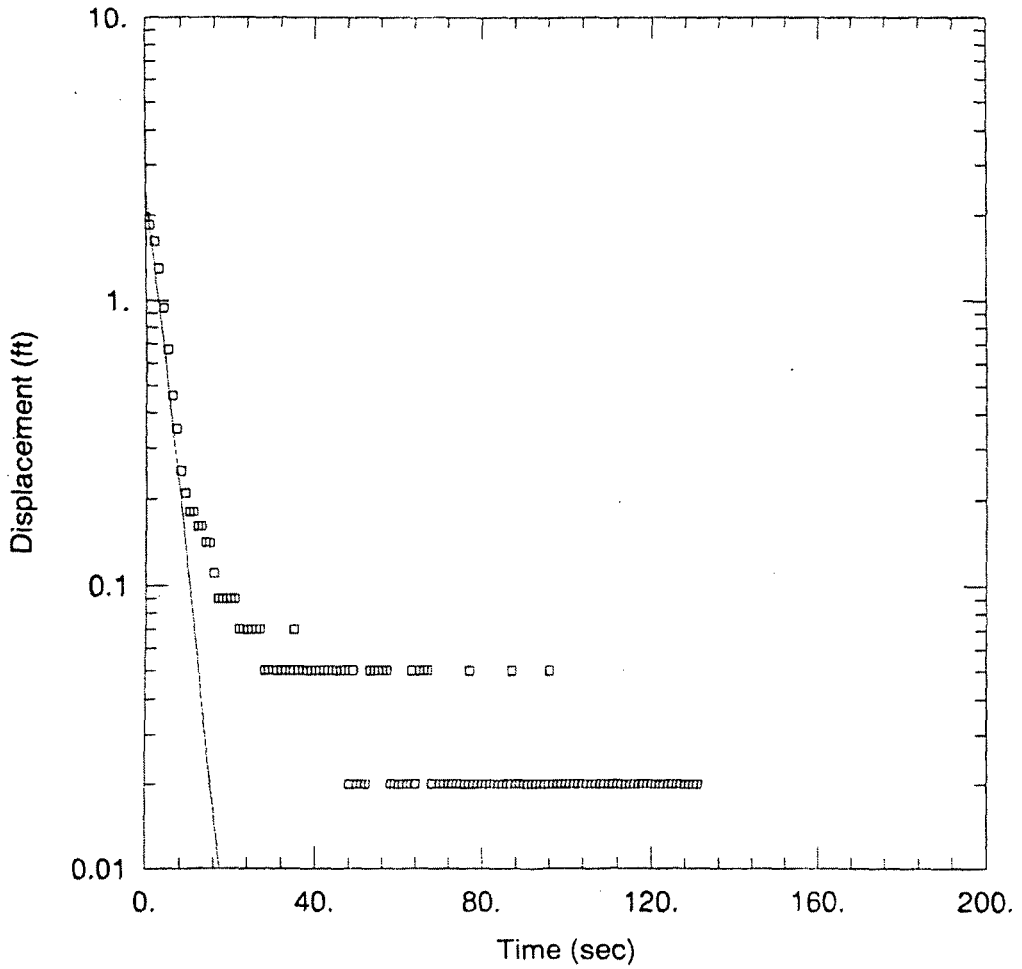
WELL DATA (MW-105)

Initial Displacement: 2.6 ft
Total Well Penetration Depth: 9.29 ft
Casing Radius: 0.083 ft
Static Water Column Height: 19.29 ft
Screen Length: 9.29 ft
Wellbore Radius: 0.333 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 0.02358 cm/sec
y0 = 2.773 ft



RISING HEAD TEST

Data Set: C:\...\MW-107.aqt
Date: 03/15/06 Time: 14:27:59

PROJECT INFORMATION

Company: CRA
Client: Exelon - Braidwood Station
Project: 16841-07
Location: Braceville, Illinois
Test Well: MW-107
Test Date: 10/20/2005

AQUIFER DATA

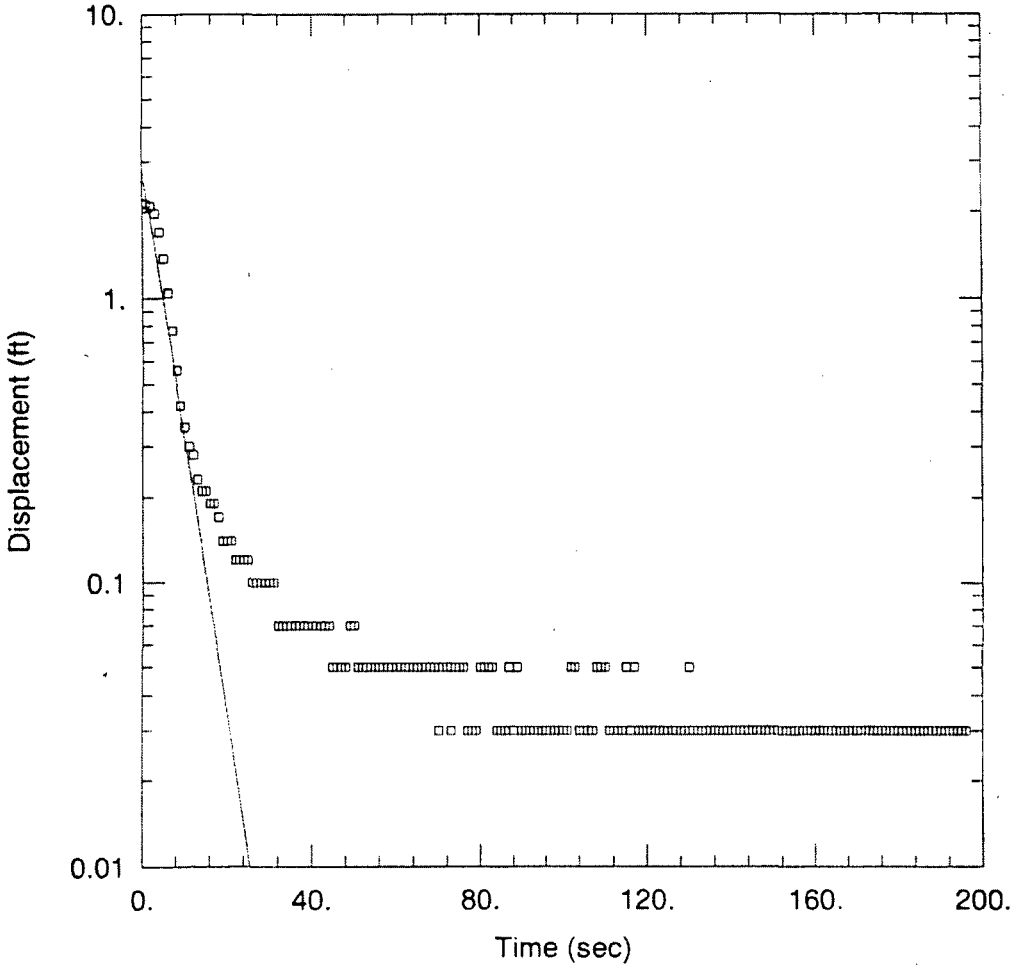
Saturated Thickness: 25. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-107)

Initial Displacement: 1.96 ft
Total Well Penetration Depth: 7.66 ft
Casing Radius: 0.083 ft
Static Water Column Height: 10.59 ft
Screen Length: 7.66 ft
Wellbore Radius: 0.333 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.04697 cm/sec
y0 = 2.472 ft



RISING HEAD TEST

Data Set: C:\...\MW-109.aqt
Date: 03/15/06 Time: 14:27:54

PROJECT INFORMATION

Company: CRA
Client: Exelon - Braidwood Station
Project: 16841-07
Location: Braceville, Illinois
Test Well: MW-109
Test Date: 10/20/2005

AQUIFER DATA

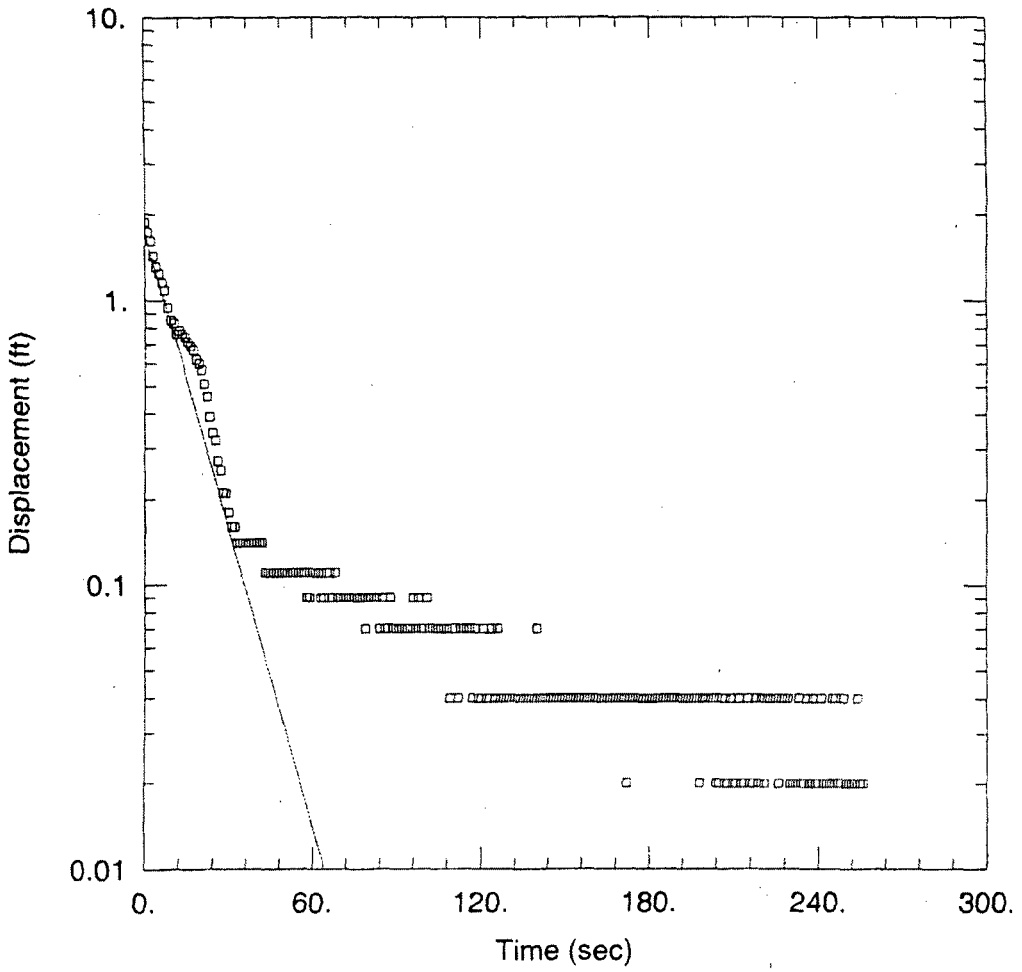
Saturated Thickness: 25. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-109)

Initial Displacement: 2.15 ft
Total Well Penetration Depth: 7.67 ft
Casing Radius: 0.083 ft
Static Water Column Height: 7.67 ft
Screen Length: 7.67 ft
Wellbore Radius: 0.333 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.03278 cm/sec
y0 = 2.878 ft



RISING HEAD TEST

Data Set: C:\...\MW-112.aqt
Date: 03/15/06 Time: 14:27:47

PROJECT INFORMATION

Company: CRA
Client: Exelon - Braidwood Station
Project: 16841-07
Location: Braceville, Illinois
Test Well: MW-112
Test Date: 10/20/2005

AQUIFER DATA

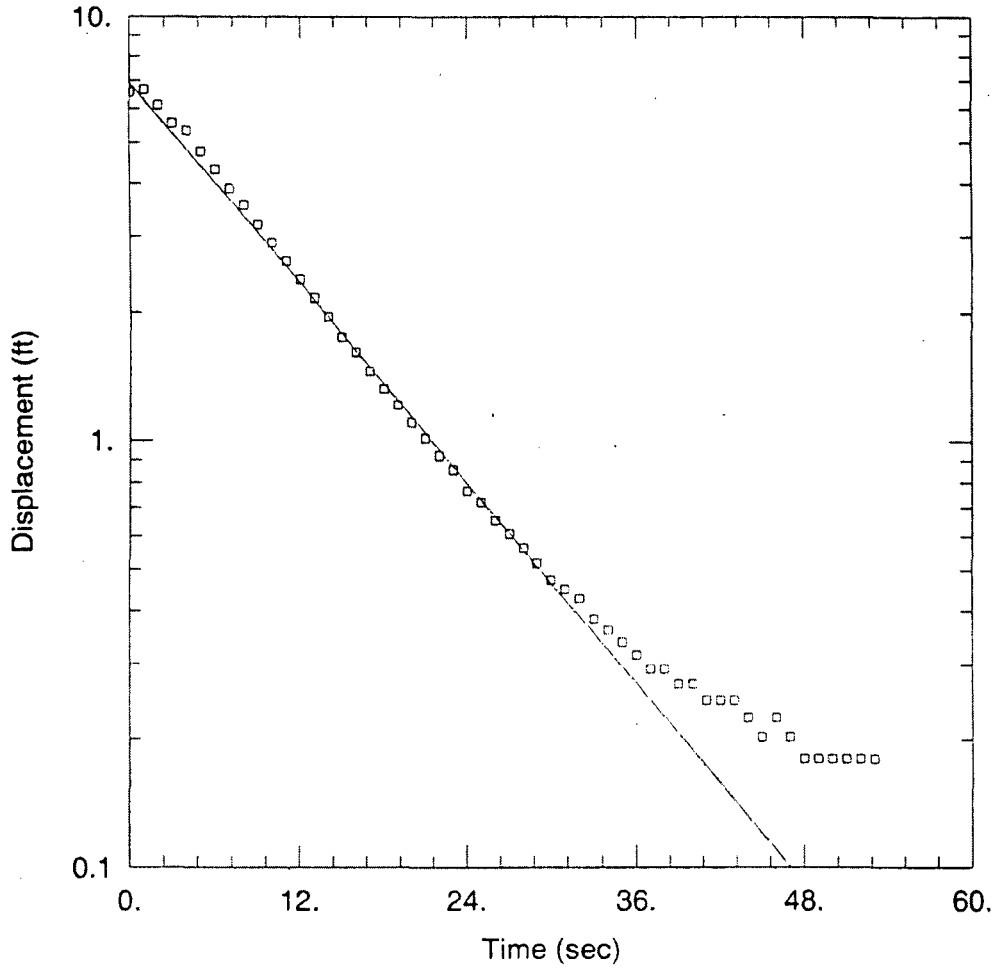
Saturated Thickness: 25. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-112)

Initial Displacement: 1.87 ft
Total Well Penetration Depth: 8.1 ft
Casing Radius: 0.083 ft
Static Water Column Height: 8.1 ft
Screen Length: 8.1 ft
Wellbore Radius: 0.333 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.01154 cm/sec
y0 = 1.714 ft



RISING HEAD TEST

Data Set: C:\Documents and Settings\mborkowski\Desktop\g-2-3.aqt
Date: 02/10/06 Time: 14:28:12

PROJECT INFORMATION

Company: CRA
Client: Exelon - Braidwood Station
Project: 16841
Location: Braceville, Illinois
Test Well: G-2
Test Date: 02/02/2006

AQUIFER DATA

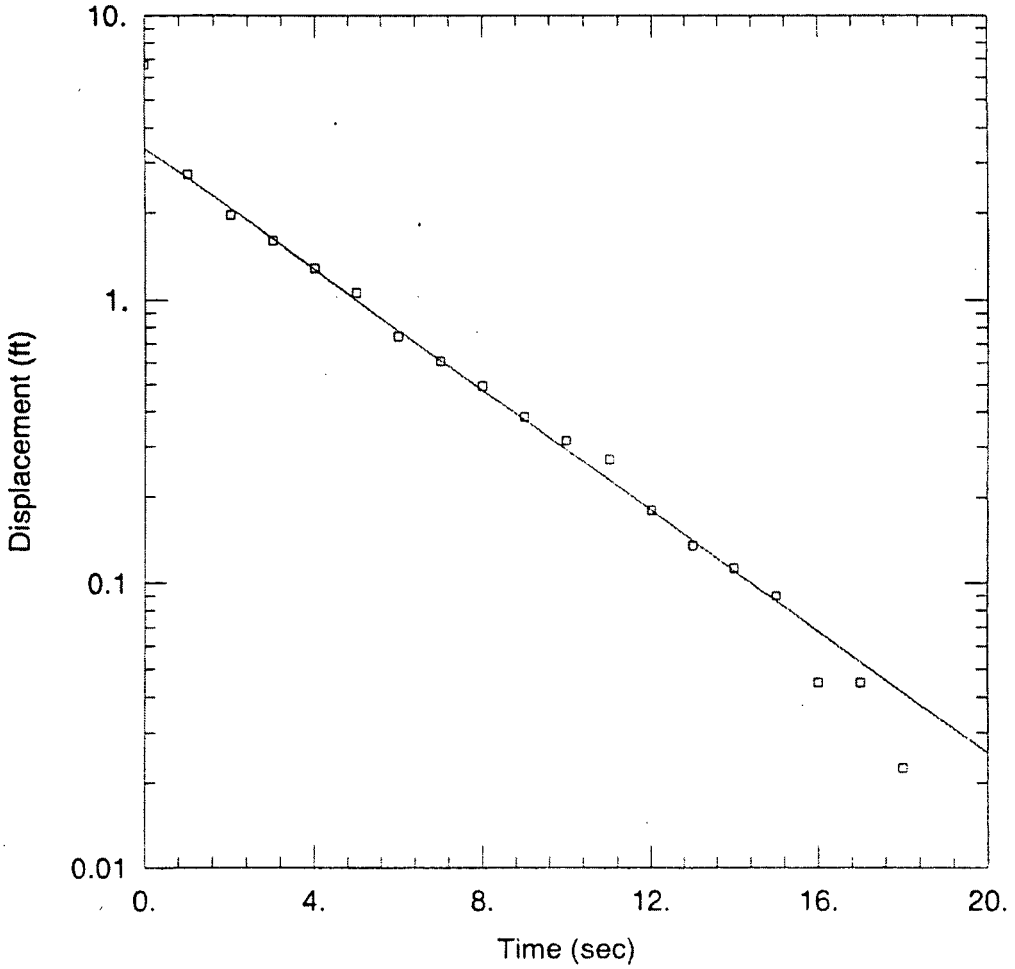
Saturated Thickness: 25. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (g-2)

Initial Displacement: 6.56 ft
Total Well Penetration Depth: 24.5 ft
Casing Radius: 0.083 ft
Static Water Column Height: 17.94 ft
Screen Length: 5. ft
Wellbore Radius: 0.333 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.02618 cm/sec
y0 = 6.89 ft



RISING HEAD TEST

Data Set: C:\Documents and Settings\mborkowski\Desktop\P-2.aqt
Date: 02/10/06 Time: 14:28:29

PROJECT INFORMATION

Company: CRA
Client: Exelon - Braidwood Station
Project: 16841
Location: Braceville, Illinois
Test Well: P-2
Test Date: 02/02/2006

AQUIFER DATA

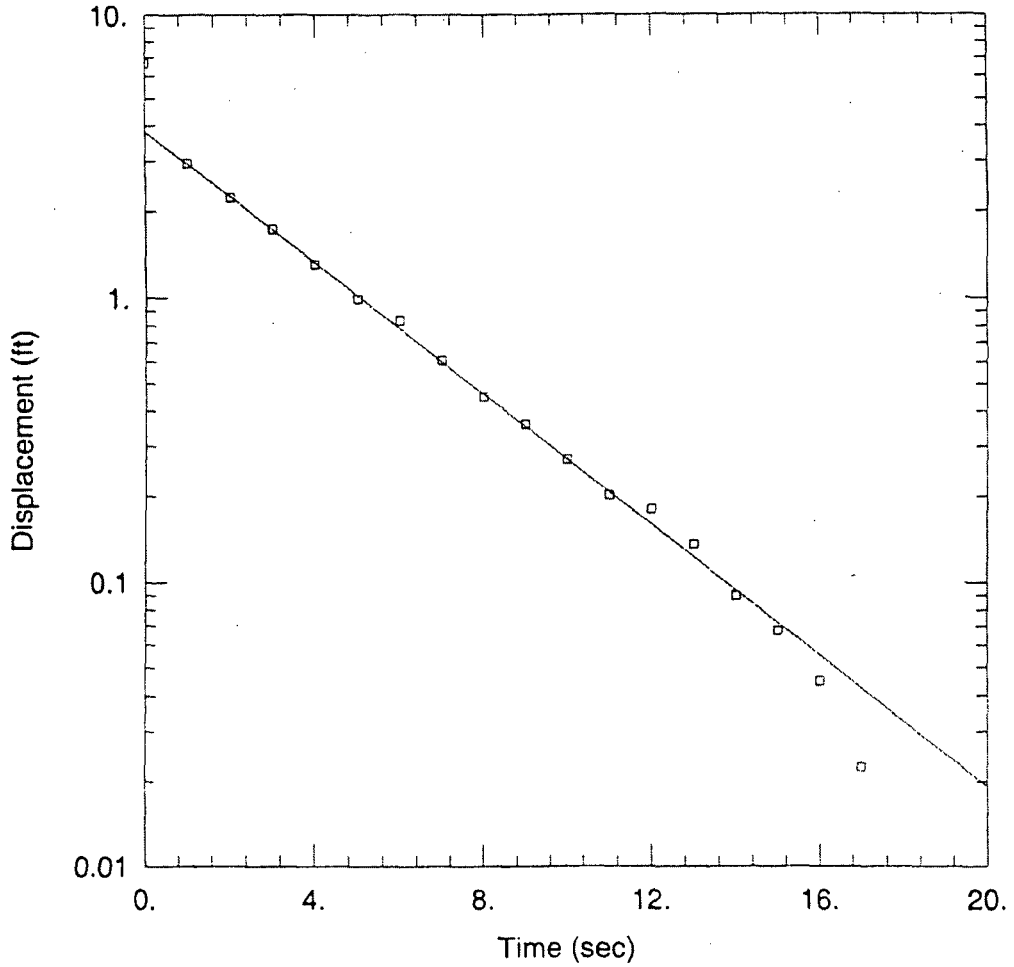
Saturated Thickness: 25. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (p-2-1)

Initial Displacement: 6.66 ft
Total Well Penetration Depth: 8.7 ft
Casing Radius: 0.083 ft
Static Water Column Height: 7.04 ft
Screen Length: 5. ft
Wellbore Radius: 0.333 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.05158 cm/sec
y0 = 3.376 ft



RISING HEAD TEST

Data Set: C:\Documents and Settings\mborkowski\Desktop\P-2-2.aqt
Date: 02/10/06 Time: 14:28:21

PROJECT INFORMATION

Company: CRA
Client: Exelon - Braidwood Station
Project: 16841
Location: Braceville, Illinois
Test Well: P-2
Test Date: 02/02/2006

AQUIFER DATA

Saturated Thickness: 25. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (p-2-2)

Initial Displacement: 6.66 ft
Total Well Penetration Depth: 8.7 ft
Casing Radius: 0.083 ft
Static Water Column Height: 7.04 ft
Screen Length: 5. ft
Wellbore Radius: 0.333 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 0.05585 cm/sec
y0 = 3.817 ft

APPENDIX G

WATER WELL INVENTORY RECORDS

REC-2

ILLINOIS STATE GEOLOGICAL SURVEY

Water Well	Top	Bottom
sand dolomitic white to brn pnk crs to f	0	10
till, dolomitic, sandy, gray, pebbly	10	15
sand dolomitic silty white-brn pnk rndd	15	20
till dolomitic sandy silty gray pebbly	20	45
shale	45	75
no sample	75	80
shale	80	90
sandstone	90	95
coal	95	100
underclay	100	105
sandstone	105	115
shale	115	135
sandstone	135	145
Maquoketa limestone, siltstone, shale	145	260
Galena limestone	260	460
Decorah limestone	460	515
Platteville limestone	515	640
Glenwood limestone sandstone dolomite sh	640	740
St. Peter sandstone	740	875
Shakopee dolomite, sandstone	875	995
Total Depth		1647

Permit Date: **Permit #:** 0

COMPANY Varner C W
FARM Braidwood City
DATE DRILLED January 1, 1937 **NO.** 1
ELEVATION 577GL **COUNTY NO.** 00010
LOCATION 1310'N line, 257'E line of SW
LATITUDE 41.263908 **LONGITUDE** - 88.218222
COUNTY Will **API** 121970001000 **8 - 32N - 9E**

2

Driller's Log filed
Survey Sample Study filed
Sample set # 1933 (0' - 1603')

KEC-51

ILLINOIS STATE GEOLOGICAL SURVEY

Water Well	Top	Bottom
topsoil, sand	0	5
brown sand	5	20
gray sand	20	28
blue clay	28	55
sandy clay	55	60
sandy shale	60	71
some rock in shale	71	80
Total Depth		80

Casing: 5" GALV STEEL from 0' to 62'

Grout: NEAT CEMENT from 0 to 20.
Size hole below casing: 5"

Water from limestone, shale at 71' to 80'.
Static level 8' below casing top which is 1' above GL
Pumping level 20' when pumping at 20 gpm for 2 hours
Driller's Log filed
Location source: Platbook verified

Permit Date: October 17, 1973 **Permit #:** 26015

COMPANY Griffy, Cecil D.
FARM (b)(6)
DATE DRILLED November 5, 1973 **NO.**
ELEVATION 0 **COUNTY NO.** 24083
LOCATION NW NW SW
LATITUDE 41.252184 **LONGITUDE** - 88.206057
COUNTY Will **API** 121972408300 **16 - 32N - 9E**

REC- 40.

Yellow Copy – Well Contractor
Blue Copy – Well Owner

ILLINOIS, 62706. DO NOT DETACH GEOLOGICAL / WATER SURVEYS SECTION. DO SEND TO PROVIDE PROPER WELL LOCATION.

ILLINOIS DEPARTMENT OF PUBLIC HEALTH
WELL CONSTRUCTION REPORT

1. Type of Well
   a. Dug____. Bored____. Hole Diam. 5 in. Depth 40 ft.
   Curb material _____. Buried Slab: Yes_____ No_____
   b. Driven _____. Drive Pipe Diam. _____ in. Depth _____ ft.
   c. Drilled X. Finished in Drift _____. In Rock X.
   Tubular _____. Gravel Packed _____.
   d. Grout:

(KIND)	FROM (Ft.)	TO (Ft.)
Cement grouted		

2. Distance to Nearest:
   Building _____ Ft. Seepage Tile Field 75
   Cess Pool _____ Sewer (non Cast iron) _____
   Privy _____ Sewer (Cast iron) _____
   Septic Tank 50 Barnyard _____
   Leaching Pit _____ Manure Pile _____
3. Is water from this well to be used for human consumption?
   Yes X No_____
4. Date well completed 1-25-72
5. Permanent Pump Installed? Yes X No_____
   Manufacturer Barnes Type Submer
   Capacity _____ gpm. Depth of setting 35 ft.
6. Well Top Sealed? Yes X No_____
7. Pitless Adaptor Installed? Yes X No_____
8. Well Disinfected? Yes X No_____
9. Water Sample Submitted? Yes_____ No X

REMARKS:

Owner instructed

IDPH 4.065
10/68

GEOLOGICAL AND WATER SURVEYS WELL RECORD

(9)(a)

11. Permit No. [illegible] Date [illegible]
12. Water from Glacial Formation 13. County [illegible]
    at depth 10 to 40 ft.
    Sec. 17
    Twp. 32N
    Rge. 9E
    Elev. _____
14. Screen: Diam. _____ in.
    Length: _____ ft. Slot _____
15. Casing and Liner Pipe

Diam. (In.)	Kind and Weight	From (Ft.)	To (Ft.)
5	Steel, 15#	0	38

SHOW LOCATION IN SECTION PLAT
NW NE SE

16. Size Hole below casing: 5 in.
17. Static level 10 ft. below casing top which is 1 ft. above ground level. Pumping level 35 ft. when pumping at 20 gpm for 4 hours.

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
Overburden	0	38
Rock formation	38	40

(CONTINUE ON SEPARATE SHEET IF NECESSARY)

SIGNED [illegible] DATE 5-22-72

COPY

DRILLERS LOG

VILLAGE OF BRAIDWOOD, TEST HOLE NO. 1

Formation	From	To
	0	4
Humus	4	17
Sand	17	27
Clay	27	65
Sandstone	65	75
Shale		TD

Driller: J. Bolliger and Sons
Date drilled: April 1950
County No. 1222
Authority: J. W. Crenshaw
County: Will
Location: 50' N line, 1300' W line of Section 17, T. 32N., R. 9E.

REC VL

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DRILLERS LOG

VILLAGE OF BRAIDWOOD, TEST HOLE NO. 2

Formation	From	To
Humus	0	2
Tight sand	2	15
Hard sandy clay, no water	15	27
		TD

Driller:	J. Bolliger and Sons
Date drilled:	April 1950
County No.	1223
Authority:	J. W. Crenshaw
County:	Will
Location:	50' N line, 2650' W line of Section 17, T. 32N., R. 9E.

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TH3

REC-65

DRILLERS LOG

VILLAGE OF BRAIDWOOD, TEST HOLE NO. 3

Formation	From	To
Humus	0	2
Sand	2	25
Hardpan	25	27
Sand	27	30
Sandstone	30	75
Shale, soapstone	75	79

Driller: J. Bolliger and Sons
Date drilled: April 1950
County No. 1224
Authority: J. W. Crenshaw
County: Will
Location: 30' W line, 1800' N line of Section 17, T. 32N., R. 9E.

P-220522

C
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REC- 64

DRILLERS LOG

VILLAGE OF BRAIDWOOD, TEST HOLE NO. 2

Formation	Thickness	Top	Bottom
Sand yellow	5	0	5
Sand yellow	6.5	5	11.5
Fine gray sand	5	11.5	16.5
Gray sandstone 17'	5.5	16.5	22
Gray sandstone	5	22	27
Softens at 28'	5.5	27	32.5
Hard again 33'. Fine gray sand	5	32.5	37.5
Cemented with lime	5.5	37.5	43
Hard gray sandstone	5	43	48
Hard gray sandstone	5.5	48	53.5
Hard gray sandstone and coal	5	53.5	58.5
Hard gray sandstone and coal	5.5	58.5	64
Hard gray sandstone and coal	5	64	69
	5.5	69	74.5
Stopped drilling at 80'	5	74.5	79.5

Driller: J. P. Miller Artesian Well Co.
Date drilled: July 1955
County No. 1225
Authority: J. P. Miller Artesian Well Co.
County: Will
Location: 330' S line, 330' E line of NW NW Section 17, T. 32N., R. 9E.

P-220525

C
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DRILLERS LOG

VILLAGE OF BRAIDWOOD, TEST HOLE NO. 3

Formation	Thickness	Top	Bottom
Dirty sand	5	0	5
Fine sand	6.5	5	11.5
Fine sand	5	11.5	16.5
Hard blue clay and boulders 18'	5.5	16.5	22
Soft 22', hard 23'. Moved hole ahead 2'	5	22	27
Hard blue clay and boulders	5.5	27	32.5
Sandstone 33'	5	32.5	37.5
Sandstone	5.5	37.5	43
Sandstone	5	43	48
Sandstone	5.5	48	53.5
Sandstone and some coal	2.5	53.5	56

Driller: J. P. Miller Artesian Well Co.
Date drilled: July 1955
County No. 1226
Authority: J. P. Miller Artesian Well Co.
County: Will
Location: 330' N line, 330' W line of Section 17, T. 32N., R. 9E.

P-220527

REC-66

ILLINOIS STATE GEOLOGICAL SURVEY

Water Well	Top	Bottom
sandy soil to 2', 2' orange sand	0	5
fine sand Boulder 11' With 1s chips	5	11
hard blue glacial clay	11	16
hard blue glacial clay	16	22
hard blue glacial clay	22	27
sandstone 30 1/2'	27	32
sandstone	32	37
sandstone	37	43
sandstone	43	48
sandstone	48	53
sandstone. Gray clay 58'	53	58
gray clay	58	64
gray clay	64	69
gray clay	69	74
gray clay	74	79
gray clay	79	85
gray clay	85	90
gray clay	90	95
hard gray clay	95	100
hard gray clay	100	106
Total Depth		106

Permit Date: **Permit #:** 0

COMPANY Miller, J. P. Art. Well
FARM Braidwood City
DATE DRILLED July 1, 1955 **NO.** 0001
ELEVATION 0 **COUNTY NO.** 01227
LOCATION 330'N line, 330'E line of SE NE
LATITUDE 41.255505 **LONGITUDE** - 88.227621
COUNTY Will **API** 121970122700 **18 - 32N - 9E**

REC-66

ILLINOIS STATE GEOLOGICAL SURVEY

Water Well	Top	Bottom
sandy soil to 2', 2' orange sand	0	5
fine sand Boulder 11' With ls chips	5	11
hard blue glacial clay	11	16
hard blue glacial clay	16	22
hard blue glacial clay	22	27
sandstone 30 1/2'	27	32
sandstone	32	37
sandstone	37	43
sandstone	43	48
sandstone	48	53
sandstone. Gray clay 58'	53	58
gray clay	58	64
gray clay	64	69
gray clay	69	74
gray clay	74	79
gray clay	79	85
gray clay	85	90
gray clay	90	95
hard gray clay	95	100
hard gray clay	100	106
Total Depth		106

Permit Date: **Permit #:** 0

COMPANY Miller, J. P. Art. Well
FARM Braidwood City
DATE DRILLED July 1, 1955 **NO.** 0001
ELEVATION 0 **COUNTY NO.** 01227
LOCATION 330'N line, 330'E line of SE NE
LATITUDE 41.255505 **LONGITUDE** - 88.227621
COUNTY Will **API** 121970122700 **18 - 32N - 9E**

REC- 66

Driller's Log filed

Miller, J. P. Art. Well Braidwood City 0001

COUNTY Will API 121970122700 18 - 32N - 9E

INSTRUCTIONS TO DRILLERS

White Copy – Ill. Dept. of Public Health
Yellow Copy – Well Contractor
Blue Copy – Well Owner

FILL IN ALL PERTINENT INFORMATION REQUESTED AND MAIL ORIGINAL TO STATE DEPARTMENT OF PUBLIC HEALTH, ROOM 616, STATE OFFICE BUILDING, SPRINGFIELD, ILLINOIS, 62706. DO NOT DETACH GEOLOGICAL/WATER SURVEYS SECTION. BE SURE TO PROVIDE PROPER WELL LOCATION.

REC 73

ILLINOIS DEPARTMENT OF PUBLIC HEALTH
WELL CONSTRUCTION REPORT

1. Type of Well
   a. Dug ____. Bored ____. Hole Diam. 5 in. Depth 75 ft.
   Curb material ____. Buried Slab: Yes ____ No ____
   b. Driven ____. Drive Pipe Diam. 5 in. Depth 43 ft.
   c. Drilled X. Finished in Drift ____. In Rock X.
   Tubular ____. Gravel Packed ____.
   d. Grout:

(KIND)	FROM (Ft.)	TO (Ft.)

2. Distance to Nearest:
   Building 20 Ft. Seepage Tile Field 75'
   Cess Pool ____ Sewer (non Cast iron) ____
   Privy ____ Sewer (Cast iron) ____
   Septic Tank 50' Barnyard ____
   Leaching Pit ____ Manure Pile ____
3. Is water from this well to be used for human consumption?
   Yes X No ____
4. Date well completed 9-2-71
5. Permanent Pump Installed? Yes X No ____
   Manufacturer BARNES Type SUBMERSIBLE
   Capacity 10 gpm. Depth of setting 60 ft.
6. Well Top Sealed? Yes X No ____
7. Pitless Adaptor Installed? Yes X No ____
8. Well Disinfected? Yes X No ____
9. Water Sample Submitted? Yes ____ No X

REMARKS:

IDPH 4.065
10/68

GEOLOGICAL AND WATER SURVEYS WELL RECORD

10. Property Address (b)(6)
    Driller ROCKPORT WELL SERV License No. 180
11. Permit No. 14261 Date 9-3-71
12. Water from SAND STONE Formation 13. County WILL
    at depth 43 to 75 ft.
14. Screen: Diam. ____ in.
    Length: ____ ft. Slot ____
    Sec. 17 Twp. 35N Rge. 9E Elev. ____

SHOW LOCATION IN SECTION PLAT

Lot 3 Dewitt NW

15. Casing and Liner Pipe

Diam. (in.)	Kind and Weight	From (Ft.)	To (Ft.)
5"	A-53 15 lbs	0'	43'

16. Size Hole below casing: 5 in.
17. Static level 30 ft. below casing top which is +1 ft. above ground level. Pumping level 30 ft. when pumping at 10 gpm for 1 hours.

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
TOP SOIL	3'	3'
CLAY	7'	10'
SAND	20'	30'
SAND GRAVEL	13'	43'
SAND STONE	32'	75'

(CONTINUE ON SEPARATE SHEET IF NECESSARY)

SIGNED Charles Sybes DATE 9-9-71

140G/E

KEV 01

ILLINOIS STATE GEOLOGICAL SURVEY

Water Well	Top	Bottom
cinders	0	2
yellow sand	2	6
fine gray sand to medium, loose	6	14
gray clay, gravel and boulders imbedded	14	29
hard gray s & cl mixture,used pulldowns	29	49
gray hard shale	49	65
Total Depth		65

Driller's Log filed

Permit Date: **Permit #:** 0

COMPANY Layne Western Co., Inc.
FARM Braidwood Village
DATE DRILLED February 1, 1957 **NO.** 0001
ELEVATION 0 **COUNTY NO.** 01229
LOCATION 650'S line, 650'E line of SW
LATITUDE 41.262320 **LONGITUDE** - 88.200523
COUNTY Will **API** 121970122900 **9 - 32N - 9E**

INST' NS TO DRILLERS

White Copy – Ill. Dept. of Public Health
Yellow Copy – Well Contractor
Blue Copy – Well Owner

FILL IN ALL PERTINENT INFORMATION REQUESTED AND MAIL ORIGINAL TO STATE DEPARTMENT OF PUBLIC HEALTH, BUREAU OF ENVIRONMENTAL HEALTH, 535 WEST JEFFERSON, SPRINGFIELD, ILLINOIS, 62701. DO NOT DETACH GEOLOGICAL/WATER SURVEYS SECTION. BE SURE TO PROVIDE PROPER WELL LOCATION.

REC- 7
exemption 6

ILLINOIS DEPARTMENT OF PUBLIC HEALTH
WELL CONSTRUCTION REPORT

1. Type of Well
   a. Dug ____. Bored ____. Hole Diam. 5 in. Depth 80 ft.
   Curb material _____. Buried Slab: Yes ____ No ____
   b. Driven ____. Drive Pipe Diam. 5 in. Depth 50 ft.
   c. Drilled X. Finished in Drift ____. In Rock X.
   Tubular ____. Gravel Packed ____.
   d. Grout:

(KIND)	FROM (Ft.)	TO (Ft.)

2. Distance to Nearest:
   Building 90 Ft. Seepage Tile Field 75
   Cess Pool ____ Sewer (non Cast iron) ____
   Privy ____ Sewer (Cast iron) ____
   Septic Tank 50 Barnyard ____
   Leaching Pit ____ Manure Pile ____
3. Is water from this well to be used for human consumption?
   Yes X No ____
4. Date well completed 12/2/73
5. Permanent Pump Installed? Yes X No ____
   Manufacturer Barnes Type Submersible
   Capacity 10 gpm. Depth of setting 60 ft.
6. Well Top Sealed? Yes ____ No ____ Williams-Vermiproof
7. Pitless Adaptor Installed? Yes X No ____ Williams attached to casing by compression gasket connection
8. Well Disinfected? Yes X No ____
9. Water Sample Submitted? Yes ____ No X

REMARKS: 201 WX T gal. pressure tank located in house.

GEOLOGICAL AND WATER SURVEYS WELL RECORD

10. Property Owner (b)(6)
    Address (b)(6)
    Driller Charles Taylor License No. ____
11. Permit No. 4F 21795 Date 11/8/73
12. Water from Limestone Formation 13. County Will
    at depth 50 to 80 ft.
    Sec. 17 NE
    Twp. 32N
    Rge. 9E
    Elev. ____
14. Screen: Diam. ____ in.
    Length: ____ ft. Slot ____

SHOW LOCATION IN SECTION PLAT
SE SE NE

15. Casing and Liner Pipe

Diam. (in.)	Kind and Weight	From (Ft.)	To (Ft.)
5"	A-53 12 lbs	0'	50'

16. Size Hole below casing: 5 in.
17. Static level 40 ft. below casing top which is +1 ft. above ground level. Pumping level 40 ft. when pumping at 10 gpm for 1 hours.

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
Sand	18'	18'
Gravel	2'	20'
Shale	17'	37'
Sand & Gravel	4'	41'
Shale	9'	50'
Limestone	30'	80'

(CONTINUE ON SEPARATE SHEET IF NECESSARY)

SIGNED Charles Taylor DATE 8/27/74
Lockport Well & Pump

IDPH 4.065
10-72
KNB-1

REC-104

ILLINOIS STATE GEOLOGICAL SURVEY

Water Well	Top	Bottom
sandy clay	0	5
sand	5	10
sandy clay	10	20
blue clay	20	60
shale, coal, rock	60	61
shale	61	86
Total Depth		86

Casing: 5" GALV STL 15 from 0' to 60'

Grout: NEAT CEMENT from 0 to 20.
Size hole below casing: 5"

Water from shale at 61' to 86'.
Static level 12' below casing top which is 1' above GL
Pumping level 60' when pumping at 4 gpm for 5 hours

Driller's Log filed
Location source: Platbook verified

Permit Date: September 9, 1974 **Permit #:** 32855

COMPANY Griffy, Cecil D.
FARM (b)(6)
DATE DRILLED October 5, 1974 **NO.**
ELEVATION 0 **COUNTY NO.** 24827
LOCATION SE SW SW
LATITUDE 41.261388 **LONGITUDE** - 88.204107
COUNTY Will **API** 121972482700 **9 - 32N - 9E**

REC- 107

ILLINOIS STATE GEOLOGICAL SURVEY

Water Well	Top	Bottom
sand	0	30
gravel	30	46
sandstone	46	90
Total Depth		90

Casing: 5" A-53 15# from 0' to 46'

Size hole below casing: 5"

Water from sandstone at 46' to 90'.
Static level 20' below casing top which is 1' above GL
Pumping level 20' when pumping at 10 gpm for 1 hour

Permanent pump installed at 60' on , with a capacity of 10 gpm

Driller's Log filed
Location source: Location from permit

Permit Date: October 29, 1974 **Permit #:** 34385

COMPANY Lockport Well & Pump
FARM (b)(6)
DATE DRILLED October 28, 1974 **NO.** 0001
ELEVATION 0 **COUNTY NO.** 24852
LOCATION SW NW NW
LATITUDE 41.257367 **LONGITUDE** - 88.225303
COUNTY Will **API** 121972485200 **17 - 32N - 9E**

KEC-1-1

ILLINOIS STATE GEOLOGICAL SURVEY

Water Well	Top	Bottom
sand	0	40
Total Depth		40

Driller's Log filed

Permit Date: **Permit #:** 0

COMPANY Anderson Well Drlg.
FARM (b)(6)
DATE DRILLED June 1, 1972 **NO.** 1
ELEVATION 0 **COUNTY NO.** 25404
LOCATION NW SE SE
LATITUDE 41.263087 **LONGITUDE** - 88.211334
COUNTY Will **API** 121972540400 **8 - 32N - 9E**

REC - 158
Exemption 6

INSTRUCT. TO DRILLERS

White - Ill. Dept. of Public Health
Yellow Copy - Well Contractor
Blue Copy - Well Owner

FILL IN ALL PERTINENT INFORMATION REQUESTED AND MAIL ORIGINAL TO STATE DEPARTMENT OF PUBLIC HEALTH, BUREAU OF ENVIRONMENTAL HEALTH, 535 WEST JEFFERSON, SPRINGFIELD, ILLINOIS, 62701. DO NOT DETACH GEOLOGICAL/WATER SURVEYS SECTION. BE SURE TO PROVIDE PROPER WELL LOCATION.

ILLINOIS DEPARTMENT OF PUBLIC HEALTH
WELL CONSTRUCTION REPORT

1. Type of Well
   a. Dug ____. Bored ____. Hole Diam. 5 in. Depth 65 ft.
   Curb material ____. Buried Slab: Yes ____ No ____
   b. Driven ____. Drive Pipe Diam. 5 in. Depth 35 ft.
   c. Drilled X. Finished in Drift ____. In Rock X.
   Tubular ____. Gravel Packed ____.
   d. Grout:

(KIND)	FROM (Ft.)	TO (Ft.)

2. Distance to Nearest:
   Building 35 Ft. Seepage Tile Field 75'
   Cess Pool ____ Sewer (non Cast iron) ____
   Privy ____ Sewer (Cast iron) ____
   Septic Tank 50' Barnyard ____
   Leaching Pit ____ Manure Pile ____
3. Is water from this well to be used for human consumption?
   Yes X No ____
4. Date well completed 2-24-77
5. Permanent Pump Installed? Yes X No ____
   Manufacturer Barnes Type Submersible
   Capacity 8 gpm. Depth of setting 40 ft.
6. Well Top Sealed? Yes X No ____
7. Pitless Adaptor Installed? Yes X No ____
8. Well Disinfected? Yes X No ____
9. Water Sample Submitted? Yes ____ No X

REMARKS:

GEOLOGICAL AND WATER SURVEYS WELL RECORD

10. Property Owner (b)(6)
    Address (b)(6)
    Driller Charles Fyke License No. 33
11. Permit No. 56857 Date 2-17-77
12. Water from Sandstone (Formation) 13. County Knox
    at depth 35 to 65 ft.
    Sec. 17 1/4 | Twp. 32N | Rge. 9E | Elev. ____
14. Screen: Diam. ____ in.
    Length: ____ ft. Slot ____
15. Casing and Liner Pipe

Diam. (in.)	Kind and Weight	From (Ft.)	To (Ft.)
5	A-53 15 lb.	0	35

SHOW LOCATION IN SECTION PLAT
SE NE NE

16. Size Hole below casing: 5 in.
17. Static level 10 ft. below casing top which is +1 ft. above ground level. Pumping level 20 ft. when pumping at 8 gpm for 1 hours.

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
Sand	35	35
Sandstone	30	65

(CONTINUE ON SEPARATE SHEET IF NECESSARY)

SIGNED Charles Fyke DATE 1-7-80

IDPH 4.065
10-72
KNB-1 P-149917

REC- 159

INSTRUCTIONS TO DRILLERS

White Copy - Ill. Dept. of Public Health
Yellow Copy - Well Contractor
Blue Copy - Well Owner

FILL IN ALL PERTINENT INFORMATION REQUESTED AND MAIL ORIGINAL TO STATE DEPARTMENT OF PUBLIC HEALTH, BUREAU OF ENVIRONMENTAL HEALTH, 535 WEST JEFFERSON, SPRINGFIELD, ILLINOIS, 62701. DO NOT DETACH GEOLOGICAL/WATER SURVEYS SECTION. BE SURE TO PROVIDE PROPER WELL LOCATION.

exemption 6

ILLINOIS DEPARTMENT OF PUBLIC HEALTH
WELL CONSTRUCTION REPORT

1. Type of Well
   a. Dug ___. Bored ___. Hole Diam. 5 in. Depth 100 ft.
   Curb material ___. Buried Slab: Yes ___ No ___
   b. Driven ___. Drive Pipe Diam. 5 in. Depth 42 ft.
   c. Drilled X. Finished in Drift ___. In Rock X.
   Tubular ___. Gravel Packed ___.
   d. Grout:

(KIND)	FROM (Ft.)	TO (Ft.)

2. Distance to Nearest:
   Building 25 Ft. Seepage Tile Field 75'
   Cess Pool ___ Sewer (non Cast iron) ___
   Privy ___ Sewer (Cast iron) ___
   Septic Tank 50' Barnyard ___
   Leaching Pit ___ Manure Pile ___
3. Is water from this well to be used for human consumption?
   Yes X No ___
4. Date well completed 4-20-78
5. Permanent Pump Installed? Yes X No ___
   Manufacturer Barnes Type Submersible
   Capacity 10 gpm. Depth of setting ___ ft.
6. Well Top Sealed? Yes X No ___
7. Pitless Adaptor Installed? Yes X No ___
8. Well Disinfected? Yes X No ___
9. Water Sample Submitted? Yes ___ No X

REMARKS:

IDPH 4.065

GEOLOGICAL AND WATER SURVEYS WELL RECORD

10. Property owner (b)(6) (b)(6)
    Address (b)(6)
    Driller Charles Fyke License No. 23
11. Permit No. 73034 Date 4-13-78
12. Water from Sandstone (Formation) 13. County Lake
    at depth 40 to 65 ft.
    Sec. 12th
    Twp. 32N
    Rge. 9E
    Elev. ___
14. Screen: Diam. ___ in.
    Length: ___ ft. Slot ___

SHOW LOCATION IN SECTION PLAT
NENENE

15. Casing and Liner Pipe

Diam. (In.)	Kind and Weight	From (Ft.)	To (Ft.)
5	A-53 15 lbs	0	42

16. Size Hole below casing: 5 in.
17. Static level 40 ft. below casing top which is +1 ft. above ground level. Pumping level 40 ft. when pumping at 10 gpm for 1 hours.

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
Sand	40	40
Sandstone	25	65
Shale	35	100

(CONTINUE ON SEPARATE SHEET IF NECESSARY)

SIGNED Charles Fyke DATE 12-7-79

White Copy: W.C.H.D.
Yellow Copy: Well Contractor

Well Construction Report

KEC- 141

exemption 6

This form must be completed within 30 days of well completion and submitted to the appropriate office depending on which township the well is located. See listing at bottom of page.

GEOLOGICAL AND WATER SURVEYS WELL RECORD

9. Driller (b)(6) License No. (b)(6)
10. Well Site Addr (b)(6)
11. Property Owner (b)(6)
12. Permit No. 197-92-0002-J Date Issued 1-8-92
13. Location: County Will
Tax # Sec. 17
Twp. 32N
Rge. 9E

Show location in section plat

NO LEGAL

1. Type of Well
a. Bored ___ Hole Diam. ___ in. Depth ___ ft
Buried Slab: Yes ___ No ___
b. Driven ✓ Drive Pipe Diam. 1½ in. Depth 19 ft
c. Drilled ___ Finished in Drift ___ In Rock ___
d. Grout:

(KIND)	FROM (Ft.)	TO (Ft.)

2. Well furnishes water for human consumption? Yes Y No ___
3. Date well drilled 11-27-91
4. Permanent pump installed? Yes ✓ Date 11-28-91 No ✓
Manufacturer ___ Type Jet
Location ___
Capacity ___ gpm. Depth of setting ___ ft.
5. Well top sealed? Yes ✓ No ___ Type GALVANIZED CAP
6. Pitless adapter installed? Yes ✓ No ___
Manufacturer ___ Model No. ___
How attached to casing? ___
7. Well disinfected? Yes ✓ No ___
8. Pump and equipment disinfected Yes ✓ No ___

14. Water from ___ at depth ___ ft to ___ ft
15. Casing and Liner Pipe

Diam. (in)	Kind and Weight	From (ft)	To (ft)
1½	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]

16. Screen: Diam. 2 in. Length [illegible] in. Slot Size [illegible]
17. Size hole below casing ___ in. 18. Ground Elev. ___ ft msl
19. Static level ___ ft below casing top which is ___ ft. above ground level. Pumping level ___ ft, pumping gpm for ___ hours

20. Earth Materials Passed Through	Depth of Top	Depth of Bottom
ALL SAND	0	19'

Continue on separate sheet if necessary.

Signed [signature] Date 1-8-92

Will County Health Dept.
Environmental Health
501 Ella Avenue
Joliet, IL 60433
(815) 727-8840

Will County Health Dept.
Environmental Health
701 N. Lockport St.
Plainfield, IL 60544
(815) 436-6871

Will County Health Dept.
Environmental Health
800 University Park
University Park, IL 60466
(815) 727-8803
(708) 534-0800

Townships
Channahon, Custer, Florence, Jackson, Joliet, Manhattan, New Lenox, Reed, Troy, Wesley, Wilmington, Wilton

Townships
DuPage, Homer, Lockport, Plainfield, Wheatland

Townships
Crete, Frankfort, Green Garden, Monee, Peotone, Washington, Will

EC 180

Exemption 6

INSTRUCTIONS TO DRILLERS

White Copy – Ill. Dept. of Public Health
Yellow Copy – Well Contractor
Blue Copy – Well Owner

FILL IN ALL PERTINENT INFORMATION REQUESTED AND MAIL ORIGINAL TO STATE DEPARTMENT OF PUBLIC HEALTH, CONSUMER HEALTH PROTECTION, 535 WEST JEFFERSON, SPRINGFIELD, ILLINOIS, 62761. DO NOT DETACH GEOLOGICAL/WATER SURVEYS SECTION. BE SURE TO PROVIDE PROPER WELL LOCATION.

ILLINOIS DEPARTMENT OF PUBLIC HEALTH WELL CONSTRUCTION REPORT

1. Type of Well
   a. Dug ___. Bored ___. Hole Diam. 5 in. Depth 60 ft.
   Curb material ___. Buried Slab: Yes ___ No ___
   b. Driven ___. Drive Pipe Diam 5 in. Depth 40 ft.
   c. Drilled X. Finished in Drift ___. In Rock X.
   Tubular ___. Gravel Packed ___.
   d. Grout:

(KIND)	FROM (Ft.)	TO (Ft.)

2. Distance to Nearest:
   Building 35 Ft. Seepage Tile Field 75'
   Cess Pool ___ Sewer (non Cast iron) ___
   Privy ___ Sewer (Cast iron) ___
   Septic Tank 50' Barnyard ___
   Leaching Pit ___ Manure Pile ___
3. Well furnishes water for human consumption? Yes X No ___
4. Date well completed 11-26-86
5. Permanent Pump Installed? Yes ___ Date ___ No X
   Manufacturer ___ Type ___ Location ___
   Capacity ___ gpm. Depth of Setting ___ Ft.
6. Well Top Sealed? Yes X No ___ Type Vermin-Proof (Wms)
7. Pitless Adapter Installed? Yes ___ No ___
   Manufacturer ___ Model Number ___
   How attached to casing? ___
8. Well Disinfected? Yes X No ___
9. Pump and Equipment Disinfected? Yes ___ No ___
10. Pressure Tank Size ___ gal. Type ___
    Location ___
11. Water Sample Submitted? Yes ___ No X

REMARKS:

Co #29241

GEOLOGICAL AND WATER SURVEYS WELL RECORD

10. Property owner (b)(6)
    Address (b)(6)
    Driller Charles Fykes License No. 102-23
11. Permit No. 128246 Date 11-21-86
12. Water from Sandstone Formation 13. County Will
    at depth 38 to 60 ft. Sec. 17.19
    14. Screen: Diam. ___ in. Twp. 32N
    Length: ___ ft. Slot ___ Rge. 9E
    Elev. ___

			X
			X

15. Casing and Liner Pipe

Diam. (in.)	Kind and Weight	From (Ft.)	To (Ft.)
5"	A-53 15 lbs.	0	40

SHOW LOCATION IN SECTION PLAT
Lot #27-28
SE NE NE
Cornet Est.

16. Size Hole below casing: 5 in.
17. Static level 35 ft. below casing top which is +1 ft. above ground level. Pumping level 58 ft. when pumping at 10 gpm for 1 hours.

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
Sand	38'	38'
Sandstone	22'	60'

(CONTINUE ON SEPARATE SHEET IF NECESSARY)

SIGNED Charles Fykes DATE Nov. 26, 1986

REC- 201

ILLINOIS STATE GEOLOGICAL SURVEY

Private Water Well	Top	Bottom
top soil	0	2
sand	2	38
sandstone	38	65
Total Depth		65

Casing: 5" A-53 15 LBS. from 0' to 42'

Size hole below casing: 5"

Water from sandstone at 38' to 65'.
Static level 30' below casing top which is 1' above GL
Pumping level 40' when pumping at 10 gpm for 1 hour

Permanent pump installed at 50' on July 28, 1984, with a capacity of 10 gpm

Location source: Field verified

Permit Date: July 27, 1984 **Permit #:** 113697

COMPANY Fykes, Charles N.
FARM (b)(6)
DATE DRILLED July 27, 1984 **NO.** 1
ELEVATION 593GL **COUNTY NO.** 31161
LOCATION 2140'N line, 55'W line of section
LATITUDE 41.254523 **LONGITUDE** - 88.207171
COUNTY Will **API** 121973116100 **16 - 32N - 9E**

White Co W.C.H.D.
Yellow Cl : Well Contractor

Well Construction Report

exemption REC- 'LL

This form must be completed within 30 days of well completion and submitted to the appropriate office depending on which township the well is located. See listing at bottom of page.

1. Type of Well
   a. Bored___ Hole Diam. 5 in. Depth 48 ft
      Buried Slab: Yes___ No___
   b. Driven___ Drive Pipe Diam.___in. Depth___ft
   c. Drilled ✓ Finished in Drift___ In Rock ✓
   d. Grout:

(KIND)	FROM (Ft.)	TO (Ft.)

2. Well furnishes water for human consumption? Yes ✓ No___
3. Date well drilled June 5, 1991
4. Permanent pump installed? Yes ✓ Date June 8, 1991 No___
   Manufacturer Valcular Type Sub-m.
   Location Scrubbed.
   Capacity 10 gpm. Depth of setting 32 ft.
5. Well top sealed? Yes ✓ No___ Type LAPPLOVED VENTED CAP
6. Pitless adapter installed? Yes ✓ No___
   Manufacturer Williams Model No B50-ACV
   How attached to casing? Cut threadin Coupling to Pump
7. Well disinfected? Yes ✓ No___
8. Pump and equipment disinfected Yes ✓ No___

GEOLOGICAL AND WATER SURVEYS WELL RECORD

9. Driller ELMER WILLS License No 102-00164
10. Well Site Address (b)(6) [redacted]
11. Property Owner (b)(6) [redacted]
12. Permit No. 191-90-0064 T Date Issued 5-13-90
13. Location: Braidwood County WILL
    Tax # 24-17-202-002 Sec. 17
    Lot 30 - Comex Estates Twp. 32N
    Rge. 9E

			X
1			

14. Water from SAND ROCK at depth 32 ft to 48 ft

15. Casing and Liner Pipe

Diam. (in)	Kind and Weight	From (ft)	To (ft)
5 in	A53 14.62 LBS	0	35

Show location in section plat
NE, SE, NE

16. Screen: Diam.___in, Length___in, Slot Size___
17. Size hole below casing___in. 18. Ground Elev.___ft msl
19. Static level 9 ft below casing top which is 1 ft. above ground level. Pumping level ___ft, pumping gpm for ___ hours

20. Earth Materials Passed Through	Depth of Top	Depth of Bottom
SAND	0	16
GRAY CLAY	16	32
SAND ROCK	32	48

Continue on separate sheet if necessary.

Signed Elmer Wills Date 7-9-91

Will County Health Dept.
Environmental Health
501 Ella Avenue
Joliet, IL 60433
(815) 727-8640

Will County Health Dept.
Environmental Health
342 N. Independence
Romeoville, IL 60441
(815) 886-1550
(312) 739-7871

Will County Health Dept.
Environmental Health
800 University Park
University Park, IL 60466
(815) 727-8803
(312) 534-0800

Townships
Channahon, Custer, Florence, Jackson, Joliet, Manhattan, New Lenox, Reed, Troy, Wesley, Wilmington, Wilton

Townships
DuPage, Homer, Lockport, Plainfield, Wheatland

Townships
Crete, Frankfort, Green Garden, Monee, Peotone, Washington, Will

Well Construction Report

Crampton

White Copy: W.C.H.D.
Yellow Copy: Well Contractor

GEOLOGICAL AND WATER SURVEYS WELL RECORD

This form must be completed within 30 days of well completion and submitted to the appropriate office depending on which township the well is located. See listing at bottom of page.

9. Drille (b)(6)
10. Well Site Address (b)(6) ell No.
11. Property Owner (b)(6) Date Issued 5/5/92
12. Permit No. 19792008 30
13. Location: County Will
Tax # Sec. 17
Comet Subd. 17 32N 09E Twp. Reed Rge. 9E

1. Type of Well
a. Bored___ Hole Diam.___in. Depth___ft
Buried Slab: Yes___ No___
b. Driven ✓ Drive Pipe Diam. 1¼ in. Depth 14 ft
c. Drilled___ Finished in Drift___ In Rock___

(KIND)	FROM (Ft.)	TO (Ft.)

d. Grout:

14. Water from 4 SAND POINT at depth 10 ft to 14 ft

Show location in section plat NESENE Lot 49

15. Casing and Liner Pipe

Diam.(in)	Kind and Weight	From (ft)	To (ft)
1¼	GALVANIZED	10	SURFACE

2. Well furnishes water for human consumption? Yes ✓ No___
3. Date well drilled 6/4/92
4. Permanent pump installed? Yes ✓ Date 6/5/92 No___
Manufacturer FLOTEC Type Jet pump
Location IN CRAWL
Capacity 11.8 gpm. Depth of setting 14 ft.
5. Well top sealed? Yes ✓ No___ Type Pipe CAP
6. Pitless adapter installed? Yes___ No ✓
Manufacturer___ Model No.___
How attached to casing?___
7. Well disinfected? Yes ✓ No___
8. Pump and equipment disinfected Yes ✓ No___

16. Screen: Diam. 1¼ in. Length 48 in. Slot Size ½
17. Size hole below casing___in. 18. Ground Elev.___ft msl
19. Static level___ft below casing top which is___ft. above ground level. Pumping level___ft. pumping gpm for___hours

20. Earth Materials Passed Through	Depth of Top	Depth of Bottom
		141
SAND		

Continue on separate sheet if necessary.

Will County Health Dept.
Environmental Health
501 Ella Avenue
Joliet, IL 60433
(815) 727-8490

Will County Health Dept.
Environmental Health
701 N. Lockport St.
Plainfield, IL 60544
(815) 436-6871

Will County Health Dept.
Environmental Health
800 University Park
University Park, IL 60466
(815) 727-8803
(708) 534-0800

Townships
Channahon, Custer, Florence, Jackson, Joliet, Manhattan, New Lenox, Reed, Troy, Wesley, Wilmington, Wilton

Townships
DuPage, Homer, Lockport, Plainfield, Wheatland

Townships
Crete, Frankfort, Green Garden, Monee, Peotone, Washington, Will

REC- LS

White Copy: W.C.H.D.
Yellow Copy: Well Contractor

Well Construction Report

permit#as 197-94-093-J

RECEIVED
DEC 05 1994
WILL COUNTY HEALTH DEPT.

example 6

This form must be completed within 30 days of well completion and submitted to the appropriate office depending on which township the well is located. See listing at bottom of page.

GEOLOGICAL AND WATER SURVEYS WELL RECORD

9. Driller Darwin Brown of K+K well Drilling License No 093-056410
10. Well Site Address (b)(6)
11. Property Owner (b)(6) Well No.
12. Permit No 197-94-201-93N Date Issued 8-16-94
13. Location: County Will
Tax # 24-17-200-021-0000 Sec. 17
SE 1/4, NE 1/4, NE 1/4 Twp. 32N Rge. 8E

1. Type of Well
a. Bored___ Hole Diam. 5 in. Depth 50 ft
Buried Slab: Yes___ No___
b. Driven___ Drive Pipe Diam.___in. Depth___ft
c. Drilled ✓ Finished in Drift ✓ In Rock___

d. Grout:

(KIND)	FROM (Ft.)	TO (Ft.)
5"	CUTTINGS	
PLASTIC		
PVC	0	40

14. Water from SHALE at depth 10 ft to 50 ft

15. Casing and Liner Pipe

Diam.(in)	Kind and Weight	From (ft)	To (ft)
5"	PLASTIC PVC	0	40
	SDR 21		

Show location in section plat

2. Well furnishes water for human consumption? Yes ✓ No___
3. Date well drilled 10-21-94
4. Permanent pump installed? Yes ✓ Date 10-21-94 No___
Manufacturer DELTA Type SUB
Location WELL
Capacity 12 gpm. Depth of setting 40' ft.
5. Well top sealed? Yes ✓ No___ Type CAP
6. Pitless adapter installed? Yes ✓ No___
Manufacturer Williams Model No. B50AC
How attached to casing? DRAWNUT
7. Well disinfected? Yes X No___
8. Pump and equipment disinfected Yes X No___
Owner instructed well was chlorinated.

16. Screen: Diam. 5 in. Length 10 in. Slot Size 015
17. Size hole below casing 5 in. 18. Ground Elev.___ ft msl
19. Static level 10 ft below casing top which is 1 ft. above ground level. Pumping level 40 ft. pumping gpm for ___ hours

20. Earth Materials Passed Through

	Depth of Top	Depth of Bottom
SAND	0	12
GRAVEL	12	25
CLAY	25	29
SHALE	29	35
SANDSTONE	35	48
SHALE	48	50
GRAVEL WELL		

Continue on separate sheet if necessary.

Will County Health Dept.
Environmental Health
501 Ella Avenue
Joliet, IL 60433
(815) 727-8490

Will County Health Dept.
Environmental Health
701 N. Lockport St.
Plainfield, IL 60544
(815) 436-6871

Will County Health Dept.
Environmental Health
800 University Park
University Park, IL 60466
(815) 721-8803
(708) 534-0800

Townships
Channahon, New Lenox, Custer, Reed, Florence, Troy, Jackson, Wesley, Joliet, Wilmington, Manhattan, Wilton

Townships
DuPage, Homer, Lockport, Plainfield, Wheatland

Townships
Crete, Frankfort, Green Garden, Monee, Peotone, Wash[illegible]

REC 221

ILLINOIS STATE GEOLOGICAL SURVEY

Private Water Well	Top	Bottom
sand	0	16
gray clay	16	32
sand rock	32	48
Total Depth		48

Casing: 5" A-53 14.62# from 0' to 35'

Water from sand rock at 32' to 48'.
Static level 9' below casing top which is 1' above GL

Permanent pump installed at 32' on June 8, 1991, with a capacity of 10 gpm

Additional location info: Lot #30, Comet Estates subdivision.

Address of well: 306 Comet Drive

Location source: Location from permit

Permit Date: May 15, 1990 **Permit #:**

COMPANY Wills, Elmer D.
FARM (b)(6)
DATE DRILLED June 5, 1991 **NO.**
ELEVATION 0 **COUNTY NO.** 35619
LOCATION NE SE NE
LATITUDE 41.255808 **LONGITUDE** - 88.208624
COUNTY Will **API** 121973561900 **17 - 32N - 9E**

White Copy .C.H.D.
Yellow Copy: Well Contractor

Well Construction Report

exemption REC- LL

This form must be completed within 30 days of well completion and submitted to the appropriate office depending on which township the well is located. See listing at bottom of page.

GEOLOGICAL AND WATER SURVEYS WELL RECORD

(b)(6)

9. Driller

(b)(6)

10. Well Site Ad

11. Property Own

12. Permit No. 97-92-0008-J Date Issued 3-9-92

13. Location: Comet Estates County WILL

Tax # Pt. of 24-11-300-030 Sec. 17

Lot 54 Comet Estates Twp. 32N

Rge. 9E

14. Water from Gravel at depth 10' ft to 14' ft

Show location in section plat NONE

1. Type of Well

a. Bored___ Hole Diam.___in. Depth___ft

Buried Slab: Yes___ No___

b. Driven X Drive Pipe Diam. 1¼" in. Depth 14' ft

finished in sand

c. Drilled___ Finished in Drift___ In Rock___

d. Grout:

(KIND)	FROM (FT.)	TO (FT.)
SAND		

2. Well furnishes water for human consumption? Yes X No___

3. Date well drilled 01-24-92

4. Permanent pump installed? Yes X Date_____ No___

Manufacturer Farm & Fleet Jet Pump Type Jet

Location_____

Capacity 15 gpm. Depth of setting in crawl space ft.

5. Well top sealed? Yes X No___ Type galvanized cap

6. Pitless adapter installed? Yes X No___

Manufacturer Farm & Fleet Model No.___

How attached to casing? threaded on both ends

7. Well disinfected? Yes X No___

8. Pump and equipment disinfected Yes X No___

15. Casing and Liner Pipe

Diam. (in)	Kind and Weight	From (ft)	To (ft)
1¼"	galvanized steel	0'	14'

16. Screen: Diam. 1¼ in. Length 3' in. Slot Size 80 mesh

17. Size hole below casing 2" in. 18. Ground Elev. Unk ft msl

19. Static level 0' ft below casing top which is 1½ ft. above ground level. Pumping level 14' ft, pumping gpm for ~10 hours

20. Earth Materials Passed Through	Depth of Top	Depth of Bottom
Sand (black)	0'	1'
Sand (yellow)	1'	14'

Continue on separate sheet if necessary.

Signed [signature] Date 3-9-92

Will County Health Dept.
Environmental Health
501 Ella Avenue
Joliet, IL 60433
(815) 727-8840

Will County Health Dept.
Environmental Health
701 N. Lockport St.
Plainfield, IL 60544
(815) 436-6871

Will County Health Dept.
Environmental Health
800 University Park
University Park, IL 60466
(815) 727-8803
(708) 534-0800

Townships
Channahon, Custer, Florence, Jackson, Joliet, Manhattan, New Lenox, Reed, Troy, Wesley, Wilmington, Wilton

Townships
DuPage, Homer, Lockport, Plainfield, Wheatland

Townships
Crete, Frankfort, Green Garden, Monee, Peotone, Washington, Will

REC- 268

ILLINOIS STATE GEOLOGICAL SURVEY

Private Water Well	Top	Bottom
sand	0	20
shale & limestone	20	350
Total Depth		350

Casing: 5" BLACK STEEL from 0' to 60'

Grout: BENTONITE from 0 to 60.
Water from shale & limestone at 60' to 350'.
Static level 15' below casing top which is 0' above GL
Pumping level 330' when pumping at 0 gpm for 2 hours
Permanent pump installed at 330' on May 16, 1996, with a capacity of 7 gpm

Additional location info: Lot #22, Fair Oaks subdivision.

Address of well: 24735 Fair Oaks Dr.
Braidwood, IL

Location source: Location from permit

Permit Date: May 9, 1996 **Permit #:**

COMPANY Fordonski, Keith
FARM (b)(6)
DATE DRILLED May 15, 1996 **NO.**
ELEVATION C **COUNTY NO.** 37128
LOCATION SW NW SW
LATITUDE 41.250349 **LONGITUDE** - 88.205964
COUNTY Will **API** 121973712800 **16 - 32N - 9E**

REC-241

ILLINOIS STATE GEOLOGICAL SURVEY

Private Water Well	Top	Bottom
sand	0	25
shale	25	40
gravel	40	45
shale	45	110
Total Depth		110

Casing: 5" BLACK STEEL from 0' to 50'

Grout: BENTONITE from 0 to 50.
Size hole below casing: 4.75"

Water from shale at 45' to 110'.
Static level 50' below casing top which is 1' above GL
Pumping level 60' when pumping at 0 gpm for 4 hours
Permanent pump installed at 60' on December 5, 1994, with a capacity of 15 gpm

Additional location info: Lot #57, subdivision.

Address of well: 25025 S. Cemetery Rd.

Location source: Location from permit

Permit Date: October 21, 1994 **Permit #:**

COMPANY Fordonski, Keith
FARM (b)(6)
DATE DRILLED November 11, 1994 **NO.**
ELEVATION 0 **COUNTY NO.** 36500
LOCATION NW NW SW
LATITUDE 41.252184 **LONGITUDE** - 88.206057
COUNTY Will **API** 121973650000 **16 - 32N - 9E**

White Copy: W.C.H.D.
Yellow Copy: Well Contractor

Well Construction Report

campbell 1-23-97

This form must be completed within 30 days of well completion and submitted to the appropriate office depending on which township the well is located. See listing at bottom of page.

1. Type of Well
   a. Bored___ Hole Diam.___in. Depth___ft
      Buried Slab: Yes___ No___
   b. Driven___ Drive Pipe Diam.___in. Depth___ft
   c. Drilled X Finished in Drift___ In Rock X
   d. Grout:

(KIND)	FROM (Ft.)	TO (Ft.)
bentonite	0'	60'

2. Well furnishes water for human consumption? Yes X No___
3. Date well drilled 10-8-96
4. Permanent pump installed? Yes X Date 10-18-96 No___
   Manufacturer Gould 1/2 HP 7 GPM Type Sub
   Location In well
   Capacity 7 gpm. Depth of setting 100' ft.
5. Well top sealed? Yes X No___ Type Vented
6. Pitless adapter installed? Yes X No___
   Manufacturer Williams Model No.___
   How attached to casing? Lockout
7. Well disinfected? Yes X No___
8. Pump and equipment disinfected Yes X No___

GEOLOGICAL AND WATER SURVEYS WELL RECORD

9. Driller Calvin Bessing License No. 012-0078
10. Well Site Address (b)(6)
11. Property Owner (b)(6)
12. Permit No. 97-96-0825 Date Issued 1-23-97
13. Location: SE NE NE County Will
    Tax # 02-24-11-201-013 Sec. 11
    Twp. 32 N
    Rge. 7 E

Show location in section plat

14. Water from Limestone-Shale at depth 60 ft to 125 ft

15. Casing and Liner Pipe

Diam.(in)	Kind and Weight	From (ft)	To (ft)
5"	Blk steel	0'	60'

16. Screen: Diam. NA in. Length___in. Slot Size___
17. Size hole below casing 4 3/4 in. 18. Ground Clay, silt 7 ft mal
19. Static level 20 ft below casing top which is 60 ft. above ground level. Pumping level 100 ft, pumping 8 gpm for 2 hours

20. Earth Materials Passed Through

	Depth of Top	Depth of Bottom
Sand	0	15
Shale	15	60
Limestone - Shale	60	125

Continue on separate sheet if necessary.

Signed Calvin Bessing Date 1-21-97

Will County Health Dept.
Environmental Health
301 Ellis Avenue
Joliet, IL 60433
(815) 727-8930

Will County Health Dept.
Environmental Health
701 N. Lockport St.
Plainfield, IL 60544
(815) 436-6871

Will County Health Dept.
Environmental Health
800 University Park
University Park, IL 60466
(815) 727-8803
(708) 534-0800

Townships

Channahon, New Lenox, Custer, Reed, Florence, Troy, Jackson, Wesley, Joliet, Wilmington, Manhattan, Wilton

Townships

DuPage, Homer, Lockport, Plainfield, Wheatland

Townships

Crete, Frankfort, Green Garden, Monee, Peotone, Washington, Will

REC - 275

ILLINOIS STATE GEOLOGICAL SURVEY

Private Water Well	Top	Bottom
sand	0	20
shale	20	100
limestone	100	110
limestone & shale	110	260
limestone	260	470
Total Depth		470

Casing: 5" STEEL from 0' to 110'

Grout: BENTONITE from 0 to 110.
Water from limestone at 260' to 470'.
Static level 50' below casing top which is 1' above GL
Pumping level 450' when pumping at 0 gpm for 4 hours
Permanent pump installed at 450' on October 21, 1996, with a capacity of 5 gpm

Additional location info: Lot #21, Fair Oaks subdivision.

Address of well: 24717 Fair Oak Dr.

Location source: Location from permit

Permit Date: September 18, 1996 **Permit #:**

COMPANY Fordonski, Keith
FARM (b)(6)
DATE DRILLED October 21, 1996 **NO.**
ELEVATION 0 **COUNTY NO.** 37229
LOCATION SW NW SW
LATITUDE 41.250349 **LONGITUDE** - 88.205964
COUNTY Will **API** 121973722900 **16 - 32N - 9E**

BJS 7-5 514

Well Consti on Report

Exemption 6

Date June 28

TYPE OR PRESS FIRMLY WITH BLACK INK PEN
COMPLETE WITHIN 30 DAYS OF WELL COMPLETION
AND SEND TO THE APPROPRIATE HEALTH DEPARTMENT

1. Type of Well: a. Driven Well: Casing diam. ____ in. Depth ____ ft.
b. Bored Well: Buried Slab [ ] Yes [ ] No
Hole Diameter ___ in. to ___ ft.; ___ in. to ___ ft.; ___ in. to ___ ft.
c. Drilled Well: PVC casing Formation packer set at depth of ____ ft.
Hole Diameter ___ in. to ___ ft.; ___ in. to ___ ft.; ___ in. to ___ ft.

Type of Grout	# of Bags	Grout Weight	From (ft.)	To (ft.)	Tremie Depth (ft.)
BENTONITE	1	96 per	32	0	YES

d. Drilled Well: Steel Casing - - Mechanically Driven [ ] Yes [ ] No
Hole Diameter ___ in. to ___ ft.; ___ in. to ___ ft.; ___ in. to ___ ft.

Type of Grout	# of Bags	Grout Weight	From (ft.)	To (ft.)	Tremie Depth (ft.)

e. Well finished within: [X] Unconsolidated Materials [ ] Bedrock

f. Kind of Gravel Sand Pack	Grain Size/Supplier #	From (ft.)	To (ft.)
PEA GRAVEL	1/4	38	32

2. Well Use: [X] Domestic [ ] Irrigation [ ] Commercial [ ] Livestock
[ ] Monitoring [ ] Other
3. Date Well Completed: 6-7-2000 Well Disinfected [X] Yes [ ] No
Driller's estimated well yield 10 gpm
4. Date Permanent Pump Installed 6-8-2000
5. Pump Capacity 10 gpm Set at (depth) 30 ft.
6. Pitless Adapter Model and Manufacturer: BAKER IBP
7. Well Cap Type and Manufacturer BAKER
8. Pressure Tank: Working Cycle 13.5 gals. Captive Air: [X] Yes [ ] No
9. Pump System Disinfected: [X] Yes [ ] No
10. Name of Pump Company AREA WELL & PUMP
11. Pump Installer: TRACY SWANSON License # 101-004679
12. Robert Strange License # 101-002558
Licensed Pump Contractor Signature

Illinois Department of Public Health
Division of Environmental Health
525 W. Jefferson Street
Springfield, IL 62761

CO# 38837

R 323976

DO Not write on these lines

IMPORTANT NOTICE: This State Agency is requesting disclosure of information that is necessary to accomplish the statutory purpose as outlined under Public Act 85-0863. DISCLOSURE OF THIS INFORMATION IS MANDATORY. This form has been approved by the Forms Management Center.
IL 482-0126 rev. 12/98

GEOLOGICAL & WATER SURVEY WELL RECORD

13. Property Owner (b)(6) Well # 1
14. Driller (b)(6) License # 092-008782
Name of Drilling Company AREA WELL & PUMP 16.
Permit No. 197-00-00-56-J Date Issued ____
17. Date Drilling Started 6-7-2000 (b)(6)
18. Well SITE address (b)(6) 19. 024-000C
Township Name REED Land ID # 0224172 20.
Subdivision Name COMET ESTATES Lot # ____ 21.
Location: a. County WILL
b. Township 32N Range 9E Section 17
c. SW Quarter NE Quarter NE Quarter
d. coordinates: ____ Site Elevation ____ ft. (MSL)

For Survey Use Only

22. Casings, Liners*, & Screen Information

Diam. (in.)	Material	Joint	Slot Size	From (ft.)	To (ft.)
5"	PVC	GLUE	12	38	33
5"	PVC	GLUE	20	33	+1

(*) ____
(List reason for liner, type of upper and lower seals installed)

23. Water from SAND & GRAVEL at a depth of 33 ft. to 38 ft.
a. static water level 20 ft. below casing which is 12 in. above ground
b. pumping level is 30 ft. pumping 10 gpm after pumping for 2 hours

24. Earth Materials Passed Through	From (ft.)	To (ft.)
BLACK SAND	0	2
SAND	2	20
SAND + GRAVEL	20	38

(If DRY HOLE, fill out log & indicate how hole was sealed)

Robert Strange 092-006279
25. Licensed Water Well Contractor Signature License Number

Sent 6/

Exemption 6 BJS FW-1 VCST

Illinois Department of Public Health
WATER WELL CONSTRUCTION REPORT

Date 6-2-05

TYPE OR PRESS FIRMLY WITH BLACK INK PEN. COMPLETE WITHIN 30 DAYS OF WELL COMPLETION AND SEND TO THE APPROPRIATE HEALTH DEPARTMENT.

1. Type of Well a. Driven Well Casing diam. ____ in. Depth ____ ft.
b. Bored Well Buried Slab [ ] Yes [ ] No
Hole Diameter ____ in. to ____ ft.; ____ in. to ____ ft.; ____ in. to ____ ft.
c. Drilled Well PVC casing Formation packer set at depth of 32 ft.
Hole Diameter 10 in. to ____ ft. ____ in. to ____ ft. ____ in. to ____ ft.

Type of Grout	# of Bags	Grout Weight	From (ft.)	To (ft.)	Tremie Depth (ft.)
Grout	1½	9.4	20	0	1/25

d. Drilled Well Steel Casing- - - Mechanically Driven [ ] Yes [ ] No
Hole Diameter ____ in. to ____ ft. ____ in. to ____ ft. ____ in. to ____ ft.

Type of Grout	# of Bags	Grout Weight	From (ft.)	To (ft.)	Tremie Depth (ft.)

e. Well finished within [ ] Unconsolidated Materials [ ] Bedrock

f. Kind of Gravel Sand Pack

Kind of Gravel Sand Pack	Grain Size/Supplier #	From (ft.)	To (ft.)
Mustalent	#2	32	20

2. Well Use [X] Domestic [ ] Irrigation [ ] Commercial [ ] Livestock [ ] Monitoring [ ] Other
3. Date Well Completed June 1 Well Disinfected [X] Yes [ ] No
Driller's estimated well yield 12 gpm
4. Date Permanent Pump Installed 6-3-05
5. Pump Capacity 12 gpm Set at (depth) 20 ft.
6. Pitless Adapter Model and Manufacturer BP 10X
7. Well Cap Type and Manufacturer Wells
8. Pressure Tank Working Cycle 12 gals. Captive Air [X] Yes [ ] No
9. Pump System Disinfected [X] Yes [ ] No
10. Name of Pump Company Joe's Well + Pump [redacted]
11. Pump Installer Joey MACHAK License # [redacted]
12. Joe Machak License # 102003183
Licensed Pump Contractor Signature

Illinois Department of Public Health
Division of Environmental Health
525 W. Jefferson St.
Springfield, IL 62761

B.# 41544

DO NOT write on these lines

P 371516

IMPORTANT NOTICE: This state agency is requesting disclosure of information that is necessary to accomplish the statutory purpose as outlined under Public Act 85-0863. DISCLOSURE OF THIS INFORMATION IS MANDATORY. This form has been approved by the Forms Management Center.

GEOLOGICAL AND WATER SURVEY WELL RECORD

13. Property Owner (b)(6) Well # 1
14. Driller Robert Stringer License # 092.006279
15. Name of Drilling Co. Ard Well & Pump, Inc.
16. Permit No. 197-011-05 Date Issued ____
17. Date Drilling Started June (b)(6)
18. Well SITE address (b)(6)
19. Township Name Ottsville (b)(6) Well ID # 24-20-202001
20. Subdivision Name ____ Lot # ____
21. Location a. County Will
b. Township 37N Range 9E Section 20
c. NW Quarter NW Quarter NE Quarter 4H
d. Coordinates ____ Site Elevation ____ ft. (msl)

For Survey Use

22. Casings, Liners* and Screen Information

Diam. (in.)	Material	Joint	Slot Size	From (ft.)	To (ft.)
5"	PVC	GLUE	12 Slot	-22	32
5"	PVC	GLUE	SDR21	+1	22

(*) ____
(List reason for liner, type of upper and lower seals installed)

23. Water from SAND+GRAVEL at a depth of 22 ft. to 32 ft.
a. Static water level 8 ft. below casing which is 12 in. above ground
b. Pumping level is 10 ft. pumping 15 gpm after pumping for 2 hours

24. Earth Materials Passed Through

Earth Materials Passed Through	From (ft.)	To (ft.)
Brown Dirt	0	2
SAND+GRAVEL	2	32

(If dry hole, fill out log and indicate how hole was sealed.)

25. Licensed Water Well Contractor Signature License Number 092-006279

SEE REVERSE SIDE FOR ADDITIONAL INFORMATION

WELL CONSTRUCTION REPORT Date February 22, 1999

TYPE OR PRESS FIRMLY WITH BLACK INK PEN, THIS FORM MUST BE COMPLETED WITHIN 30 DAYS OF COMPLETION AND SENT TO THE APPROPRIATE HEALTH DEPARTMENT

GEOLOGICAL AND WATER SURVEY WELL RECORD

1. Date Well Completed January 28, 1999
2. Use: [X] Domestic [ ] Irrigation [ ] Commercial [ ] Livestock [ ] Monitoring [ ] Other
3. Type of Well:
   a. Bored Well: Hole Diameter — in. Depth — ft. Casing Diameter — in. Buried Slab: [ ]Yes [ ]No
   b. Driven Well: Drive Pipe Diameter — in. Depth — ft.
   c. Drilled Well: Well Diameter 6 in. Depth 680 ft. Casing Diameter 6 in. Type SDR 21 Joint 8

Casing Grout:

Kind	Oversized Drill Hole(In)	From(ft)	To(ft)
Bentonite GROUT	10"	0	160

Finished In: Unconsolidated [ ] Gravel Pack: [ ]Yes [ ]No Rock [ ] Grain Size

4. Well Disinfected? [X]Yes [ ]No
5. Date Permanent Pump Installed February 8, 1999
6. Licensed Pump Contractor Hubert Matherly License Number 102-002433
7. Pitless Adapter Installed? [X]Yes [ ]No Manufacturer BAKER Model B62 ACV Attached to Casing - How? [ ] Screwed On [ ] Welded [X] Compression
8. Type of Well Cap Vermin proof
9. Tank Working Cycle 9.8 gallons Captive Air: [X]Yes [ ]No
10. Pump and Equipment Disinfected? [X]Yes [ ]No

None

General Comments: (If dry hole, fill out log & indicate how hole was sealed.)

Illinois Department of Public Health
Division of Environmental Health - 525 W. Jefferson
Springfield, IL 62761

CO# 38245
Q 309140

11. Permit Number 191-98-0180 J Date Issued 2-17-98
12. Property Owner (b)(6) Well #
13. Drilling Company Name Lockport Well + Pump, Inc.
14. Name of Person who drilled the well: Dan Gibson
15. Well Site Address (b)(6)
16. Twnshp Name Wesley Land ID# 24-17-300-004
17. Subdivision Name None Sd. Lot N/A Elevation UNK ft.
18. Location: Cnty Will Sect 17 Twnshp 32 N Range 9E NE Quarter of the NE Quarter of the SW Quarter
19. Casing and Liner Pipe:

Dia (In)	Type	From(ft)	To (ft)
6"	SDR 21 6.625 O.D.	+1	160'
4"	4.500 O.D. 0.237 thickness	-15'	315'

20. Screen: Diameter — in. Length — ft. Slot Size — Material —
21. Water from ST. PETE at depth 615 ft. to 680 ft.
22. Static Level 340 ft. below casing top which is 12 in. above ground level. Pumping Level 380 ft. Pumping ____ gpm for 1 hours.
23. Earth Materials Passed Through

Earth Materials Passed Through	Depth Top(ft)	Depth Bottom(ft)
Sand	0	30
Clay	30	100
SOFT SHALE	100	155
Limestone	155	200
SHALE	200	280
Limestone	280	615
ST. Pete	615	680

Continue on back of sheet if necessary

Hubert Matherly — Licensed Contractor Signature
102-002433 — License Number

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IL 482-1 Printed by Authority of the State of Illinois P.O. PRT3030244 6.5M 6/98

11/95

(SEE REVERSE SIDE FOR ADDITIONAL INFORMATION)

PW-2 10'N

B3 exemption

Date 6.20.05

Illinois Department of Public Health
WATER WELL CONSTRUCTION REPORT

TYPE OR PRESS FIRMLY WITH BLACK INK PEN. COMPLETE WITHIN 30 DAYS OF WELL COMPLETION AND SEND TO THE APPROPRIATE HEALTH DEPARTMENT.

1. Type of Well a. Driven Well Casing diam. ____ in. Depth ____ ft.
   b. Bored Well Buried Slab [ ] Yes [ ] No
   Hole Diameter ____ in. to ____ ft.; ____ in. to ____ ft.; ____ in. to ____ ft.
   c. Drilled Well PVC casing Formation packer set at depth of 31 ft.
   Hole Diameter 10 in. to ____ ft. ____ in. to ____ ft. ____ in. to ____ ft.

Type of Grout	# of Bags	Grout Weight	From (ft.)	To (ft.)	Tremie Depth (ft.)
Grout	1/2	9.4	20	0	yes

   d. Drilled Well Steel Casing- - - Mechanically Driven [ ] Yes [ ] No
   Hole Diameter ____ in. to ____ ft. ____ in. to ____ ft. ____ in. to ____ ft.

Type of Grout	# of Bags	Grout Weight	From (ft.)	To (ft.)	Tremie Depth (ft.)

   e. Well finished within [ ] Unconsolidated Materials [ ] Bedrock

f. Kind of Gravel Sand Pack	Grain Size/Supplier #	From (ft.)	To (ft.)
Mustatine	#2	31	20

2. Well Use [X] Domestic [ ] Irrigation [ ] Commercial [ ] Livestock [ ] Monitoring [ ] Other
3. Date Well Completed June 1, Well Disinfected [X] Yes [ ] No
   Driller's estimated well yield 15 gpm
4. Date Permanent Pump Installed 6.3.05
5. Pump Capacity 12 gpm Set at (depth) 20' ft.
6. Pitless Adapter Model and Manufacturer BP 10 X MARTINSON
7. Well Cap Type and Manufacturer Well
8. Pressure Tank Working Cycle 12 gals. Captive Air [X] Yes [ ] No
9. Pump System Disinfected [X] Yes [ ] No
10. Name of Pump Company Joe's Well & Pump
11. Pump Installer Joe MACHAK License # 122 003183
12. [signature] License # ____
    Licensed Pump Contractor Signature

Illinois Department of Public Health
Division of Environmental Health
525 W. Jefferson St.
Springfield, IL 62761

D.# 41545

DO NOT write on these lines

8371517

IMPORTANT NOTICE: This state agency is requesting disclosure of information that is necessary to accomplish the statutory purpose as outlined under Public Act 85-0863. DISCLOSURE OF THIS INFORMATION IS MANDATORY. This form has been approved by the Forms Management Center.

GE(b)(6) RECORD

13. Property Owner (b)(6) Well #
14. Driller Robert Strauss License # 092-006279
15. Name of Drilling Co. Alta Well & Pump, LLC
16. Permit No. 197-012-05 Date Issued 5-18-05
17. Date Drilling Started 6-1-05
18. Well SITE address (b)(6) (b)(6)
19. Township Name Custer (b) Land ID # 24-20-200-001
20. Subdivision Name ____ Lot # 2
21. Location a. County Will
    b. Township 32N Range 9E Section 20
    c. NW Quarter NW Quarter NE Quarter 4H
    d. Coordinates ____ Site Elevation ____ ft. (msl)

For Survey Use

22. Casings, Liners* and Screen Information

Diam. (in.)	Material	Joint	Slot Size	From (ft.)	To (ft.)
5"	PVC	Glue	12 slot	21	31
5"	PVC	Glue	SDR21	+1	21

(*) ____
(List reason for liner, type of upper and lower seals installed)

23. Water from sand & gravel at a depth of 21 ft. to 31 ft.
    a. Static water level 8 ft. below casing which is 12 in. above ground
    b. Pumping level is 10 ft. pumping 15 gpm after pumping for 2 hours

24. Earth Materials Passed Through	From (ft.)	To (ft.)
brown dirt	0	2
sand & gravel	2	31

(If dry hole, fill out log and indicate how hole was sealed.)

25. Licensed Water Well Contractor Signature ____ License Number 092-006279

SEE REVERSE SIDE FOR ADDITIONAL INFORMATION

Well Const[illegible]n Report

[illegible]E OR PRESS FIRMLY WITH BLACK INK PEN
COMPLETE WITHIN 30 DAYS OF WELL COMPLETION
AND SEND TO THE APPROPRIATE HEALTH DEPARTMENT

Date 12-6-2001

GEOLOGICAL & WATER SURVEY WELL RECORD

1. Type of Well: a. Driven Well: Casing diam. ____ in. Depth ____ ft.
b. Bored Well: Buried Slab [ ] Yes [ ] No
Hole Diameter ____ in. to ____ ft.; ____ in. to ____ ft.; ____ in. to ____ ft.
c. Drilled Well: PVC casing Formation packer set at depth of ____ ft.
Hole Diameter ____ in. to ____ ft.; ____ in. to ____ ft.; ____ in. to ____ ft.

Type of Grout	# of Bags	Grout Weight	From (ft.)	To (ft.)	Tremie Depth (ft.)

d. Drilled Well: Steel Casing Mechanically Driven [ ] Yes [✓] No
Hole Diameter 9 in. to 118 ft.; ____ in. to ____ ft.; ____ in. to ____ ft.

Type of Grout	# of Bags	Grout Weight	From (ft.)	To (ft.)	Tremie Depth (ft.)
Bentonite Grout	6		0	118	118

e. Well finished within: [ ] Unconsolidated Materials [✓] Bedrock

f. Kind of Gravel Sand Pack	Grain Size/Supplier #	From (ft.)	To (ft.)

2. Well Use: [✓] Domestic [ ] Irrigation [ ] Commercial [ ] Livestock
[ ] Monitoring [ ] Other ____
3. Date Well Completed: 11-20-2001 Well Disinfected [ ] Yes [ ] No
Driller's estimated well yield 10 gpm
4. Date Permanent Pump Installed 11-26-2001
5. Pump Capacity 12 gpm Set at (depth) 489 ft.
6. Pitless Adapter Model and Manufacturer: Mannerson
7. Well Cap Type and Manufacturer Williams
8. Pressure Tank: Working Cycle 4-1 gals. Captive Air: [✓] Yes [ ] No
9. Pump System Disinfected: [✓] Yes [ ] No
10. Name of Pump Company WEB
11. Pump Installer: Edward Hall License # 102-004280
12. Edward Hall License # 102-004280
Licensed Pump Contractor Signature

Illinois Department of Public Health
Division of Environmental Health
525 W. Jefferson Street
Springfield, IL 62761

Cr# 40310

DO Not write on these lines

R339521

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IDPH 0176 rev. 12/98

13. Property Owner (b)(6) Well # 1
14. Driller [illegible] 15.
Name of Drilling Company [illegible] 16.
Permit No. 1970137-01-I Date Issued 10-30-01
17. Date Drilling Started [illegible]
18. Well SITE address (b)(6) (b)(6)
Township Name Reed Land ID # [illegible]
Subdivision Name — Lot # — 21.
Location: a. County Will
b. Township 33N Range 08E Section 17 Hd
c. NW Quarter NW Quarter SE Quarter
d. coordinates: ____ Site Elevation ____ ft. (msl)

22. Casings, Liners*, & Screen Information

Diam. (in.)	Material	Joint	Slot Size	From (ft.)	To (ft.)
4"	PVC			100	290

(*) ____
(List reason for liner, type of upper and lower seals installed)

For Survey Use Only

23. Water from Sand at a depth of 155 ft. to 675 ft.
a. static water level 290 ft. below casing which is 12 in. above ground
b. pumping level is 340 ft. pumping 12 gpm after pumping for 2 hours.

24. Earth Materials Passed Through

	From (ft.)	To (ft.)
Sand	0	22
Shale	22	150
Limestone	150	186
Shale	186	243
Inc	243	655
St Peter	655	675

(If DRY HOLE, fill out log & indicate how hole was sealed)

WEB Well & Pump
Licensed Water Well Contractor Signature

102-004280
License Number

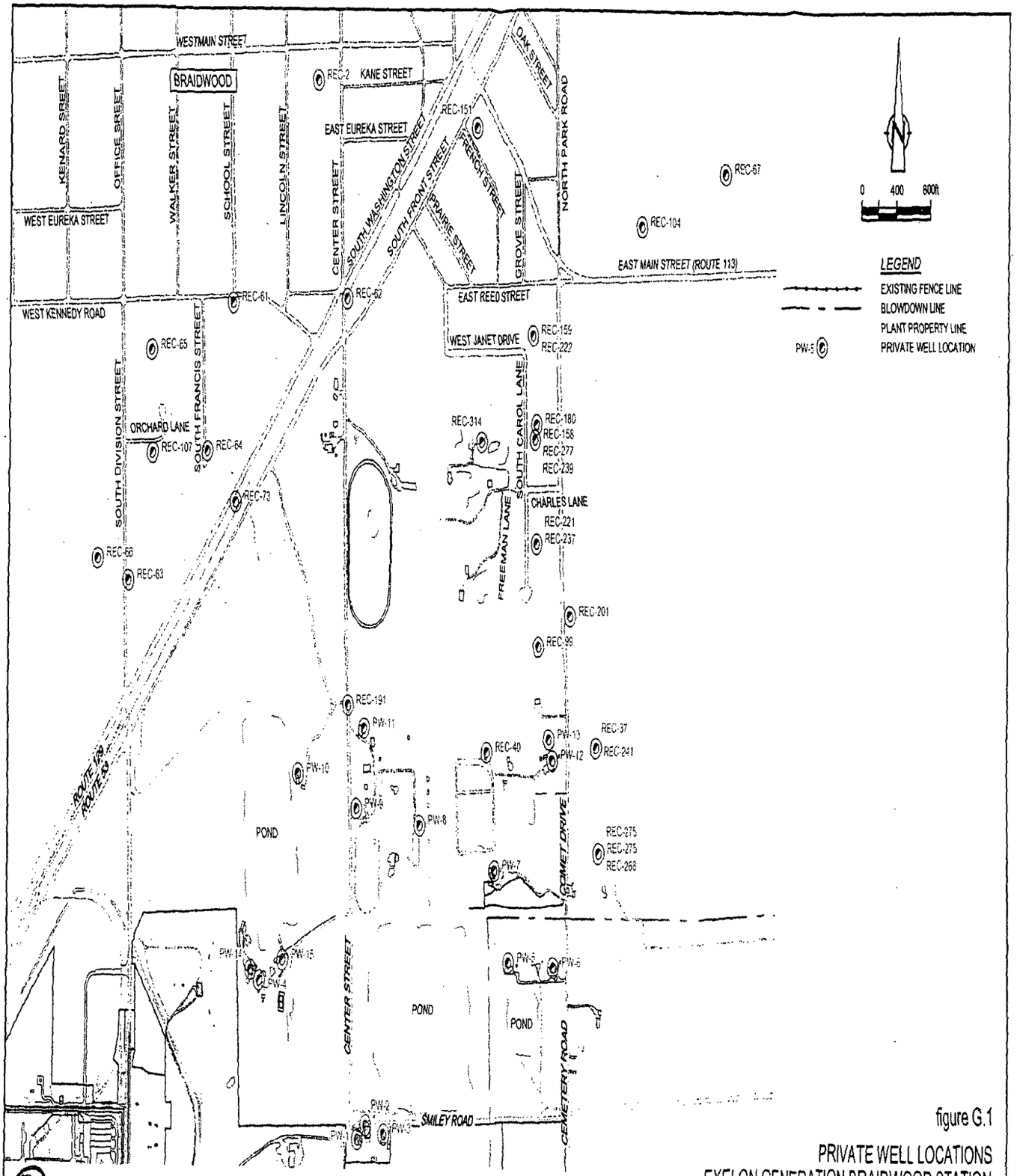

figure G.1

PRIVATE WELL LOCATIONS
EXELON GENERATION BRAIDWOOD STATION
Braceville, Illinois

16841-11(012)GN-WA030 MAR 21/2006

APPENDIX H

TRITIUM DATING REPORT BY DR. POREDA

Groundwater Travel Times and Tritium-^{3}He Ages at the Braidwood NPS

Prepared for

Exelon Corporation

By Robert J. Poreda

Professor of Environmental Sciences

University of Rochester

January 19, 2006

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2.0 Background on the Tritium-^{3}He Dating Method

3.0 Sampling and Analytical Methods for Tritium and ^{3}He

4.0 Results from the Braidwood Site

5.0 Analysis of Braidwood Tritium –^{3}He Data for Individual Wells

6.0 Table of Braidwood Site Well Data

7.0 References

1.0 Introduction

In an attempt to characterize the source(s) of tritium located near two vacuum breakers along a "blow down" line of the Braidwood Site, fourteen groundwater samples were collected on December 22, 2005 and analyzed for tritium and its decay product, ^3He, at the University of Rochester, Rochester NY. The goals of this study were to determine the residence time of groundwater in the vicinity of the "blow down" line, the approximate timing of the tritium release and the rate of groundwater flow to the north. The investigation is in support of the efforts of Conestoga-Rovers and Associates to characterize hydro-geologic characteristics of the Braidwood Site and to determine transport and flow conditions within the shallow aquifer. To accomplish this task, we used the $^3He/^3H$ groundwater age dating method. The validity of this method has been established in a series of papers by Poreda, Solomon, and Schlosser (with co-authors) (see references). The technique makes use of the fact that groundwater contains trace amounts of tritium that once it has been isolated from the atmosphere begins to accumulate ^3He (tritium decays to ^3He by beta decay with a half life of 12.4 years). The ratio of ^3He to tritium then reflects a groundwater travel time (since the water left the water table and became isolated from the atmosphere) via the equation: time = $(1/\lambda) * \ln [(^3He^*/^3H) + 1]$.

The technique when coupled with conventional hydrologic analysis has been very effective at establishing the timing of a contaminant release (e.g. Cape Cod Site) and the rate of migration of the contaminants away from the spill.

2.0 Background on the Tritium-^{3}He Dating Method

Tritium (^3H), as the radioactive form of hydrogen (half-life 12.4 years), substitutes for hydrogen in the water molecule and enters the groundwater as precipitation. Levels of tritium in the atmosphere, expressed as picoCuries/liter (or pCi/l = 2.06×10^7 atoms of tritium/liter), increased dramatically after 1953 as the direct result of atmospheric testing of nuclear warheads. The levels in precipitation increased from pre-bomb values of about 5 pCi/l to a peak in Ontario and the northeastern US of about 10000 pCi/l in 1963. A peak in groundwater tritium that corresponds to water that recharged in 1963 can still be seen in well characterized aquifers to this day (although the

peak levels are reduced after 40 years). After the cessation of atmospheric nuclear testing in 1963, atmospheric levels of tritium decreased dramatically over the next fifteen years and since about 1980 have leveled off at about 50 to 80 pCi/liter, locally. The tritium levels in the atmosphere are maintained by sporadic release from landfill waste (exit signs and luminescent paint), nuclear power plants, waste burial grounds, and weapons production facilities.

Tritium decays to ^3He by beta decay with a half-life of 12.4 years. ^3He and ^3H are conservative groundwater tracers because they are considered chemically un-reactive (He is an inert gas); movement is controlled only by physical mechanisms To calculate a groundwater travel time by using the decay of tritium to ^3He, one has to make a certain number of verifiable assumptions. When rainwater falls to the earth, it is in solubility equilibrium with the atmosphere. A small amount of ^3He and ^4He in the atmosphere will dissolve into the groundwater at about 68 x 10^{-12} cc ^3He/l water or about 1700 million atoms ^3He/l. ^4He also dissolves in groundwater according to its atmospheric solubility; the initial ratio of $^3He/^4He$ in groundwater is 1.37 x 10^{-6} (e.g. Solomon et al. 1993) Measured $^3He/^4He$ ratios above the solubility value are caused by the decay of tritium to ^3He (other sources of ^3He such as geothermal or volcanic emanations and ^4He such as leakage of He from mineral grains are neglected for shallow systems and short travel times). To calculate the ^3He excess from tritium decay ($^3He^*$), we subtract off the atmospheric contribution from the total measured ^3He by assuming that all of the ^4He is of solubility origin:

$$^3He^* = {}^3He\ (total) - {}^3He\ (solubility) = {}^4He(measured) * [(^3He/^4He)(meas) - 1.37 \times 10^{-6})$$

Thus, we can estimate the transit time of the tritium in the subsurface by measuring the amount (%) of the tritium that has decayed to ^3He [see the analytical methods section and the attached reference articles for complete procedures]. To calculate a transit time for the tritium, we assume that once the water is isolated from the atmosphere (vadose zone) it begins to accumulate ^3He. Thus the ratio of $^3He^*/^3H$ can be used to assess the subsurface transit time by the following equation:

$$time = (1/\lambda)^* \ln[(^3He^*/^3H) + 1] \qquad \text{where } \lambda = 0.0555 yr^{-1}$$

The ratio of $^3He^*$ to tritium then reflects a vertical groundwater travel time (since the water left the water table and became isolated from the atmosphere. This travel

time calculation doesn't require knowledge of the initial tritium value and assumes that the $^3He^*/^3H$ 'clock' is set to zero at water table. Groundwater at the water table is in contact with the atmosphere and in solubility equilibrium where $^3He^*/^3H = 0$ and the solution to the travel time equation is time = 0. In a similar vein, when groundwater enters a pond, the water mixes and exchanges with the atmosphere (thereby resetting the "$^3He/^3H$ clock" to zero). When the water from the pond re-enters the aquifer, the tritium-^3He age is zero.

The travel time reflects an "advection" age, related to the groundwater velocity. If the contrasts (gradients) in tritium and/or ^3He levels are small, this simplifying assumption holds. If however there are large gradients in either tritium or ^3He (as is observed at the 1963 peak in tritium), then the calculated travel time will be erroneous. Helium diffusion (1.2×10^{-4} m^2/day) is about five times faster than tritium diffusion in groundwater (Solomon et al. 1993). Near the tritium peak, ^3He produced by "peak" tritium diffuses into tritium "poor" waters below and therefore complicates the age information near the "tritium peak". In porous systems the mean free path [$L = (D^*time)^{1/2}$] is about 20 cm for ^3He and 8 cm for tritium. This diffusion scenario causes water above and below the 1963 peak in tritium to have anomalously high ^3He/tritium ages (as shown in the Sturgeon Falls study – Solomon et al. 1993).

In several studies of water table aquifers consisting of porous sands and environmental levels of tritium (see references), the tritium-^3He age directly reflects the recharge rate in the area as water moves down (vertically) and down gradient (horizontal flow) in response to recharge events. From an estimate of the recharge rate and the hydraulic gradient, it is possible to construct a flow net and calculate transport away from the flow divide (e.g. Cape Cod study- Solomon et al. 1995). It is also possible to estimate the degree of spatial variability in the recharge rate, based on the slope of the age with depth (Solomon et al. 1993). The spatial variability results from lenses of low permeability material in the subsurface that impede the recharge of precipitation. Figures 1-3 provide an example of the flow nets constructed from the tritium-^3He data pairs at the Cape Cod Site.

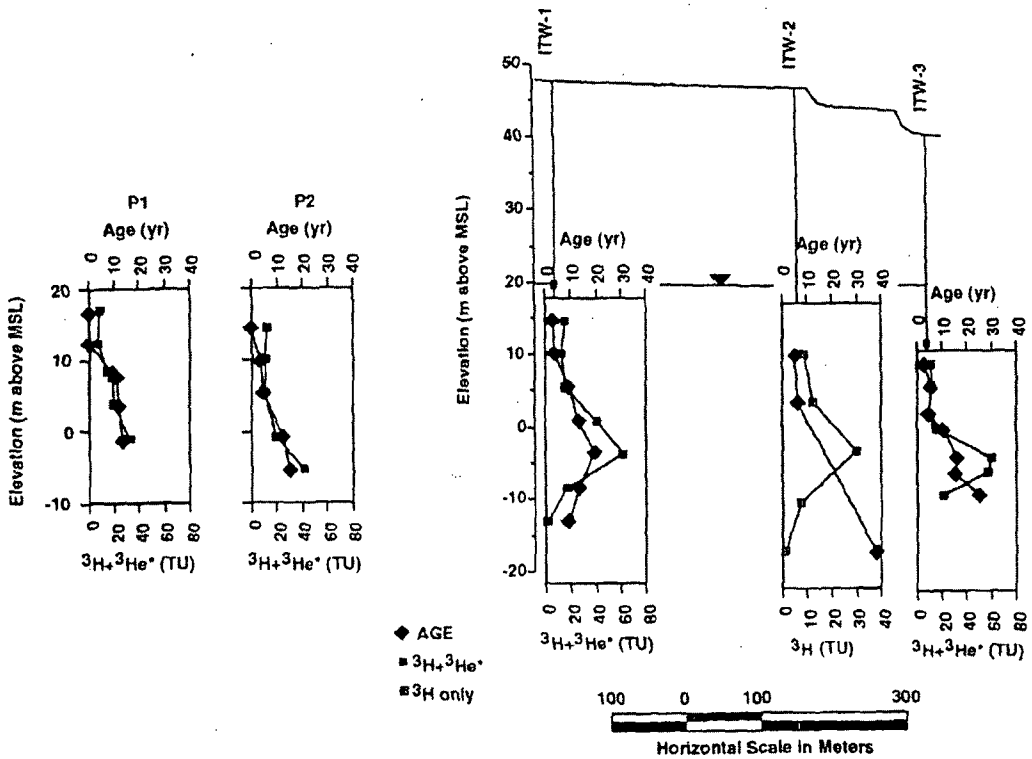

Fig. 2. Profiles of $^3H/^3He$ age and $^3H+^3He^*$. The cross section from ITW-1 to ITW-3 is oriented along a ground-water flow line. Note that for ITW-2, only ^3H is plotted because a complete profile of $^3He^*$ was not obtained. Where duplicate samples were obtained, the plotted values are averages with outliers removed.

Figure 1. Profiles of tritium/^{3}He ages at Cape Cod (from Solomon et al. 1995)

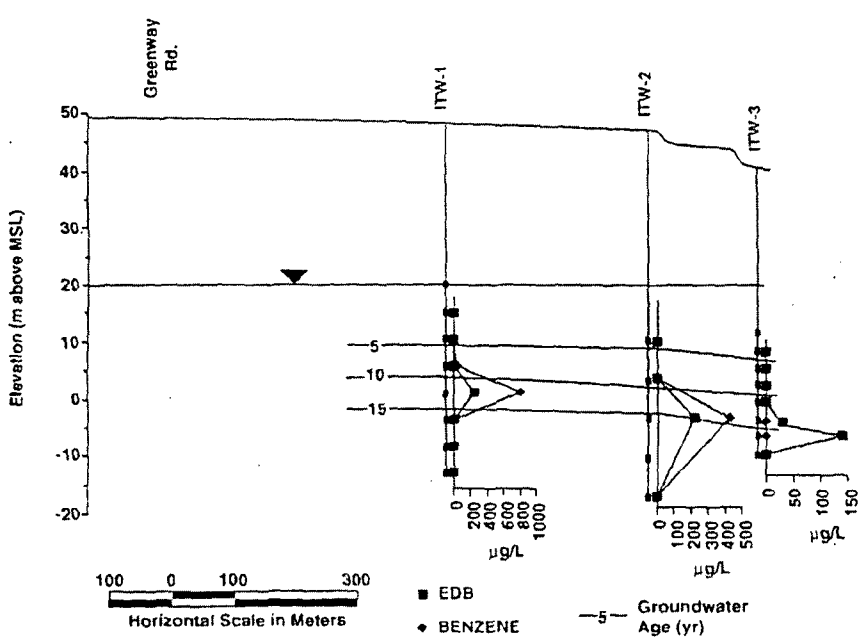

Fig. 3. Profiles of organic contaminants and ground-water age. The cross section from ITW-1 to ITW-3 is oriented along a ground-water flow line.

Figure 2. Profile of organic contamination at Cape Cod (from Solomon et al. 1995)

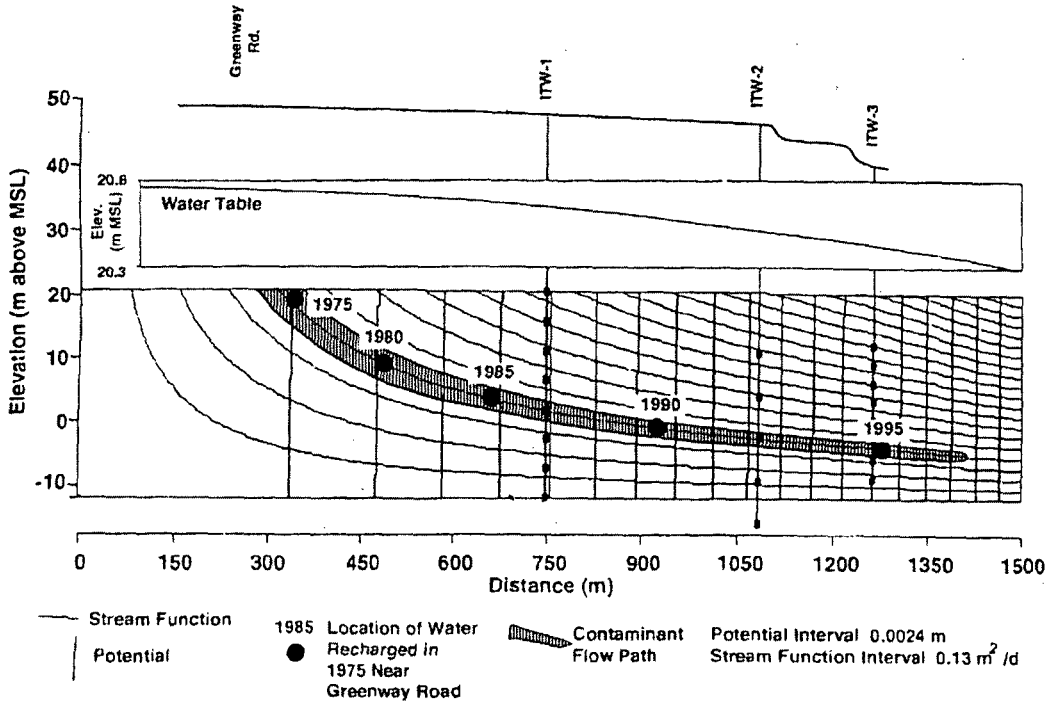

Fig. 5. Simulated stream functions, hydraulic potentials, and the configuration of the water table (note expanded scale). Also shown is the simulated location of water recharged in 1975 beneath Greenway Road at various points in time along the flow system. The shaded region highlights a flow line and does not represent a simulated contaminant plume.

Figure 3. Simulated stream function of groundwater recharge (Solomon et al 1995)

In the Cape Cod study, the combination of the tritium peak, the groundwater travel time and the contaminant distribution allowed for a successful determination of the source and the rate of migration of the dissolved solvent plume. Note in particular the path of the plume; it deepens and increases in horizontal velocity as it migrates away from the flow divide. This general flow behavior is characteristic of sandy, porous media that is experiencing recharge over the entire watershed. In addition, water that discharged into a down gradient kettle pond had the "clock" reset to zero through exchange of helium with the atmosphere and water directly down gradient from the pond had near zero tritium-^{3}He ages.

3.0 *Sampling and Analytical Methods for Tritium and Helium*

Wells at the Braidwood Site were sampled using a peristaltic pump to minimize formation of bubbles in the water stream. Each well has a dedicated HDPE tube and had been recently purged by extracting more than three well volumes from the standing water in the well prior to sampling. During sampling, the tubing was lowered to within 30cm

of the bottom of the well and about 10 liters of water were pumped through the sampling line until temperature, pH and conductivity stabilized (1 liter/min for 10 minutes). Helium samples are collected in 3/8" O.D. Cu tubing sealed with refrigeration clamps to collect about 25 ml of water. Tritium samples are collected in standard 500 ml HDPE bottles. To prevent them from freezing, samples were transferred by overnight air delivery to the Rare Gas Laboratory at the University of Rochester.

Gases are extracted from ~25 g of water in the Cu tube on a high vacuum line constructed of stainless steel and Corning-1724 glass to minimize helium diffusion. The non-condensable gases (He, Ne, Ar, N_2, CH_4) are transferred to an all-metal ampoule by the use of a "water vapor pump". Water vapor streams off the sample from the actions of ultrasonic agitation and condenses in the ampoule, which is held at –195°C. A 2mm constriction in the sample ampoule limits the "back-streaming" of gases. After removal of H_2O vapor and CO_2 at - 90° C and -195° C respectively, the non-condensable gas was measured using a calibrated gas splitter fitted with a capacitance manometer. Gas ratios (N_2, Ar, CH_4) were analyzed on a Dycor Quadrupole mass spectrometer fitted with a variable leak valve. The results are combined with the capacitance manometer measurement to obtain gas concentrations (cc STP/Kg of water (+ 2%). Prior to helium isotope analyses, N_2 and O_2 are removed by reaction with Zr-Al alloy (SAES-ST707), Ar and Ne are adsorbed on activated charcoal at 77° K and at 30° K, respectively. SAES-ST-101 Getters (one in the inlet line and 2 in the mass spectrometer) reduce the HD^+ background to ~10 ions/sec.

Helium isotope ratios and concentrations were analyzed on the University of Rochester VG 5400 Rare Gas Mass Spectrometer fitted with a Faraday cup (resolution of 200) and a Johnston electron multiplier (resolution of 600) for sequential analyses of the ^4He (Faraday cup) and ^3He (multiplier) beams. On the axial collector (resolution of 600) $3He^+$ is completely separated from HD+ with a baseline separation of <2% of the HD^+ peak. The contribution of HD^+ to the ^3He peak is < 0.1 ion/sec at 1,000 ions/sec of HD^+. For 2.0 μcc of He with an air ratio (sensitivity of 2×10^{-4} Amps/torr), the ^3He signal averaged 300 ions/sec with a background signal of <1 cps, due to either scattered ^4He ions or the formation of ^4He ions at lower voltage potentials within the source of the mass spectrometer. All $^3He/^4He$ ratios are reported relative to the atmospheric ratio (R_A), using air helium as the absolute standard. Errors in the $^3He/^4He$ ratios result from the precision of the sample measurement (0.3%) and variation in the ratio measurement in air (0.2%) and give a total error of 0.4% at 2σ for the reported helium isotope value. Helium concentrations (cc STP/Kg of water) are derived from comparison of a known split of the total sample to a standard of known size. The value, as measured by peak height comparison, is accurate to 2% (2σ). Air standards are used to calibrate the mass spectrometer with the standard procedure of one standard repeated every two samples. High vacuum blanks are analyzed at a rate of one blank per five samples.

Tritium values are analyzed using the ^3He "in-growth" technique. 500 g of water are degassed of all He on a high vacuum line and sealed in a 5" O.D. metal flasks for a period of 6 to 10 days. During this interval, ^3He produced from the decay of tritium accumulates in the flask. Typical sample blanks are $\sim 10^{-9}$cc of ^4He and 10^{-15}cc of ^3He. Blank corrections to ^3He are made using the ^4He content and assuming that the blank has the air $^3He/^4He$ ratio. The ^3He content of the ampoule is measured on the VG 5400 using the above procedures and compared to the ^3He content of air standard. Typical ^3He signals for a sample containing 300 pCi/l. and stored for 9 days are $\sim 8 \times 10^5$ atoms ($\pm$ 2%) and a blank of $3 \pm 1 \times 10^4$ atoms of ^3He. Errors in the reported tritium value are dependent on the amount of tritium and are 2% (2σ) at 100pCi/l. Higher precision can be achieved with larger samples and longer storage times.

4.0 Results from the Braidwood Site

At the Braidwood Site, tritiated water has leaked into the water table aquifer at levels that are elevated relative to regional environmental levels by more than a factor of 100. At Braidwood, we identify waters related to plant activity as those that exceed the levels in ambient precipitation (currently 50 to 100 pCi/l obtained from other regional studies and background samples from Braidwood) by more than a factor of two. We place this limit at 200 pCi/liter because there is some possibility that there are other local and regional sources of tritium that may affect groundwater tritium (e.g. Boiling Water Reactors to the west of Braidwood release hundreds of Curies of tritium directly to the atmosphere and may increase the tritium in local precipitation). Groundwater samples that contain tritium at or near the level in precipitation will be noted as having "environmental levels of tritium". It will also be noted that certain waters at the edge of the tritium plume will have tritium from both natural precipitation and from plant activities. We applied the tritium-^3He method to the "down gradient" environmental monitoring wells and to the wells in the vicinity of the vacuum breakers in question. Because of the levels of contamination, we did avoid those waters at the center of the plume because of fear that the measurements would be outside of our calibration range. The goal is to establish the rates of groundwater flow away from the "blow down" line by using the age estimates and simple mass balance calculation (residence time = volume of water/flux). The groundwater age data when combined with the tritium distribution and hydrologic flow information from CRA yields some first order conclusions regarding the timing and migration of tritium in the subsurface (refer to Figure 4 for well locations):

- There is no evidence of an on-going leak of tritiated water in the vicinity of VB-2 or VB-3. The shallow well BL-10, near VB-2, has ambient (i.e. environmental) tritium levels (56 pCi/liter) and an "old" ^{3}He/tritium age (31years) that is unreasonable for its shallow location near the water table. As noted in Section 2.0 (Background), the anomalous ^{3}He/tritium ratio reflects ^{3}He diffusing up from more tritium-rich water below. BL-10D has levels of tritium that are more than 100 times higher than BL-10 and contain more than 10 times the amount of ^{3}He. The strong gradient in ^{3}He drives the diffusion of the ^{3}He from below. Similarly, MW-105 (a shallow well near VB-3) has slightly elevated tritium (308 pCi/liter) (from the edge of the plume) but a very old ^{3}He/tritium age. Again, it is suggested that ^{3}He diffusing up from tritium-rich water below has produced the anomalous ^{3}H/tritium ratio [the mean diffusion length for ^{3}He is about 20 cm/yr (length = $(D*t)^{1/2}$), established $D(^3He) = 1.2 \times 10^{-4}$ m^2/day in Solomon et al. 1993). If either VB-2 or VB-3 had an active leak, groundwater at the water table would have significantly higher tritium coupled with a "young" (near zero) tritium-^{3}He age.
- BL-10D, sampled from near the base of the aquifer, has a tritium-^{3}He age of 4.8 years that is consistent with tritiated water released during a 2000 spill at VB-2. This water has moved nearly vertically to the base of this aquifer over the past five years. The near vertical flow path is consistent with the very low horizontal gradient in the water table in the vicinity of VB-2. A strong horizontal gradient would move the tritium plume rapidly to the north. The depth of the tritium plume at BL-10D is also consistent with the movement of water in a porous medium in response to recharge. The plume occurs about 15 feet beneath the water table, traveling 15 vertical feet in 4.8 years (3.1 feet/yr); this velocity corresponds to a recharge rate of about 0.93 feet/yr (recharge = vertical velocity*porosity; 0.93 feet/yr = 3.1 * 0.3).

- Tritium levels found in P-1 and P-2D (down gradient and adjacent to the pond on the west and north side respectively) are elevated relative to environmental levels and are consistent with the values found in the pond today. This finding suggests

that both the pond and the adjacent wells contain some tritium from plant activities. They also have "young" tritium-^{3}He ages of about one year because of the pond that exists between the "blow down" line and the wells (and not because the elapsed time between the "blow down" line and pond is only one year). From previous tritium-^{3}He studies in northern regions that contain "kettle ponds" it was discovered that groundwater that flows into a pond loses any accumulated ^{3}He (effectively resetting the tritium-^{3}He "clock" to zero). In northern latitudes, shallow ponds display dimictic behavior which means that they mix effectively and completely in spring and fall because of the density changes that occur as the pond warms and cools (e.g. the maximum density of water is at 4°C and hence as water cools in the fall, it will sink before it freezes). During this mixing, the water releases any accumulated ^{3}He to the atmosphere. This mixing is also aided by the wind that will mix the water laterally as well as vertically and cause any tritium that enters the lake to homogenize rapidly. Thus, the "young ages" at P-1 and P-2D represent the relatively recent transport of tritiated water from the edge of the pond to the wells on the north and west side.

- The S-2 cluster (shallow and deep) contains environmental levels of tritium. At the present time the S-2 cluster (500 feet north of the pond) is free of tritium from plant activities; the leading edge of the plume has not yet reached the S-2 cluster. The tritium-^{3}He ages are 3.5 and 8.8 years for shallow and deep respectively. The vertical gradient in the age suggests a recharge rate of about 6 inches per year in the vicinity of S-2. [The ^{3}He/tritium age dates are effective in determining the vertical velocity in an aquifer directly. As shown in the Borden, Sturgeon Falls and Cape Cod studies, the vertical velocity establishes the recharge rate in an aquifer and coupling this information with the hydrologic gradient of the aquifer, one can calculate a horizontal transport rate.] Water in the deep sample shows a travel time of almost 9 years; a time that pre-dates the reported spill in 1998. Water at S-2D most likely recharged in the vicinity south of the pond and traveled north to its present location. Water from S-2 most likely recharged just to the north of the pond and traveled at an average horizontal velocity of about 100 feet

per year to the north (there is some uncertainty in this estimate because of the effects of the pond on enhancing recharge locally).

- Water from VB2-6D contains ambient (i.e. environmental) levels of tritium and a groundwater age of about 11 years. This age may be slightly enhanced by ^{3}He diffusion from tritium-rich water above. As in the previous cases (BL-10), ^{3}He diffusion is driven by large gradients and VB2-6 contains three times the amount of ^{3}He that occurs in VB2-6D. In the deep zone, VB2-6D shows the limit of the tritium migration to the west and the plume is not spreading in this direction. The principal direction of groundwater movement is to the north.

- Shallow wells at the edge of the plume (e.g. VB2-2, 2-4, 2-6, 3-1, BL-16, MW113) have ^{3}He/tritium ages that range from 1.3 to 4.6 years. The age range most likely represents some variability in the local recharge rate (older ages = lower recharge; younger ages = higher recharge). Because the tritium-^{3}He age reflects the time when the water becomes isolated from contact with the vadose zone, the age is particularly sensitive to local (fine scale) recharge rates. In our Sturgeon Falls study (an aquifer not unlike the present site), we observed differences in recharge rates of a factor of four over distances of less than 100 feet where the presence of local zones of low permeability silt lowered the recharge rate. Young ages at shallow levels do not indicate a continued source of tritium to the environment but rather reflects residual tritium remaining in the vadose zone after the original (1998) spill. The tritiated water from the spill in 1998 exchanged with the ambient water in the vadose zone leaving some fraction (about 12 +/- 6%) of the tritium in the vadose zone to be "washed out" by subsequent recharge of ambient precipitation. This estimate is based on our research at Cape Cod that observed a comparable effect related to "Bomb pulse" tritium. The bulk of the water from the 1963 bomb pulse did not reach the water table 100 feet below land surface until 1975 or about 12 years after it fell. The result is a smaller and wider tritium peak, reflecting a tritium-^{3}He age whose "clock" started in 1975. Because the vadose zone at Braidwood is much smaller,

the rate of migration to the water table and rate of "wash out" is much more rapid (mean replacement time – drops to 37% or 1/e in about 3 +/-1 years; drops to 13% or $1/e^2$ in 6 +/- 2 years). This simple model assumes a 10-foot thick vadose zone that contains 3 "feet" of liquid water (near saturation conditions). Recharge of 1 foot/yr gives a mean replacement time of 3 years. This model is highly simplified but accurate within the 50% error limits.

5.0 Analysis of Braidwood Tritium –^{3}He Data for individual wells

The information contained below provides an interpretation of the individual well data (e.g. why certain results are excluded from the discussion in Section 4.0).

- **S-2 Cluster** – Tritium in this cluster is consistent with ambient precipitation over the past ten years. Ages reflect "normal" profile with depth – 3.5 years at 6 feet below the water table and 8.8 years at 14 feet depth. Translates to recharge estimate of about 6 inches per year. Elevate tritium from the pond has not yet reached S-2 but will in about 2 years.
- **P-1 and P-2D**- close proximity to pond. The wells contain tritium levels similar to but slightly below current pond values. Most likely reflects tritium levels in pond of about one year ago. Travel time from pond to P-1D and P-2D is about one year, consistent with flow in this sand aquifer. P-2D sample leaked air (either during sampling or extraction), so the helium in this air is subtracted from the total to get the excess He-3. Note that the "tritium – ^{3}He clock" is reset to zero when water enters the pond and mixes.
- **BL-10 cluster**- BL-10 (shallow) has tritium (56 pCi/liter) consistent with ambient precipitation in Illinois. "Tritium –^{3}He" Age (>30 years) is not realistic because this shallow well is receiving He-3 by diffusion from ^{3}He-rich water below (i.e. BL-10D). We observe similar phenomena in ambient groundwater that exist above and below the "tritium bomb pulse" in 1963. Note that the close proximity to VB-2 appears to show that there is no current leak at this location. An on-going leak at VB-2 would show up as elevated tritium with a near zero ^{3}He/tritium age. BL-10D has tritium levels (7667 pCi/Liter) and a "tritium – ^{3}He age" of 4.8 years that is consistent with a spill that occurred in 2000 at VB-2. The age suggests that this tritium-rich water reached the water table and recharged shortly after the leak. The groundwater pathway for this tritium-rich water is almost directly vertical because BL-10D is located very close to the flow divide for this aquifer in an area of very low gradient in the water table surface (i.e. almost flat water table).
- **MW-105** has an unrealistic "Tritium – ^{3}He Age" because this well is most likely receiving He-3 via diffusion from below. Tritium level is slightly above ambient precipitation suggesting that MW-105 is at the edge of the tritium plume that exists to the north. There is no evidence of an active leak at VB-3 that would manifest itself as water with high tritium but a low "Tritium –^{3}He Age".
- **VB2-6 cluster** VB2-6D has tritium levels (154 pCi/liter) and an age consistent with ambient recharge about 10 years ago. "Tritium – ^{3}He Age" may be slightly elevated by ^{3}He diffusion from the water above. VB2-6 (shallow) is at the

margin of the plume (1563 pCi/liter) and has a "Tritium – ^{3}He Age" (3.5 years) consistent with a depth of about 6 feet below the water table.

- **VB2-2, VB2-4, VB3-1, MW-113, BL-16** All have tritium levels consistent with previous measurements and sample water from the margin of the plume (did not sample the core of the plume because of the high levels). The "Tritium –^{3}He Ages" range from 1.3 to 4.6 years and reflect the time when this tritiated water entered the groundwater system. Because there is not adequate depth control (i.e. narrow screen- multi level piezometers) it is not clear if the age distribution is merely reflecting differences in sampling depth and depth below the water table. Typically, the tritium plume will spread somewhat in its vertical distribution as it recharges and the "Tritium –^{3}He Age" will simply reflect the time at which the "clock" was initiated (i.e. He-3 was retained) and the recharge rate. It may also be that the age differences reflect differences in the areal extent of recharge (i.e. focusing of recharge). In that the soil in the vicinity of VB2-2 and VB2-4 is sandier and drains better while the soil in the vicinity of BL-16 has more extensive lenses of low permeability silt. In our studies of the areal extent of recharge, we observed differences of as much as a factor of four in an area about 100 m x 30m (Sturgeon Falls Study)

6.0 Table of Braidwood Site Well Data

Sample #	^4He µcc/kg	Ne µcc/kg	N_2 cc/kg	Ar cc/kg	Methane cc/kg	$^3He/^4He$ (as R/R_{air})	He-3* (pCi/liter)	Tritium (pCi/liter))	Age
VB2-6D	63.1	233.2	15.8	0.391		2.145	132.1	154	11.25
P-1D	44.6	159.7	11.5	0.289	4.273	1.524	43.4	1703	0.46
BL-16	53.7	200.7	16.1	0.389		8.762	753.6	2623	4.59
MW-105	54.0	229.4	20.8	0.482		16.106	1473.6	308	31.89
VB2-6S	53.6	200.3	16.3	0.435		4.679	357.4	1563	3.74
P-2D	1000.7	3077.6	56.5	1.150		1.057	129.6	1813	1.26
S-2D	41.1	179.3	17.6	0.481	3.463	1.749	56.7	92	8.76
S-2	50.1	217.0	16.6	0.399		1.430	40.3	190	3.50
VB2-2	48.1	207.6	16.8	0.397		5.269	372.0	5145	1.27
VB2-4	50.6	207.6	13.9	0.331		4.521	322.8	2876	1.93
BL-10	50.7	191.7	13.9	0.364		3.794	256.9	56	31.33
VB3-1	63.2	249.3	15.2	0.345		13.348	1410.6	5145	4.40
BL-10D	60.4	229.0	13.9	0.326		22.243	2319.0	7667	4.80
MW-113	52.6	211.4	13.6	0.323	0.278	7.400	608.6	3621	2.82

7.0 References

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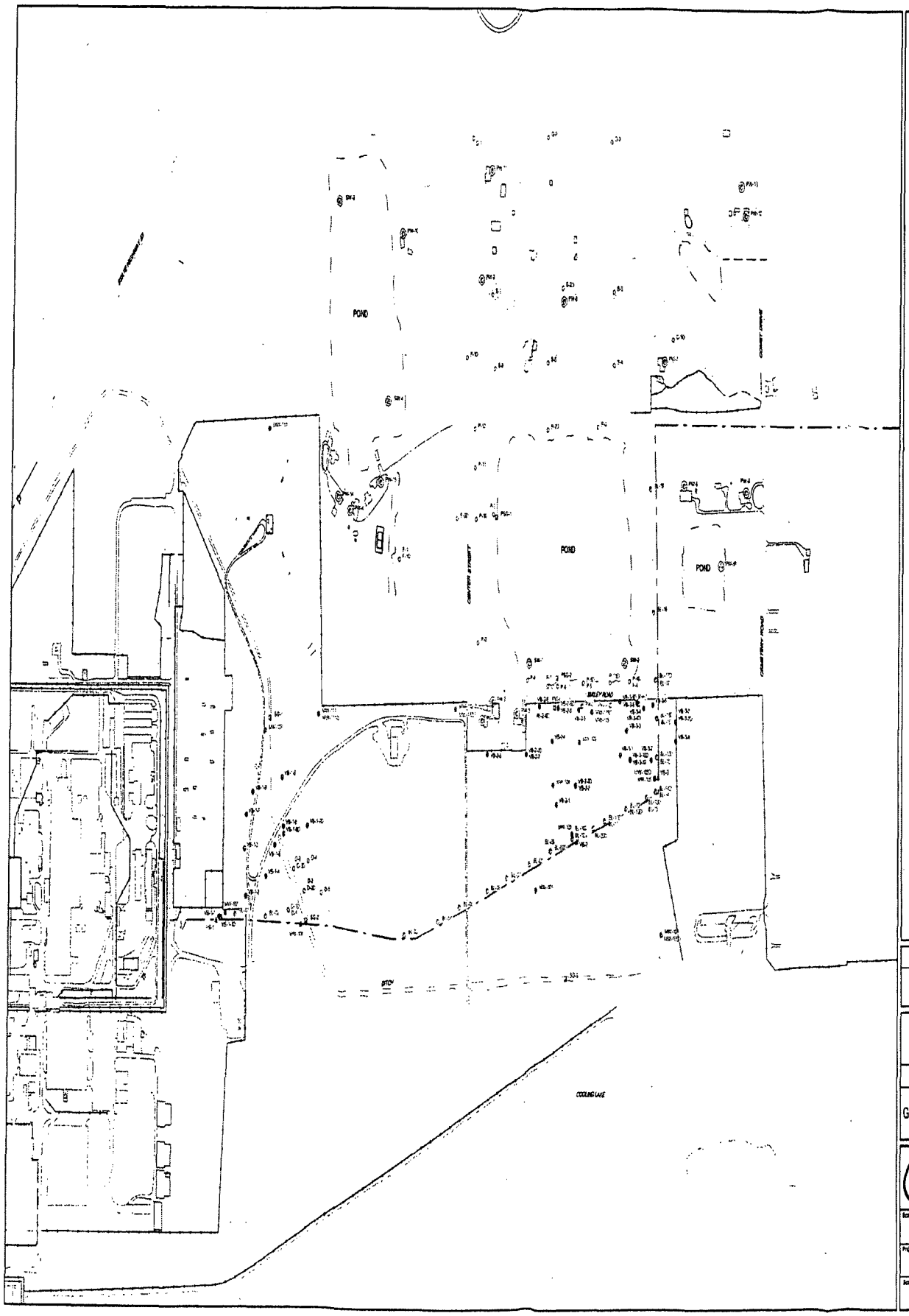
Stute, M, C. Sonntag, J. Deàk, and P. Schlosser, Helium in deep circulating groundwater in the Great Hungarian Plain: Flow dynamics and crustal and mantle helium fluxes, *Geochimica et Cosmochimica Acta*, 56, 2051-2067, 1992.



LEGEND

- EXISTING FENCE LINE
- BLOWDOWN LINE
- SHALLOW BLOWDOWN LINE SAMPLING LOCATION
- DEEP BLOWDOWN LINE SAMPLING LOCATION
- VACUUM BREAKER LOCATION
- VACUUM BREAKER SAMPLING LOCATION
- SHALLOW MONITORING WELL LOCATION
- DEEP MONITORING WELL LOCATION
- PRIVATE WELL LOCATION
- SHALLOW TEMPORARY WELL LOCATION
- DEEP TEMPORARY WELL LOCATION
- STAFF GAUGE LOCATION
- SURFACE WATER SAMPLING LOCATION
- POND SAMPLING LOCATION
- SHALLOW RECOVERY WELL LOCATION
- DEEP RECOVERY WELL LOCATION

SCALE VERIFICATION

THIS BAR MEASURES 1" ON ORIGINAL. ADJUST SCALE ACCORDINGLY

BRAIDWOOD STATION
BRACEVILLE, ILLINOIS

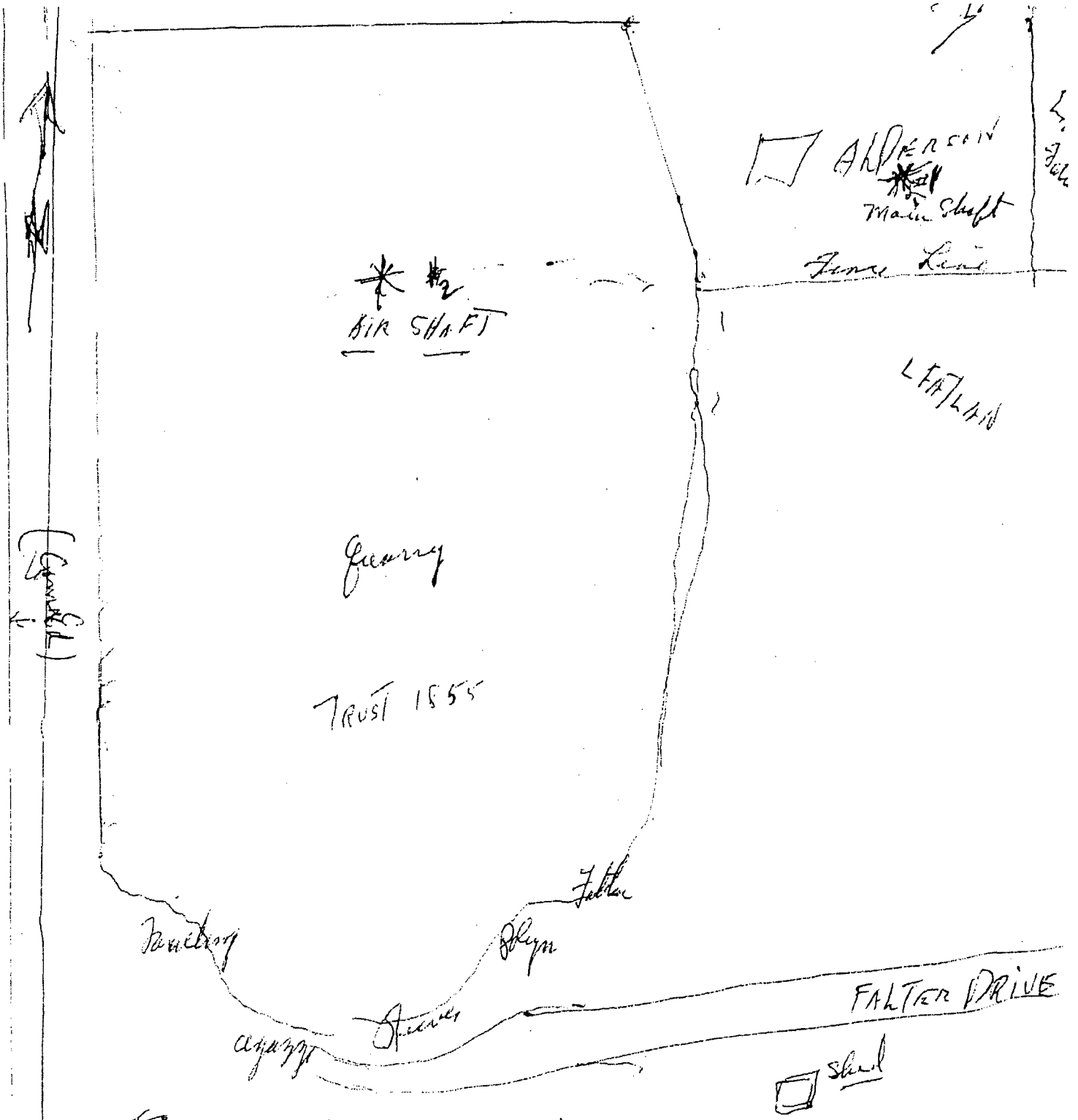
GROUNDWATER MONITORING LOCATIO

CONESTOGA-ROVERS & ASSOCIA

Project Manager	Reviewed By	Date
F. HARVEY	K. SMITH	MARCH 2[illegible]
Scale	Project No.	Report No. / Drawn
1"=300'	16841-06	PRES003

APPENDIX I

INFORMATION ON COAL MINING ACTIVITIES IN THE SITE AREA



Note: This certainly isn't to Scale but where I marked #1 on Alderson Property is about where the Main Shaft of the Thos Stracken Mine is about 300 ft or so West of Center & about 2 to 300 North of my Fence line. #2 is where Appx. the air shaft is. About Center of Quarry & more about Strait west of the East West Fence line between Mizell & Alderson.

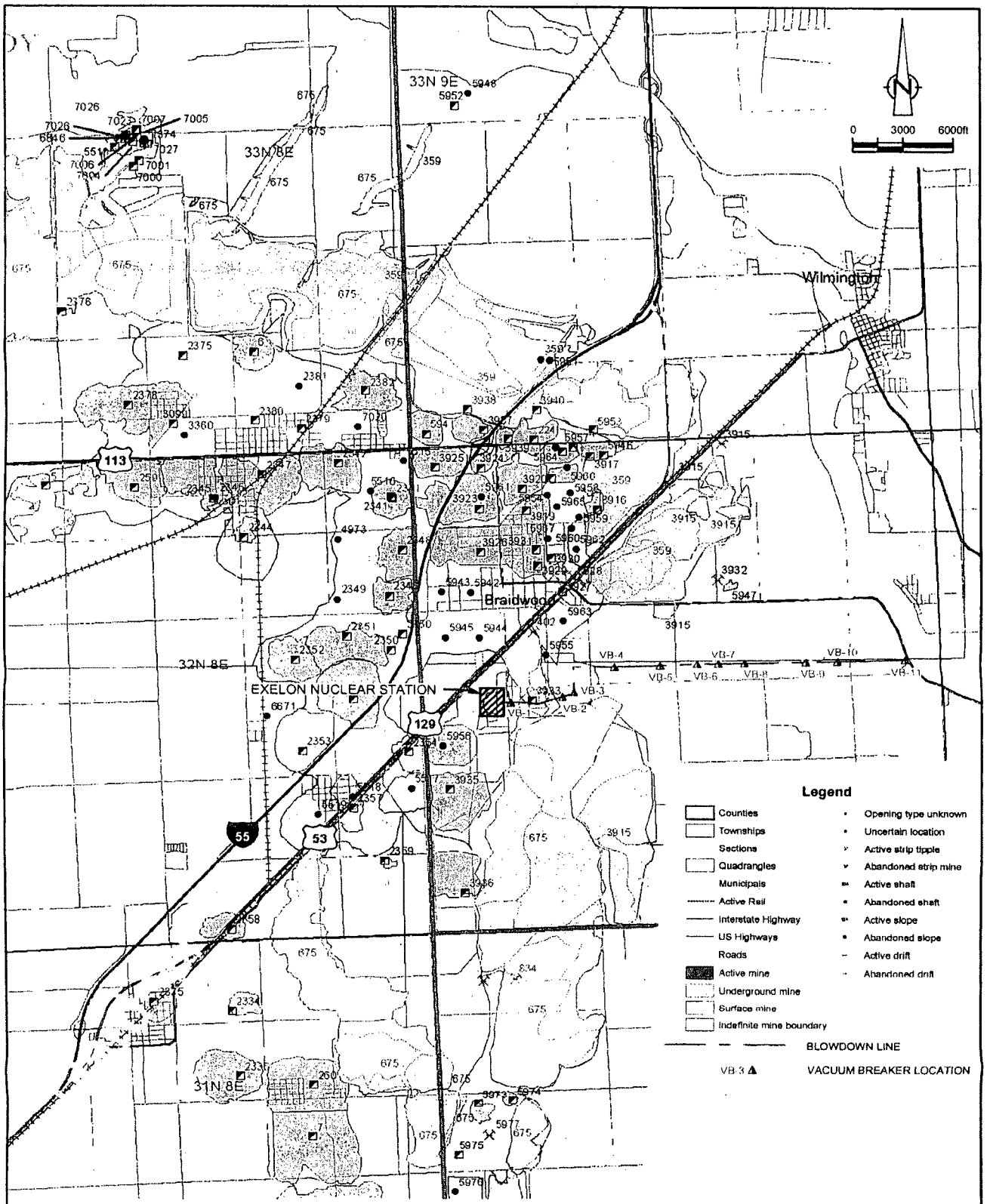


figure I.1

COAL MINES - WILL COUNTY
EXELON GENERATION BRAIDWOOD STATION
Braceville, Illinois

SOURCE: ILLINOIS STATE GEOLOGICAL SURVEY COAL SECTION, OCTOBER 13, 2005.

16841-11(012)GN-WA031 MAR 21/2006

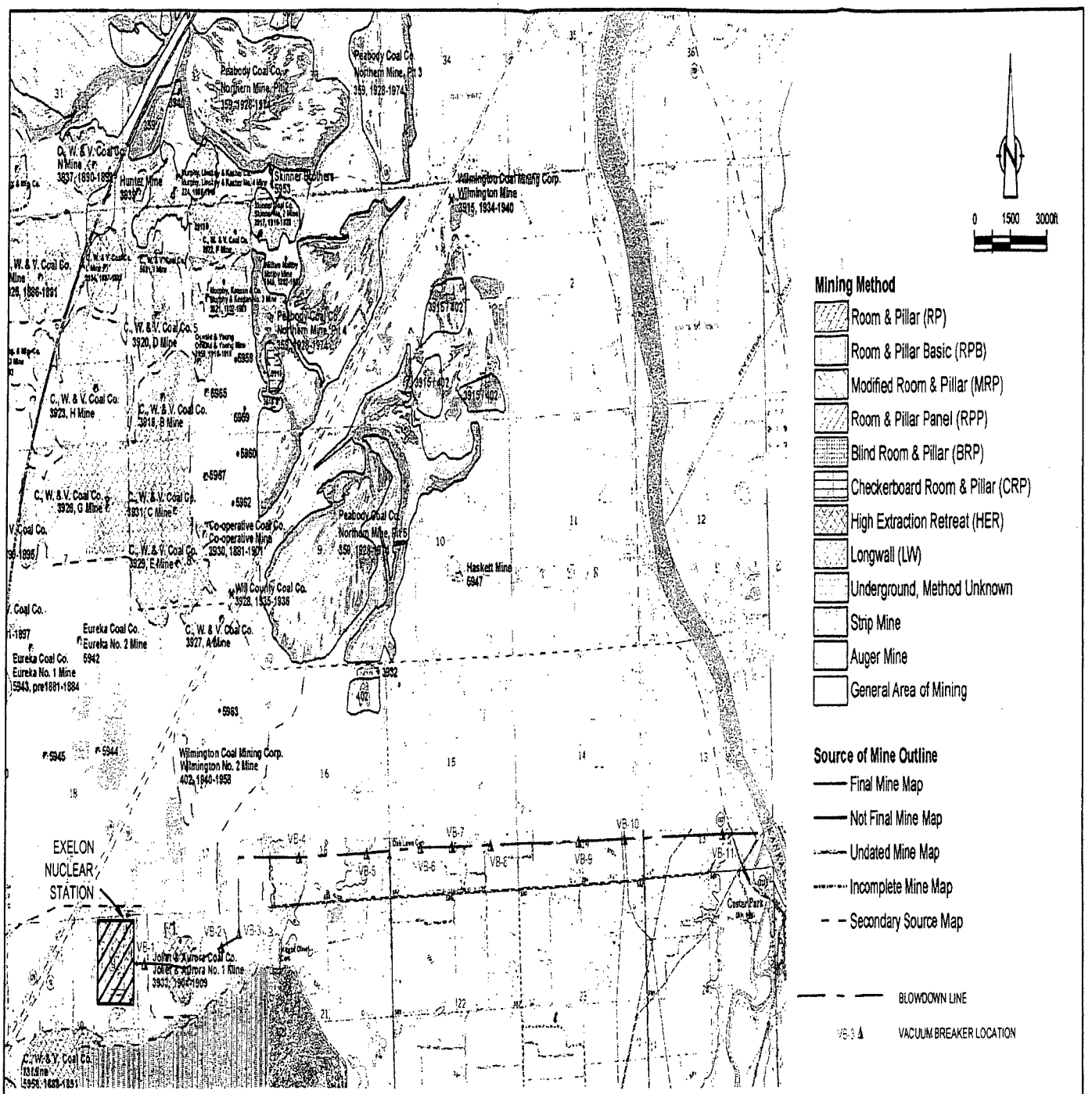


figure I.2

COAL MINES IN ILLINOIS - WILMINGTON AND ESSEX QUADRANGLES
EXELON GENERATION BRAIDWOOD STATION
Braceville, Illinois

SOURCE: ILLINOIS STATE GEOLOGICAL SURVEY COAL SECTION, MARCH 14, 2005, AND 2006

16841-11(012)GN-WA032 MAR 21/2006

APPENDIX J

LABORATORY ANALYSES OF GENERAL CHEMISTRY IN THE BLOWDOWN LINE AND GROUNDWATER

First Environmental Laboratories, Inc.

IL ELAP / NELAC Accreditation # 100292

1600 Shore Road • Naperville, Illinois 60563 • Phone (630) 778-1200 • Fax (630) 778-1233

Rec'd CRA

NOV 2 2 2005

November 17, 2005

Mr. Dave Hendren
CONESTOGA-ROVERS & ASSOCIATES
8615 West Bryn Mawr Avenue,
Chicago, IL 60631

Project ID: Braidwood Exelon Plant; #16841-09
First Environmental File ID: 5-4120
Date Received: November 15, 2005

Dear Mr. Dave Hendren:

The above referenced project was analyzed as directed on the enclosed chain of custody record.

All analyses were performed in accordance with established methods and within established holding times. All Quality Control criteria as outlined in the methods and current IL ELAP/NELAP have been met unless otherwise noted. QA/QC documentation and raw data will remain on file for future reference. Our certificate is number 001201: 02/17/05 through 02/28/06.

I thank you for the opportunity to be of service to you and look forward to working with you again in the future. Should you have any questions regarding any of the enclosed analytical data or need additional information, please contact me at (630) 778-1200.

Sincerely,

W. Mottashed

William Mottashed
Project Manager

First Environmental Laboratories, Inc.

IL ELAP / NELAC Accreditation # 100292

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Analytical Report

Client:	CONESTOGA-ROVERS & ASSOCIATES	**Date Collected:**	11/14/05
Project ID:	Braidwood Exelon Plant; #16841-09	**Time Collected:**	15:35
Sample ID:	GW/111405-DC-001	**Date Received:**	11/15/05
Sample No:	5-4120-001	**Date Reported:**	11/17/05

Analyte	Result	R.L.	Units	Date Analyzed	Method	Flag
Alkalinity, Total (CaCO3)	310	5	mg/L	11/16/05	2320B	
Chloride	100	5	mg/L	11/17/05	4500Cl, C	
Nitrate (as N)	0.12	0.10	mg/L	11/16/05	353.2R2.0	
Phosphate (as PO4)	0.86	0.01	mg/L	11/17/05	4500P, B,E	
Phosphorus (as P)	0.28	0.01	mg/L	11/17/05	4500P,B,E	
Sulfide	< 0.05	0.05	mg/L	11/16/05	4500S2C,D	

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Analytical Report

Client:	CONESTOGA-ROVERS & ASSOCIATES	**Date Collected:**	11/14/05
Project ID:	Braidwood Exelon Plant; #16841-09	**Time Collected:**	15:35
Sample ID:	GW/111405-DC-001	**Date Received:**	11/15/05
Sample No:	5-4120-001	**Date Reported:**	11/17/05

Analyte	Result	R.L.	Units	Flags
Total Metals **Method: 6010B**		**Preparation Method 3010A**		
Analysis Date: 11/16/05		Preparation Date: 11/15/05		
Aluminum	0.18	0.05	mg/L	
Antimony	< 0.006	0.006	mg/L	
Arsenic	< 0.002	0.002	mg/L	
Barium	0.035	0.001	mg/L	
Beryllium	< 0.001	0.001	mg/L	
Boron	0.35	0.01	mg/L	
Cadmium	< 0.001	0.001	mg/L	
Calcium	156	0.1	mg/L	
Chromium	< 0.001	0.001	mg/L	
Cobalt	< 0.001	0.001	mg/L	
Copper	< 0.001	0.001	mg/L	
Iron	0.17	0.01	mg/L	
Lead	< 0.002	0.002	mg/L	
Magnesium	77.7	0.1	mg/L	
Manganese	0.019	0.001	mg/L	
Molybdenum	0.01	0.01	mg/L	
Nickel	< 0.001	0.001	mg/L	
Potassium	9.5	0.1	mg/L	
Selenium	< 0.002	0.002	mg/L	
Silver	< 0.001	0.001	mg/L	
Sodium	48.1	0.1	mg/L	
Thallium	< 0.002	0.002	mg/L	
Vanadium	< 0.01	0.01	mg/L	
Zinc	< 0.005	0.005	mg/L	
Total Metals **Method: 7470A**				
Analysis Date: 11/16/05				
Mercury	< 0.0005	0.0005	mg/L	

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Analytical Report

Client:	CONESTOGA-ROVERS & ASSOCIATES	**Date Collected:**	11/14/05
Project ID:	Braidwood Exelon Plant; #16841-09	**Time Collected:**	15:45
Sample ID:	GW/111405-DC-002	**Date Received:**	11/15/05
Sample No:	5-4120-002	**Date Reported:**	11/17/05

Analyte	Result	R.L.	Units	Date Analyzed	Method	Flag
Alkalinity, Total (CaCO3)	570	5	mg/L	11/16/05	2320B	
Chloride	< 5	5	mg/L	11/17/05	4500Cl, C	
Nitrate (as N)	0.21	0.10	mg/L	11/16/05	353.2R2.0	
Phosphate (as PO4)	< 0.01	0.01	mg/L	11/17/05	4500P, B.E	
Phosphorus (as P)	< 0.01	0.01	mg/L	11/17/05	4500P.B,E	
Sulfide	< 0.05	0.05	mg/L	11/16/05	4500S2C,D	

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Analytical Report

Client:	CONESTOGA-ROVERS & ASSOCIATES	**Date Collected:**	11/14/05
Project ID:	Braidwood Exelon Plant; #16841-09	**Time Collected:**	15:45
Sample ID:	GW/111405-DC-002	**Date Received:**	11/15/05
Sample No:	5-4120-002	**Date Reported:**	11/17/05

Analyte	Result	R.L.	Units	Flags
Total Metals **Method: 6010B**		**Preparation Method 3010A**		
Analysis Date: 11/16/05		Preparation Date: 11/15/05		
Aluminum	0.10	0.05	mg/L	
Antimony	< 0.006	0.006	mg/L	
Arsenic	0.007	0.002	mg/L	
Barium	0.098	0.001	mg/L	
Beryllium	< 0.001	0.001	mg/L	
Boron	0.26	0.01	mg/L	
Cadmium	< 0.001	0.001	mg/L	
Calcium	193	0.1	mg/L	
Chromium	< 0.001	0.001	mg/L	
Cobalt	0.005	0.001	mg/L	
Copper	< 0.001	0.001	mg/L	
Iron	6.31	0.01	mg/L	
Lead	< 0.002	0.002	mg/L	
Magnesium	30.9	0.1	mg/L	
Manganese	< 0.001	0.001	mg/L	
Molybdenum	< 0.01	0.01	mg/L	
Nickel	0.003	0.001	mg/L	
Potassium	25.3	0.1	mg/L	
Selenium	< 0.002	0.002	mg/L	
Silver	< 0.001	0.001	mg/L	
Sodium	4.9	0.1	mg/L	
Thallium	< 0.002	0.002	mg/L	
Vanadium	< 0.01	0.01	mg/L	
Zinc	0.017	0.005	mg/L	
Total Metals **Method: 7470A**				
Analysis Date: 11/16/05				
Mercury	< 0.0005	0.0005	mg/L	

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Analytical Report

Client:	CONESTOGA-ROVERS & ASSOCIATES	**Date Collected:**	11/14/05
Project ID:	Braidwood Exelon Plant; #16841-09	**Time Collected:**	16:30
Sample ID:	GW/111405-DC-003	**Date Received:**	11/15/05
Sample No:	5-4120-003	**Date Reported:**	11/17/05

Analyte	Result	R.L.	Units	Date Analyzed	Method	Flag
Alkalinity, Total (CaCO3)	170	5	mg/L	11/16/05	2320B	
Chloride	< 5	5	mg/L	11/17/05	4500Cl, C	
Nitrate (as N)	0.28	0.10	mg/L	11/16/05	353.2R2.0	
Phosphate (as PO4)	0.06	0.01	mg/L	11/17/05	4500P, B,E	
Phosphorus (as P)	0.02	0.01	mg/L	11/17/05	4500P,B,E	
Sulfide	< 0.05	0.05	mg/L	11/16/05	4500S2C,D	

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Analytical Report

Client:	CONESTOGA-ROVERS & ASSOCIATES	**Date Collected:**	11/14/05
Project ID:	Braidwood Exelon Plant; #16841-09	**Time Collected:**	16:30
Sample ID:	GW/111405-DC-003	**Date Received:**	11/15/05
Sample No:	5-4120-003	**Date Reported:**	11/17/05

Analyte	Result	R.L.	Units	Flags
Total Metals **Method: 6010B**		**Preparation Method 3010A**		
Analysis Date: 11/16/05		Preparation Date: 11/15/05		
Aluminum	0.15	0.05	mg/L	
Antimony	< 0.006	0.006	mg/L	
Arsenic	< 0.002	0.002	mg/L	
Barium	0.016	0.001	mg/L	
Beryllium	< 0.001	0.001	mg/L	
Boron	0.03	0.01	mg/L	
Cadmium	< 0.001	0.001	mg/L	
Calcium	52.7	0.1	mg/L	
Chromium	< 0.001	0.001	mg/L	
Cobalt	< 0.001	0.001	mg/L	
Copper	< 0.001	0.001	mg/L	
Iron	0.10	0.01	mg/L	
Lead	< 0.002	0.002	mg/L	
Magnesium	18.8	0.1	mg/L	
Manganese	0.056	0.001	mg/L	
Molybdenum	< 0.01	0.01	mg/L	
Nickel	< 0.001	0.001	mg/L	
Potassium	1.9	0.1	mg/L	
Selenium	< 0.002	0.002	mg/L	
Silver	< 0.001	0.001	mg/L	
Sodium	2.7	0.1	mg/L	
Thallium	< 0.002	0.002	mg/L	
Vanadium	< 0.01	0.01	mg/L	
Zinc	0.029	0.005	mg/L	
Total Metals **Method: 7470A**				
Analysis Date: 11/16/05				
Mercury	< 0.0005	0.0005	mg/L	

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Analytical Report

Client:	CONESTOGA-ROVERS & ASSOCIATES	**Date Collected:**	11/14/05
Project ID:	Braidwood Exelon Plant; #16841-09	**Time Collected:**	16:50
Sample ID:	GW/111405-DC-004	**Date Received:**	11/15/05
Sample No:	5-4120-004	**Date Reported:**	11/17/05

Analyte	Result	R.L.	Units	Date Analyzed	Method	Flag
Alkalinity, Total (CaCO3)	320	5	mg/L	11/16/05	2320B	
Chloride	96	5	mg/L	11/17/05	4500Cl, C	
Nitrate (as N)	0.14	0.10	mg/L	11/16/05	353.2R2.0	
Phosphate (as PO4)	0.92	0.01	mg/L	11/17/05	4500P, B,E	
Phosphorus (as P)	0.30	0.01	mg/L	11/17/05	4500P,B,E	
Sulfide	< 0.05	0.05	mg/L	11/16/05	4500S2C,D	

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Analytical Report

Client:	CONESTOGA-ROVERS & ASSOCIATES	**Date Collected:**	11/14/05
Project ID:	Braidwood Exelon Plant; #16841-09	**Time Collected:**	16:50
Sample ID:	GW/111405-DC-004	**Date Received:**	11/15/05
Sample No:	5-4120-004	**Date Reported:**	11/17/05

Analyte	Result	R.L.	Units	Flags
Total Metals **Method: 6010B**		**Preparation Method 3010A**		
Analysis Date: 11/16/05		Preparation Date: 11/15/05		
Aluminum	0.21	0.05	mg/L	
Antimony	< 0.006	0.006	mg/L	
Arsenic	0.006	0.002	mg/L	
Barium	0.034	0.001	mg/L	
Beryllium	< 0.001	0.001	mg/L	
Boron	0.36	0.01	mg/L	
Cadmium	< 0.001	0.001	mg/L	
Calcium	155	0.1	mg/L	
Chromium	< 0.001	0.001	mg/L	
Cobalt	< 0.001	0.001	mg/L	
Copper	< 0.001	0.001	mg/L	
Iron	0.17	0.01	mg/L	
Lead	< 0.002	0.002	mg/L	
Magnesium	78.5	0.1	mg/L	
Manganese	0.018	0.001	mg/L	
Molybdenum	0.01	0.01	mg/L	
Nickel	0.007	0.001	mg/L	
Potassium	9.5	0.1	mg/L	
Selenium	< 0.002	0.002	mg/L	
Silver	< 0.001	0.001	mg/L	
Sodium	48.4	0.1	mg/L	
Thallium	< 0.002	0.002	mg/L	
Vanadium	< 0.01	0.01	mg/L	
Zinc	< 0.005	0.005	mg/L	
Total Metals **Method: 7470A**				
Analysis Date: 11/16/05				
Mercury	< 0.0005	0.0005	mg/L	

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Conventionals QC Data Package
Client: CRA
Project I.D.: Braidwood Exelon Plant
Sample No.: 5-4120-001-004

Analyte	Date Analyzed	Method	Calibration QC Data						
			First CCVS	Last CCVS	Acceptance Limit	First CCB		Last CCB	
			%R	%R	%	mg/L	C	mg/L	C
Alkalinity	11/16/05	2320B	100	100	90-110	5	U	5	U
Chloride	11/17/05	4500Cl-C	102	102	90-110	5	U	5	U
Nitrate	11/16/05	353.2 R.2.0	103.7	102.6	90-110	0.10	U	0.10	U
Phosphorus	11/17/05	4500P-B,E	101.2	101.9	90-110	0.01	U	0.01	U
Phoshphate	11/17/05	4500P-E	101.2	101.9	90-110	0.01	U	0.01	U
Sulfide	11/16/05	4500S_2 C,D	94.2	95.6	90-110	0.05	U	0.05	U

CCVS = Continuing Calibration Verification Standard
CCB = Continuing Calibration Blank
C = Concentration
U = Undetected

Explaination of QC Failures
None

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Analyte	Method QC Data			
	PB		LCS	Acceptance Limit
	mg/L	C	%R	%
Alkalinity	NA		NA	NA
Chloride	NA		NA	NA
Nitrate	NA		NA	NA
Phosphorus	0.01	U	101.9	80-120
Phoshphate	0.01	U	101.9	80-120
Sulfide	NA		NA	NA

PB = Procedure Blank
LCS = Laboratory Control Standard
C = Concentration
U = Undetected

Explaination of QC Failures
None

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Analyte	Matrix Spike/Matrix Spike Duplicate (MS/MSD) QC Data										
					MS		MSD				
	Laboratory	Sample		Spike	Sample		Sample			Acceptance	
	Sample ID	Result		Conc.	Result		Result		RPD	Limit	
		mg/L	C	mg/L	mg/L	%R	mg/L	%R		%	RPD
Alkalinity	5-4120-001	310		500	820	102	830	104	1.2	75-125	20
Chloride	5-4120-001	100		100	200	100	196	96	2.0	75-125	20
Nitrate	5-4120-004	0.14		1.00	1.122	98.5	1.149	101.2	2.4	75-125	20
Phosphorus	5-4075-002	2.02		1.25	3.13	88.8	3.16	91.2	1.0	75-125	20
Phoshphate	5-4075-002	2.02		1.25	3.13	88.8	3.16	91.2	1.0	75-125	20
Sulfide	5-4120-001	0.05	U	0.200	0.186	93.1	0.181	90.4	2.7	75-125	20

RPD = Relative Percent Difference
C = Concentration
U = Undetected

- Explaination of QC Failures
  None

METHOD 3010A/6010B QUALITY CONTROL DATA

Sample 5-4120-001

Client: CRA

Project ID: Braidwood Exelon Plant; #16841-09

Filename: 5-4120

Date Analyzed	Element				Matrix Spike (MS)				Matrix Spike Duplicate (MSD)			Prep	Laboratory Control Standard (LCS)		
		MS Status	MSD Status	%RPD	Org.Smp	Spk.Smp	Amt.Spkd	%REC	Spk.Smp	Amt.Spkd	%REC	Blank (PB)	True	Found	%Rec
11/16/05	Aluminum	Acceptable	Acceptable	4.0	0.180	10.5906	10.0000	104.1	11.0212	10.0000	108.4	<0.05	10.0000	10.6859	106.9
11/16/05	Antimony	Acceptable	Acceptable	3.4	<0.01	0.1014	0.1000	101.4	0.1050	0.1000	105.0	<0.01	0.1000	0.1050	105.0
11/16/05	Arsenic	Acceptable	Acceptable	2.1	0.005	0.1097	0.1000	104.8	0.1120	0.1000	107.1	<0.002	0.1000	0.1058	105.8
11/16/05	Barium	Acceptable	Acceptable	1.2	0.035	0.1162	0.1000	81.1	0.1177	0.1000	82.6	<0.001	0.1000	0.0873	87.3
11/16/05	Beryllium	Acceptable	Acceptable	4.7	0.001	0.0954	0.1000	94.2	0.1000	0.1000	98.8	<0.001	0.1000	0.1029	102.9
11/16/05	Cadmium	Acceptable	Acceptable	5.0	<0.001	0.0998	0.1000	99.8	0.1050	0.1000	105.0	<0.001	0.1000	0.1083	108.3
11/16/05	Calcium	>4X Spike	>4X Spike	4.0	156.388	168.4053	10.0000	120.2	161.7369	10.0000	53.5	<0.1	10.0000	10.3490	103.5
11/16/05	Chromium	Acceptable	Acceptable	4.5	<0.001	0.0974	0.1000	97.4	0.1019	0.1000	101.9	<0.001	0.1000	0.1054	105.4
11/16/05	Cobalt	Acceptable	Acceptable	4.4	<0.001	0.0932	0.1000	93.2	0.0974	0.1000	97.4	<0.001	0.1000	0.1000	100.0
11/16/05	Copper	Acceptable	Acceptable	3.8	<0.001	0.0928	0.1000	92.8	0.0963	0.1000	96.3	<0.001	0.1000	0.0957	95.7
11/16/05	Iron High	Acceptable	Acceptable	3.9	0.165	4.1848	4.0000	100.5	4.3525	4.0000	104.7	<0.01	4.0000	4.3450	108.6
11/16/05	Iron Low	Acceptable	Acceptable	3.7	0.167	3.5953	4.0000	85.7	3.7310	4.0000	89.1	<0.01	4.0000	3.6703	91.8
11/16/05	Lead	Acceptable	Acceptable	5.1	<0.002	0.0979	0.1000	97.9	0.1030	0.1000	103.0	<0.002	0.1000	0.1073	107.3
11/16/05	Magnesium	>4X Spike	>4X Spike	2.8	77.660	90.1126	10.0000	124.5	87.6020	10.0000	99.4	<0.1	10.0000	11.5166	115.2
11/16/05	Manganese	Acceptable	Acceptable	3.1	0.019	0.1173	0.1000	98.4	0.1210	0.1000	102.1	<0.001	0.1000	0.1059	105.9
11/16/05	Nickel	Acceptable	Acceptable	4.3	0.001	0.0984	0.1000	97.4	0.1027	0.1000	101.7	<0.001	0.1000	0.1046	104.6
11/16/05	Potassium	Acceptable	Acceptable	3.2	9.547	13.2818	3.0000	124.5	12.8583	3.0000	110.4	<0.1	3.0000	2.4400	81.3
11/16/05	Selenium	Acceptable	Acceptable	6.0	<0.002	0.0983	0.1000	98.3	0.1043	0.1000	104.3	<0.002	0.1000	0.1004	100.4
11/16/05	Silver	Acceptable	Acceptable	4.2	<0.001	0.0983	0.1000	98.3	0.1025	0.1000	102.5	<0.001	0.1000	0.1022	102.2
11/16/05	Sodium	>4X Spike	>4X Spike	2.9	48.099	50.8759	3.0000	92.6	49.4273	3.0000	44.3	<0.1	3.0000	3.0390	101.3
11/16/05	Thallium	Acceptable	Acceptable	5.6	<0.01	0.1084	0.1000	108.4	0.1146	0.1000	114.6	<0.01	0.1000	0.1157	115.7
11/16/05	Vanadium	Acceptable	Acceptable	4.0	<0.01	0.0921	0.1000	92.1	0.0959	0.1000	95.9	<0.01	0.1000	0.0954	95.4
11/16/05	Zinc	Acceptable	Acceptable	4.2	<0.005	0.1016	0.1000	101.6	0.1060	0.1000	106.0	<0.005	0.1000	0.1078	107.8

QC Acceptance Ranges:

MS/MSD 75 - 125%, RPD (Relative Percent Difference) +/- 20%

LCS 80 - 120%

PB < Reporting Limit

Explaination of QC Failures

MS/MSD for Calcium and Sodium were not within acceptable range, however, because the sample result is greater than 4X the spiking amount the acceptance range does not apply

CONESTOGA-ROVERS & ASSOCIATES

8615 W. Bryn Mawr Avenue
Chicago, Illinois 60631
(773)380-9933 phone
(773)380-6421 fax

SHIPPED TO (Laboratory Name): FAST ENVIRONMENTAL LABS

REFERENCE NUMBER: 1684-04

PROJECT NAME: BARNWELL EXELON PLANT

CHAIN-OF-CUSTODY RECORD

SAMPLER'S SIGNATURE: [signature] PRINTED NAME: TERRY WEISSER

SEQ. No.	DATE	TIME	SAMPLE IDENTIFICATION No.	SAMPLE MATRIX	No. OF CONTAINERS	*										REMARKS
	11/14/05	1535	GW-111405-DC-001	WATER	4	X	X	X	X							G-4120-001
	↓	1545	↓ 002	↓	4	X	X	X	X							002
	↓	1600	↓ 003	↓	4	X	X	X	X							003
	↓	1630	↓ 004	↓	4	X	X	X	X							004
																24-48 HR TAT
																** [illegible]
																~~[illegible]~~
																* [illegible]
																~~[illegible]~~
			TOTAL NUMBER OF CONTAINERS		16											

RELINQUISHED BY:	DATE: / TIME:	RECEIVED BY:	DATE: / TIME:
① [signature]	11/15/05 0800	② Helen Norred	11/15/05 0800
②		③	
③		④	

METHOD OF SHIPMENT: DROP OFF @ LAB AIR BILL No.

		SAMPLE TEAM:	RECEIVED FOR LABORATORY BY:
White	-Fully Executed Copy	[signature]	Helen Norred
Yellow	-Receiving Laboratory Copy	CHUCK STARK	DATE: 11/15/05 TIME: 08:00
Pink	-Shipper Copy		
Goldenrod	-Sampler Copy		

<6°C - on ice

Invoice

First Environmental Laboratories, Inc.

IL ELAP / NELAC Accreditation # 100292

1600 Shore Road • Naperville, Illinois 60563 • Phone (630) 778-1200 • Fax (630) 778-1233

Invoice Number: 61249

Tax I.D. No. 36-3925322

Invoice Date: Nov 17, 2005

Page: 1

Sold To:
CONESTOGA-ROVERS & ASSOCIATES
8615 West Bryn Mahr Avenue
Chicago, IL 60631

Remit To:
FIRST ENVIRONMENTAL LABORATORIES, INC.
P.O. Box 669
Elgin IL 60121-0669

Customer ID: CRAIL

Customer PO	Payment Terms	Due Date	Sales Rep ID
	Net 30 Days	12/17/05	

Quantity	Item	Description	Unit Price	Extension
		Project ID:Braidwood Exelon Plant #16841-09		
4.00		Conventionals	108.00	432.00
4.00		Metals	330.00	1,320.00
1.00		100% Ruch Surcharge	1,752.00	1,752.00
		Total Gross....$3,504.00		
1.00		Less 25% Discount	876.00	-876.00
		First Environmental File ID:5-4120		
		THANK YOU!		

TOTAL AMOUNT DUE $ 2,628.00

First Environmental Laboratories, Inc.

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November 22, 2005

Rec'd CRA

NOV 2 8 2005

Mr. Dave Hendren
CONESTOGA-ROVERS & ASSOCIATES
8615 West Bryn Mawr Avenue,
Chicago, IL 60631

Project ID: Braidwood Exelon Plant # 16841-09
First Environmental File 5-4219
Date Received: November 21, 2005

Dear Mr. Hendren:

The above referenced project was analyzed as directed on the enclosed chain of custody record.

All analyses were performed in accordance with established methods and within established holding times. All Quality Control criteria as outlined in the methods and current IL ELAP/NELAP have been met unless otherwise noted. QA/QC documentation and raw data will remain on file for future reference. Our certificate is number 001201: 02/17/05 through 02/28/06.

I thank you for the opportunity to be of service to you and look forward to working with you again in the future. Should you have any questions regarding any of the enclosed analytical data or need additional information, please contact me at (630) 778-1200.

Sincerely,

William Mottashed
Project Manager

First Environmental Laboratories, Inc.

IL ELAP / NELAC Accreditation # 100292

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Analytical Report

Client:	CONESTOGA-ROVERS & ASSOCIATES	**Date Collected:**	11/18/05
Project ID:	Braidwood Exelon Plant # 16841-09	**Time Collected:**	10:50
Sample ID:	GW-111805-JK-BL-10	**Date Received:**	11/21/05
Sample No:	5-4219-001	**Date Reported:**	11/22/05

Analyte		Result	R.L.	Units	Flags
Total Metals	**Method: 6010B**		**Preparation Method 3010A**		
Analysis Date: 11/22/05			Preparation Date: 11/21/05		
Sodium		1.6	0.1	mg/L	
Chloride	**Method: 4500Cl, C**				
Analysis Date: 11/22/05					
Chloride		< 5	5	mg/L	

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Analytical Report

Client:	CONESTOGA-ROVERS & ASSOCIATES	**Date Collected:**	11/18/05
Project ID:	Braidwood Exelon Plant # 16841-09	**Time Collected:**	11:25
Sample ID:	GW-111805-JK-BL-11	**Date Received:**	11/21/05
Sample No:	5-4219-002	**Date Reported:**	11/22/05

Analyte		Result	R.L.	Units	Flags
Total Metals	**Method: 6010B**		**Preparation Method 3010A**		
Analysis Date: 11/22/05			Preparation Date: 11/21/05		
Sodium		2.8	0.1	mg/L	
Chloride	**Method: 4500Cl, C**				
Analysis Date: 11/22/05					
Chloride		16	5	mg/L	

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Analytical Report

Client:	CONESTOGA-ROVERS & ASSOCIATES	**Date Collected:**	11/18/05
Project ID:	Braidwood Exelon Plant # 16841-09	**Time Collected:**	11:45
Sample ID:	GW-111805-JK-BL-12	**Date Received:**	11/21/05
Sample No:	5-4219-003	**Date Reported:**	11/22/05

Analyte		Result	R.L.	Units	Flags
Total Metals	**Method: 6010B**		**Preparation Method 3010A**		
Analysis Date: 11/22/05			Preparation Date: 11/21/05		
Sodium		2.8	0.1	mg/L	
Chloride	**Method: 4500Cl, C**				
Analysis Date: 11/22/05					
Chloride		< 5	5	mg/L	

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Analytical Report

Client:	CONESTOGA-ROVERS & ASSOCIATES	**Date Collected:**	11/18/05
Project ID:	Braidwood Exelon Plant # 16841-09	**Time Collected:**	12:20
Sample ID:	GW-111805-JK-BL-13	**Date Received:**	11/21/05
Sample No:	5-4219-004	**Date Reported:**	11/22/05

Analyte		Result	R.L.	Units	Flags
Total Metals Analysis Date: 11/22/05	**Method: 6010B**		**Preparation Method 3010A** Preparation Date: 11/21/05		
Sodium		5.7	0.1	mg/L	
Chloride Analysis Date: 11/22/05	**Method: 4500Cl, C**				
Chloride		8	5	mg/L	

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Analytical Report

Client:	CONESTOGA-ROVERS & ASSOCIATES	**Date Collected:**	11/18/05
Project ID:	Braidwood Exelon Plant # 16841-09	**Time Collected:**	12:45
Sample ID:	GW-111805-JK-BL-14	**Date Received:**	11/21/05
Sample No:	5-4219-005	**Date Reported:**	11/22/05

Analyte		Result	R.L.	Units	Flags
Total Metals	**Method: 6010B**		**Preparation Method 3010A**		
Analysis Date: 11/22/05			Preparation Date: 11/21/05		
Sodium		4.3	0.1	mg/L	
Chloride	**Method: 4500Cl, C**				
Analysis Date: 11/22/05					
Chloride		< 5	5	mg/L	

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Analytical Report

Client:	CONESTOGA-ROVERS & ASSOCIATES	**Date Collected:**	11/18/05
Project ID:	Braidwood Exelon Plant # 16841-09	**Time Collected:**	13:15
Sample ID:	GW-111805-JK-BL-15	**Date Received:**	11/21/05
Sample No:	5-4219-006	**Date Reported:**	11/22/05

Analyte		Result	R.L.	Units	Flags
Total Metals	**Method: 6010B**		**Preparation Method 3010A**		
Analysis Date: 11/22/05			Preparation Date: 11/21/05		
Sodium		2.8	0.1	mg/L	
Chloride	**Method: 4500Cl, C**				
Analysis Date: 11/22/05					
Chloride		< 5	5	mg/L	

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Analytical Report

Client:	CONESTOGA-ROVERS & ASSOCIATES	**Date Collected:**	11/18/05
Project ID:	Braidwood Exelon Plant # 16841-09	**Time Collected:**	14:20
Sample ID:	GW-111805-JK-BL-16	**Date Received:**	11/21/05
Sample No:	5-4219-007	**Date Reported:**	11/22/05

Analyte		Result	R.L.	Units	Flags
Total Metals	**Method: 6010B**		**Preparation Method 3010A**		
Analysis Date: 11/22/05			Preparation Date: 11/21/05		
Sodium		2.6	0.1	mg/L	
Chloride	**Method: 4500Cl, C**				
Analysis Date: 11/22/05					
Chloride		54	5	mg/L	

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Analytical Report

Client:	CONESTOGA-ROVERS & ASSOCIATES	**Date Collected:**	11/18/05
Project ID:	Braidwood Exelon Plant # 16841-09	**Time Collected:**	14:30
Sample ID:	GW-111805-JK-BL-17	**Date Received:**	11/21/05
Sample No:	5-4219-008	**Date Reported:**	11/22/05

Analyte		Result	R.L.	Units	Flags
Total Metals	**Method: 6010B**		**Preparation Method 3010A**		
Analysis Date: 11/22/05			Preparation Date: 11/21/05		
Sodium		8.9	0.1	mg/L	
Chloride	**Method: 4500Cl, C**				
Analysis Date: 11/22/05					
Chloride		6	5	mg/L	

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Analytical Report

Client:	CONESTOGA-ROVERS & ASSOCIATES	**Date Collected:**	11/18/05
Project ID:	Braidwood Exelon Plant # 16841-09	**Time Collected:**	14:40
Sample ID:	GW-111805-JK-BL-18	**Date Received:**	11/21/05
Sample No:	5-4219-009	**Date Reported:**	11/22/05

Analyte		Result	R.L.	Units	Flags
Total Metals	**Method: 6010B**		**Preparation Method 3010A**		
Analysis Date: 11/22/05			Preparation Date: 11/21/05		
Sodium		2.6	0.1	mg/L	
Chloride	**Method: 4500Cl, C**				
Analysis Date: 11/22/05					
Chloride		< 5	5	mg/L	

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Analytical Report

Client:	CONESTOGA-ROVERS & ASSOCIATES	**Date Collected:**	11/18/05
Project ID:	Braidwood Exelon Plant # 16841-09	**Time Collected:**	14:50
Sample ID:	GW-111805-JK-BL-19	**Date Received:**	11/21/05
Sample No:	5-4219-010	**Date Reported:**	11/22/05

Analyte		Result	R.L.	Units	Flags
Total Metals	**Method: 6010B**		**Preparation Method 3010A**		
Analysis Date: 11/22/05			Preparation Date: 11/21/05		
Sodium		2.1	0.1	mg/L	
Chloride	**Method: 4500Cl, C**				
Analysis Date: 11/22/05					
Chloride		< 5	5	mg/L	

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Analytical Report

Client:	CONESTOGA-ROVERS & ASSOCIATES	**Date Collected:**	11/18/05
Project ID:	Braidwood Exelon Plant # 16841-09	**Time Collected:**	15:00
Sample ID:	GW-111805-JK-BL-20	**Date Received:**	11/21/05
Sample No:	5-4219-011	**Date Reported:**	11/22/05

Analyte		Result	R.L.	Units	Flags
Total Metals	**Method: 6010B**		**Preparation Method 3010A**		
Analysis Date: 11/22/05			Preparation Date: 11/21/05		
Sodium		2.6	0.1	mg/L	
Chloride	**Method: 4500Cl, C**				
Analysis Date: 11/22/05					
Chloride		< 5	5	mg/L	

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Analytical Report

Client:	CONESTOGA-ROVERS & ASSOCIATES	**Date Collected:**	11/18/05
Project ID:	Braidwood Exelon Plant # 16841-09	**Time Collected:**	15:10
Sample ID:	GW-111805-JK-BL-21	**Date Received:**	11/21/05
Sample No:	5-4219-012	**Date Reported:**	11/22/05

Analyte		Result	R.L.	Units	Flags
Total Metals	**Method: 6010B**		**Preparation Method 3010A**		
Analysis Date: 11/22/05			Preparation Date: 11/21/05		
Sodium		2.3	0.1	mg/L	
Chloride	**Method: 4500Cl, C**				
Analysis Date: 11/22/05					
Chloride		< 5	5	mg/L	

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Analytical Report

Client:	CONESTOGA-ROVERS & ASSOCIATES	**Date Collected:**	11/18/05
Project ID:	Braidwood Exelon Plant # 16841-09	**Time Collected:**	15:20
Sample ID:	GW-111805-JK-BL-22	**Date Received:**	11/21/05
Sample No:	5-4219-013	**Date Reported:**	11/22/05

Analyte		Result	R.L.	Units	Flags
Total Metals	**Method: 6010B**		**Preparation Method 3010A**		
Analysis Date: 11/22/05			Preparation Date: 11/21/05		
Sodium		10.8	0.1	mg/L	
Chloride	**Method: 4500Cl, C**				
Analysis Date: 11/22/05					
Chloride		< 5	5	mg/L	

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Analytical Report

Client:	CONESTOGA-ROVERS & ASSOCIATES	**Date Collected:**	11/18/05
Project ID:	Braidwood Exelon Plant # 16841-09	**Time Collected:**	15:50
Sample ID:	GW-111805-JK-BL-23	**Date Received:**	11/21/05
Sample No:	5-4219-014	**Date Reported:**	11/22/05

Analyte	Result	R.L.	Units	Flags
Total Metals Method: 6010B		**Preparation Method 3010A**		
Analysis Date: 11/22/05		Preparation Date: 11/21/05		
Sodium	2.5	0.1	mg/L	
Chloride Method: 4500Cl, C				
Analysis Date: 11/22/05				
Chloride	< 5	5	mg/L	

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Analytical Report

Client:	CONESTOGA-ROVERS & ASSOCIATES	**Date Collected:**	11/18/05
Project ID:	Braidwood Exelon Plant # 16841-09	**Time Collected:**	16:10
Sample ID:	GW-111805-JK-BL-24	**Date Received:**	11/21/05
Sample No:	5-4219-015	**Date Reported:**	11/22/05

Analyte		Result	R.L.	Units	Flags
Total Metals	**Method: 6010B**		**Preparation Method 3010A**		
Analysis Date: 11/22/05			Preparation Date: 11/21/05		
Sodium		3.3	0.1	mg/L	
Chloride	**Method: 4500Cl, C**				
Analysis Date: 11/22/05					
Chloride		6	5	mg/L	

METHOD 3010A/6010B QUALITY CONTROL DATA

Sample 5-4219-001

Client: CRA

Project ID: Braidwood Exelon Plant # 16841-09

Filename: 5-4219

Date	Element				Matrix Spike (MS)				Matrix Spike Duplicate (MSD)			Prep	Laboratory Control Standard (LCS)		
Analyzed		MS Status	MSD Status	%RPD	Org.Smp	Spk.Smp	Amt.Spkd	%REC	Spk.Smp	Amt.Spkd	%REC	Blank (PB)	True	Found	%Rec
11/22/05	Sodium	Acceptable	Out of Control	8.5	1.579	4.3640	2.5000	111.4	4.7520	2.5000	126.9	<0.1	2.5000	2.6950	107.8

QC Acceptance Ranges:

MS/MSD 75 - 125%, RPD (Relative Percent Difference) +/- 20%

LCS 80 - 120%

PB < Reporting Limit

Explaination of QC Failures

The MSD for Sodium was not within acceptable range. The MS was within acceptable range as was the LCS. No further action taken.

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Conventionals QC Data Package
Client: CRA
Project I.D.: Braidwood Exelon Plant
Sample No.: 5-4219-001-015

Analyte	Date Analyzed	Method	Calibration QC Data						
			First CCVS	Last CCVS	Acceptance Limit	First CCB		Last CCB	
			%R	%R	%	mg/L	C	mg/L	C
Chloride	11/22/05	4500Cl-C	100	100	90-110	5	U	5	U

CCVS = Continuing Calibration Verification Standard
CCB = Continuing Calibration Blank
C = Concentration
U = Undetected

Explaination of QC Failures
None

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Analyte	Method QC Data			
	PB		LCS	Acceptance Limit
	mg/L	C	%R	%
Chloride	NA		NA	NA

PB = Procedure Blank
LCS = Laboratory Control Standard
C = Concentration
U = Undetected

Explaination of QC Failures
None

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Analyte	Matrix Spike/Matrix Spike Duplicate (MS/MSD) QC Data										
					MS		MSD				
	Laboratory	Sample		Spike	Sample		Sample			Acceptance	
	Sample ID	Result		Conc.	Result		Result		RPD	Limit	
		mg/L	C	mg/L	mg/L	%R	mg/L	%R		%	RPD
Chloride	5-4219-001	5	U	100	98	98	100	100	2.0	75-125	20

RPD = Relative Percent Difference
C = Concentration
U = Undetected

Explaination of QC Failures
None

CONESTOGA-ROVERS & ASSOCIATES
8615 W. Bryn Mawr Avenue
Chicago, Illinois 60631
(773)380-9933 phone
(773)380-6421 fax

SHIPPED TO (Laboratory Name): FIRST ENVIRONMENTAL LABS

REFERENCE NUMBER: 16841-09

PROJECT NAME: BRAIDWOOD EXELON PLANT

CHAIN-OF-CUSTODY RECORD

SAMPLER'S SIGNATURE: [signature] PRINTED NAME: JEFF KOLODZIEJSKI

SEQ. No.	DATE	TIME	SAMPLE IDENTIFICATION No.	SAMPLE MATRIX	No. OF CONTAINERS	PARAMETERS: Sodium Chloride										REMARKS
	11/18/05	1020	GW-111805-JK-BL-10	WATER	2	x	x									BL-"I"-4219.001
		1125	11		2	x	x									BL-"J" 002
		1145	12		2	x	x									"K" 003
		1220	13		2	x	x									"L" 004
		1245	14		2	x	x									"M" 005
		1315	15		2	x	x									"N" 006
		1420	16		2	x	x									"A" 007
		1430	17		2	x	x									"B" 008
		1440	18		2	x	x									"C" 009
		1450	19		2	x	x									"D" 010
		1500	20		2	x	x									"E" 011
		1510	21		2	x	x									"F" 012
		1520	22		2	x	x									"G" 013
		1550	23		2	x	x									"I" 014
	↓	1610	24	↓	2	x	x									"2" 015
			TOTAL NUMBER OF CONTAINERS		30											

48 HR TAT

RELINQUISHED BY: ① [signature]	DATE: 11/21/05 TIME: 820	RECEIVED BY: ② [signature]	DATE: 11/21/05 TIME: 920
RELINQUISHED BY: ②	DATE: TIME:	RECEIVED BY: ③	DATE: TIME:
RELINQUISHED BY: ③	DATE: TIME:	RECEIVED BY: ④	DATE: TIME:

METHOD OF SHIPMENT: DROP OFF @ LAB AIR BILL No.

White	-Fully Executed Copy	SAMPLE TEAM: JEFF KOLODZIEJSKI	RECEIVED FOR LABORATORY BY:
Yellow	-Receiving Laboratory Copy		
Pink	-Shipper Copy		DATE: TIME:
Goldenrod	-Sampler Copy		

100:)URCE)GN-CO004

Temp: <6°C ice

First Environmental Laboratories, Inc.

IL ELAP / NELAC Accreditation # 100292

1600 Shore Road • Naperville, Illinois 60563 • Phone (630) 778-1200 • Fax (630) 778-1233

December 13, 2005

Mr. Dave Hendren
CONESTOGA-ROVERS & ASSOC.
8615 West Bryn Mawr Avenue
Chicago, IL 60631

Project ID: Braidwood Exelon 016841-09
First Environmental File ID: 5-4464
Date Received: December 7, 2005

Dear Mr. Hendren:

The above referenced samples were analyzed as requested.

Analyses were performed in accordance with the methods found in the USEPA publications: Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, 3rd Edition, December 1996, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, and Standard Methods for the Examination of Water and Wastewater, 20th Edition, 1998.. Specific method references are listed on the Analytical Report.

Analyses are NELAC accredited and were performed in accordance with current IL ELAP/NELAP requirements unless otherwise noted. QA/QC documentation and raw data will remain on file for future reference. Our certificate is number 001201, effective 02/17/05 through 02/28/06.

I thank you for the opportunity to be of service, and look forward to working with you again in the future. Should you have any questions, or need any additional information, please feel free to contact me at (630) 778-1200.

Sincerely,

William H. Mottashed
Project Manager

First Environmental Laboratories, Inc.

IL ELAP / NELAC Accreditation # 100292

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Case Narrative

CONESTOGA-ROVERS & ASSOCIATES

Project ID: **Braidwood Exelon # 016841-09**

First Environmental File ID: **5-4464**

Date Received: **December 07, 2005**

Definition of Flags:

DF : Dilution Factor (Sample was analyzed at this dilution to obtain the reported result.)
L : The analyte was detected as part of a GC/MS database search. The identification is considered tentative and the concentration is estimated.
N : Analyte is not part of our NELAC accreditation.
ND : Analyte was not detected.
RL : Routine Reporting Limit (Lowest amount that can be detected when routine weights/volumes are used without dilution.)
S : Analyte was sub-contracted to another laboratory for analysis.

Additional Comments:

First Environmental Laboratories, Inc.

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Analytical Report

Client:	CONESTOGA-ROVERS & ASSOCIATES	**Date Collected:**	12/07/05
Project ID:	Braidwood Exelon # 016841-09	**Time Collected:**	13:45
Sample ID:	GW-120705-JL-RW-1	**Date Received:**	12/07/05
Sample No:	5-4464-001	**Date Reported:**	12/13/05

Analyte	Result	R.L.	Units	Date Analyzed	Method	Flag
Cyanide, Total	< 0.005	0.005	mg/L	12/09/05	4500CN,C,E	
Fluoride	< 0.50	0.50	mg/L	12/08/05	4500F,C	
Nitrate + Nitrite (as N)	0.14	0.10	mg/L	12/09/05	353.2R2.0	
Color	280	20	APHA	12/08/05	2120B	N
Total Kjeldahl Nitrogen (TKN)	< 0.80	0.80	mg/L	12/13/05	SM 4500N,C	S
Oil & Grease	< 1	1	mg/L	12/09/05	1664A	
Phosphorus (as P)	0.02	0.01	mg/L	12/08/05	4500P,B,E	
Sulfide	< 0.05	0.05	mg/L	12/08/05	4500S2C,D	
Sulfate	143	15	mg/L	12/08/05	375.2R2.0	
Phenols	< 0.01	0.01	mg/L	12/09/05	420.1	
Chlorine Residual, Total	< 0.05	0.05	mg/L	12/07/05 16:45	4500Cl, G	

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Analytical Report

Client:	CONESTOGA-ROVERS & ASSOCIATES	**Date Collected:**	12/07/05
Project ID:	Braidwood Exelon # 016841-09	**Time Collected:**	13:45
Sample ID:	GW-120705-JL-RW-1	**Date Received:**	12/07/05
Sample No:	5-4464-001	**Date Reported:**	12/13/05

Analyte	Result	R.L.	Units	Flags
Total Metals **Method: 6010B**		**Preparation Method 3010A**		
Analysis Date: 12/12/05		Preparation Date: 12/12/05		
Aluminum	2.25	0.05	mg/L	
Antimony	< 0.006	0.006	mg/L	
Arsenic	0.005	0.002	mg/L	
Barium	0.062	0.001	mg/L	
Beryllium	< 0.001	0.001	mg/L	
Cadmium	< 0.001	0.001	mg/L	
Chromium	0.005	0.001	mg/L	
Cobalt	0.011	0.001	mg/L	
Copper	0.012	0.001	mg/L	
Iron	4.58	0.01	mg/L	
Lead	0.006	0.002	mg/L	
Magnesium	19.9	0.1	mg/L	
Manganese	0.279	0.001	mg/L	
Nickel	0.014	0.001	mg/L	
Selenium	< 0.002	0.002	mg/L	
Silver	< 0.001	0.001	mg/L	
Thallium	< 0.002	0.002	mg/L	
Zinc	0.053	0.005	mg/L	
Boron	0.10	0.01	mg/L	
Molybdenum	< 0.01	0.01	mg/L	
Total Metals **Method: 7470A**				
Analysis Date: 12/08/05				
Mercury	< 0.0005	0.0005	mg/L	

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Analytical Report

Client:	CONESTOGA-ROVERS & ASSOCIATES	**Date Collected:**	12/07/05
Project ID:	Braidwood Exelon # 016841-09	**Time Collected:**	14:20
Sample ID:	GW-120705-JL-RW-2	**Date Received:**	12/07/05
Sample No:	5-4464-002	**Date Reported:**	12/13/05

Analyte	Result	R.L.	Units	Date Analyzed	Method	Flag
Cyanide, Total	< 0.005	0.005	mg/L	12/09/05	4500CN,C,E	
Fluoride	< 0.50	0.50	mg/L	12/08/05	4500F,C	
Nitrate + Nitrite (as N)	1.39	0.10	mg/L	12/09/05	353.2R2.0	
Color	109	20	APHA	12/08/05	2120B	N
Total Kjeldahl Nitrogen (TKN)	< 0.80	0.80	mg/L	12/13/05	SM 4500N,C	S
Oil & Grease	< 1	1	mg/L	12/09/05	1664A	
Phosphorus (as P)	0.05	0.01	mg/L	12/08/05	4500P,B,E	
Sulfide	< 0.05	0.05	mg/L	12/08/05	4500S2C,D	
Sulfate	182	15	mg/L	12/08/05	375.2R2.0	
Phenols	< 0.01	0.01	mg/L	12/09/05	420.1	
Chlorine Residual, Total	< 0.05	0.05	mg/L	12/07/05 16:45	4500Cl, G	

First Environmental Laboratories, Inc.

IL ELAP / NELAC Accreditation # 100292

1600 Shore Road • Naperville, Illinois 60563 • Phone (630) 778-1200 • Fax (630) 778-1233

Analytical Report

Client:	CONESTOGA-ROVERS & ASSOCIATES	**Date Collected:**	12/07/05
Project ID:	Braidwood Exelon # 016841-09	**Time Collected:**	14:20
Sample ID:	GW-120705-JL-RW-2	**Date Received:**	12/07/05
Sample No:	5-4464-002	**Date Reported:**	12/13/05

Analyte	Result	R.L.	Units	Flags
Total Metals **Method: 6010B**		**Preparation Method 3010A**		
Analysis Date: 12/12/05		Preparation Date: 12/12/05		
Aluminum	0.85	0.05	mg/L	
Antimony	< 0.006	0.006	mg/L	
Arsenic	0.005	0.002	mg/L	
Barium	0.072	0.001	mg/L	
Beryllium	< 0.001	0.001	mg/L	
Cadmium	< 0.001	0.001	mg/L	
Chromium	0.001	0.001	mg/L	
Cobalt	< 0.001	0.001	mg/L	
Copper	0.002	0.001	mg/L	
Iron	0.93	0.01	mg/L	
Lead	< 0.002	0.002	mg/L	
Magnesium	17.1	0.1	mg/L	
Manganese	0.206	0.001	mg/L	
Nickel	0.004	0.001	mg/L	
Selenium	< 0.002	0.002	mg/L	
Silver	< 0.001	0.001	mg/L	
Thallium	< 0.002	0.002	mg/L	
Zinc	0.009	0.005	mg/L	
Boron	0.13	0.01	mg/L	
Molybdenum	< 0.01	0.01	mg/L	
Total Metals **Method: 7470A**				
Analysis Date: 12/08/05				
Mercury	< 0.0005	0.0005	mg/L	

2-DAY TAT

CONESTOGA-ROVERS & ASSOCIATES	SHIPPED TO (Laboratory Name): First Environmental	
8615 W. Bryn Mawr Avenue Chicago, Illinois 60631 (773)380-9933 phone (773)380-6421 fax	REFERENCE NUMBER: 016841-09	PROJECT NAME: Braidwood Exelon
CHAIN-OF-CUSTODY RECORD		

SAMPLER'S SIGNATURE: Julie Lyzwick PRINTED NAME: Julie Lyzwick

SEQ. No.	DATE	TIME	SAMPLE IDENTIFICATION No.	SAMPLE MATRIX	No. OF CONTAINERS	TAL Metals	General Chem						REMARKS
	12-7-05	13:45	~~RW-1~~ GW-120705-JL-RW-1	W	6	1	5			5-4464-001			Discuss with
	12-7-05	14:30	~~RW-2~~ GW-120705-JL-RW-2	W	6	1	5			5-4464-002			Dave Hendron
TOTAL NUMBER OF CONTAINERS													

RELINQUISHED BY:	DATE / TIME	RECEIVED BY:	DATE / TIME
① Julie Lyzwick	DATE: 12-7-05 TIME: 16:00	② [signature]	DATE: 12/7/05 TIME: 16:00
②	DATE: TIME:	③	DATE: TIME:
③	DATE: TIME:	④	DATE: TIME:

METHOD OF SHIPMENT: AIR BILL No.

	SAMPLE TEAM:	RECEIVED FOR LABORATORY BY:
White -Fully Executed Copy Yellow -Receiving Laboratory Copy Pink -Shipper Copy Goldenrod -Sampler Copy		13337 DATE: TIME:

1001-00(SOURCE)GN-CO004

Temp: 6°C No ice

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DEC 23 2005

CASE NARRATIVE

December 20, 2005

Mr. Dave Hendren
CONESTOGA-ROVERS& ASSOCIATES
8615 West Bryn Mawr Avenue
Chicago IL 60631

Project I.D.: Braidwood Exelon 016841-09
First Environmental File ID: 5-4464
Date Received : December 7th, 2005

The following data package includes the supporting quality control information for the above referenced project.

Analytical Methods Reference Document: Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods, SW-846, 3rd Edition, December 1996 and it's updates, and Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Revised March 1983.

Analyses are NELAC accredited and were performed in accordance with current IL ELAP/NELAP requirements unless otherwise noted. QA/QC documentation and raw data will remain on file for future reference. Our certificate is number 001201, effective 02/17/05 through 02/28/06.

Metals Analysis

All analyses were performed within established holding times, and all quality control criteria, as outlined in the methods, have been met except as noted here or noted on the submitted QC forms.

MS/MSD percent recoveries were biased high for barium, ;magnesium, manganese and zinc. The LCS was acceptable, therefore, no further action was taken.

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CASE NARRATIVE

Conventionals Analysis

All analyses were performed within established holding times, and all quality control criteria, as outlined in the methods, have been met except as noted here or noted on the submitted QC forms.

Project Manager: Bill Mottashed

Reviewed By: L. Franklin
Lorrie Franklin (QA)

Date: 12/20/05

METHOD 3010A/6010P .ITY CONTROL DATA

Sample 5-44[illegible]02

Client: CRA

Project ID: Braidwood Exelon # 016841-09

Filename: 5-4464

Date Analyzed	Element	MS Status	MSD Status	%RPD	Matrix Spike (MS) Org.Smp	Spk.Smp	Amt.Spkd	%REC	Matrix Spike Duplicate (MSD) Spk.Smp	Amt.Spkd	%REC	Prep Blank (PB)	Laboratory Control Standard (LCS) True	Found	%Rec
12/12/05	Aluminum	Acceptable	Acceptable	0.5	0.849	10.1170	10.0000	92.7	10.0618	10.0000	92.1	<0.05	10.0000	9.1438	91.4
12/12/05	Antimony	Acceptable	Acceptable	0.5	<0.01	0.1044	0.1000	104.4	0.1050	0.1000	105.0	<0.01	0.1000	0.1020	102.0
12/12/05	Arsenic	Acceptable	Acceptable	1.7	0.005	0.1113	0.1000	106.0	0.1094	0.1000	104.2	<0.002	0.1000	0.1018	101.8
12/12/05	Barium	Out of Control	Out of Control	1.8	0.072	0.2182	0.1000	146.1	0.2221	0.1000	150.0	<0.001	0.1000	0.0942	94.2
12/12/05	Beryllium	Acceptable	Acceptable	0.6	<0.001	0.1039	0.1000	103.9	0.1033	0.1000	103.3	<0.001	0.1000	0.1035	103.5
12/12/05	Cadmium	Acceptable	Acceptable	0.7	<0.001	0.1055	0.1000	105.5	0.1048	0.1000	104.8	<0.001	0.1000	0.1042	104.2
12/12/05	Chromium	Acceptable	Acceptable	0.9	0.001	0.1073	0.1000	105.9	0.1083	0.1000	106.8	<0.001	0.1000	0.1025	102.5
12/12/05	Cobalt	Acceptable	Acceptable	0.3	0.001	0.1057	0.1000	105.7	0.1053	0.1000	105.3	<0.001	0.1000	0.1038	103.8
12/12/05	Copper	Acceptable	Acceptable	0.1	0.002	0.1068	0.1000	104.9	0.1066	0.1000	104.8	0.001	0.1000	0.1017	101.7
12/12/05	Iron High	Acceptable	Acceptable	0.1	0.929	4.7450	4.0000	95.4	4.7412	4.0000	95.3	<0.01	4.0000	3.8585	96.5
12/12/05	Iron Low	Acceptable	Acceptable	0.0	0.929	4.6717	4.0000	93.6	4.6720	4.0000	93.6	<0.01	4.0000	3.7630	94.1
12/12/05	Lead	Acceptable	Acceptable	0.5	0.002	0.1059	0.1000	105.9	0.1054	0.1000	105.4	<0.002	0.1000	0.1028	102.8
12/12/05	Magnesium	Out of Control	Out of Control	2.7	17.067	40.6203	10.0000	235.5	41.7312	10.0000	246.6	<0.1	10.0000	9.7029	97.0
12/12/05	Manganese	Out of Control	Out of Control	2.6	0.206	0.4600	0.1000	253.6	0.4722	0.1000	265.8	<0.001	0.1000	0.1033	103.3
12/12/05	Nickel	Acceptable	Out of Control	5.1	0.003	0.1233	0.1000	119.9	0.1297	0.1000	126.3	<0.001	0.1000	0.1034	103.4
12/12/05	Selenium	Acceptable	Acceptable	0.1	<0.002	0.1058	0.1000	105.8	0.1056	0.1000	105.6	<0.002	0.1000	0.1032	103.2
12/12/05	Silver	Acceptable	Acceptable	0.3	<0.001	0.1012	0.1000	101.2	0.1008	0.1000	100.8	<0.001	0.1000	0.0940	94.0
12/12/05	Thallium	Acceptable	Acceptable	1.7	<0.01	0.0949	0.1000	94.9	0.0965	0.1000	96.5	<0.01	0.1000	0.0959	95.9
12/12/05	Vanadium	Acceptable	Acceptable	0.6	<0.01	0.1052	0.1000	105.2	0.1045	0.1000	104.5	<0.01	0.1000	0.1011	101.1
12/12/05	Zinc	Out of Control	Out of Control	10.2	0.009	0.1822	0.1000	172.8	0.2018	0.1000	192.5	0.005	0.1000	0.1108	110.8

QC Acceptance Ranges:

MS/MSD 75 - 125%, RPD (Relative Percent Difference) +/- 20%

LCS 80 - 120%

PB < Reporting Limit

Explaination of QC Failures

MS/MSD for Barium, Magnesium, Manganes and Zinc are not within acceptable range. The sample must have interferences present that are causing a high bias. The LCS was in control, no further action taken.

First Environmental Laboratories, Inc.

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Conventionals QC Data Package
Client: CRA
Project I.D.: Braidwood Exelon
Sample No.: 5-4464-001-002

Analyte	Date Analyzed	Method	Calibration QC Data						
			First CCVS	Last CCVS	Acceptance Limit	First CCB		Last CCB	
			%R	%R	%	mg/L	C	mg/L	C
Cyanide	12/09/05	4500CN,C,E	98.0	100.8	90-110	0.005	U	0.005	U
Chlorine	12/07/05	4500Cl, G	99.3	99.3	90-110	0.05	U	0.05	U
Color	12/08/05	2120B	100.2	100.2	90-110	20	U	20	U
Fluoride	12/08/05	4500F, C	102.4	100.0	90-110	0.50	U	0.50	U
Nitrate	12/09/05	353.2 R.2.0	99.3	97.4	90-110	0.10	U	0.10	U
Phenols	12/09/05	420.1	103.8	105.5	90-110	0.01	U	0.01	U
Sulfate	12/08/05	375.2 R.2.0	98.8	108.7	90-110	15	U	15	U
Sulfide	12/08/05	4500S2,C,D	95.4	95.9	90-110	0.05	U	0.05	U
Phosphorus	12/08/05	4500P, B, E	99.1	100.5	90-110	0.01	U	0.01	U

CCVS = Continuing Calibration Verification Standard
CCB = Continuing Calibration Blank
C = Concentration
U = Undetected

<u>Explaination of QC Failures</u>
None

First Environmental Laboratories, Inc.

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Analyte	Method QC Data			
	PB		LCS	Acceptance Limit
	mg/L	C	%R	%
Cyanide	0.005	U	92.2	80-120
Chlorine	NA		NA	NA
Color	NA		NA	NA
Fluoride	NA		NA	NA
Nitrate	NA		NA	NA
Phenols	0.01	U	105.0	80-120
Sulfate	NA		NA	NA
Sulfide	NA		NA	NA
Phosphorus	0.01	U	105.1	80-120

PB = Procedure Blank
LCS = Laboratory Control Standard
C = Concentration
U = Undetected

Explaination of QC Failures
None

First Environmental Laboratories, Inc.

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Analyte	Matrix Spike/Matrix Spike Duplicate (MS/MSD) QC Data										
					MS		MSD				
	Laboratory	Sample		Spike	Sample		Sample			Acceptance	
	Sample ID	Result		Conc.	Result		Result		RPD	Limit	
		mg/L	C	mg/L	mg/L	%R	mg/L	%R		%	RPD
Cyanide	5-4464-001	0.005	U	0.200	0.173	86.6	0.176	88.3	1.7	75-125	20
Chlorine	5-4464-001	0.05	U	0.251	0.275	109.2	0.282	112.1	2.6	75-125	20
Color	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA
Fluoride	5-4436-003	1.14		2.00	3.28	107.0	3.27	106.5	0.3	75-125	20
Nitrate	5-4464-001	0.14		1.00	0.96	82.3	1.00	86.2	4.0	75-125	20
Phenols	5-4484-002	0.01	U	0.200	0.215	107.4	0.209	104.4	2.8	75-125	20
Sulfate	5-4430-005	17.1		20.0	38.2	105.5	37.9	103.8	0.9	75-125	20
Sulfide	5-4464-001	0.05	U	0.200	0.192	95.9	0.189	94.5	1.6	75-125	20
Phosphorus	5-4395-002	0.01	U	0.500	0.517	103.4	0.511	102.3	1.2	75-125	20

RPD = Relative Percent Difference
C = Concentration
U = Undetected

Explaination of QC Failures
None

Conventionals QC Data Package
Client: CRA
Project I.D.: 016841-09
Sample No.: 5-4464-001-2

Analyte	Date Analyzed	Method	Method QC Data			
			PB		LCS	Acceptance Limit
			mg/L	C	%R	%
O & G	12/09/05	1664A	<1	U	95.0	78-114

PB = Procedure Blank
LCS = Laboratory Control Sample
C = Concentration
U = Undetected

Explanation of QC Failures
None

Analyte	Matrix Spike/Matrix Spike Duplicate (MS/MSD) QC Data										
					MS		MSD				
	Laboratory	Sample		Spike	Sample		Sample			Acceptance	
	Sample ID	Result		Conc.	Result		Result		RPD	Limit	
		mg/L	C	mg/L	mg/L	%R	mg/L	%R		%	RPD
O & G										78-114	18

RPD = Relative Percent Difference
C = Concentration
U = Undetected

Explanation of QC Failures
Insufficient sample volume for MS/MSD analysis

First Environmental Laboratories, Inc.

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December 27, 2005

RECEIVED
JAN 03 2006
CRA INC.
CHICAGO

Ms. Julie Luzwick
CONESTOGA-ROVERS & ASSOCIATES
8615 West Bryn Mawr Avenue
Chicago, IL 60631

Project ID: Braidwood Exelon # 016841-09
First Environmental File ID: 5-4609
Date Received: December 19, 2005

Dear Ms. Julie Luzwick:

The above referenced project was analyzed as directed on the enclosed chain of custody record.

All analyses were performed in accordance with established methods and within established holding times. All Quality Control criteria as outlined in the methods and current IL ELAP/NELAP have been met unless otherwise noted. QA/QC documentation and raw data will remain on file for future reference. Our certificate is number 001201: 02/17/05 through 02/28/06.

I thank you for the opportunity to be of service to you and look forward to working with you again in the future. Should you have any questions regarding any of the enclosed analytical data or need additional information, please contact me at (630) 778-1200.

Sincerely,

Stan Zaworski
Project Manager

First Environmental Laboratories, Inc.

IL ELAP / NELAC Accreditation # 100292

1600 Shore Road • Naperville, Illinois 60563 • Phone (630) 778-1200 • Fax (630) 778-1233

Analytical Report

Client:	CONESTOGA-ROVERS & ASSOCIATES	**Date Collected:**	12/16/05
Project ID:	Braidwood Exelon # 016841-09	**Time Collected:**	8:50
Sample ID:	GW-121605-RG-MW-105D	**Date Received:**	12/19/05
Sample No:	5-4609-001	**Date Reported:**	12/27/05

Analyte		Result	R.L.	Units	Flags
Chloride	**Method: 4500Cl, E**				
Analysis Date: 12/20/05					
Chloride		5	5	mg/L	
Total Metals	**Method: 6010B**		**Preparation Method 3010A**		
Analysis Date: 12/23/05			Preparation Date: 12/20/05		
Sodium		2.6	0.1	mg/L	

First Environmental Laboratories, Inc.

IL ELAP / NELAC Accreditation # 100292

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Analytical Report

Client:	CONESTOGA-ROVERS & ASSOCIATES	**Date Collected:**	12/16/05
Project ID:	Braidwood Exelon # 016841-09	**Time Collected:**	9:18
Sample ID:	GW-121605-RG-BL-15D	**Date Received:**	12/19/05
Sample No:	5-4609-002	**Date Reported:**	12/27/05

Analyte		Result	R.L.	Units	Flags
Chloride	**Method: 4500Cl, E**				
Analysis Date: 12/20/05					
Chloride		< 5	5	mg/L	
Total Metals	**Method: 6010B**		**Preparation Method 3010A**		
Analysis Date: 12/23/05			Preparation Date: 12/20/05		
Sodium		3.0	0.1	mg/L	

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Analytical Report

Client:	CONESTOGA-ROVERS & ASSOCIATES	**Date Collected:**	12/16/05
Project ID:	Braidwood Exelon # 016841-09	**Time Collected:**	9:53
Sample ID:	GW-121605-RG-BL-16D	**Date Received:**	12/19/05
Sample No:	5-4609-003	**Date Reported:**	12/27/05

Analyte	Result	R.L.	Units	Flags
Chloride **Method: 4500Cl, E**				
Analysis Date: 12/20/05				
Chloride	< 5	5	mg/L	
Total Metals **Method: 6010B** **Preparation Method 3010A**				
Analysis Date: 12/23/05 Preparation Date: 12/20/05				
Sodium	2.4	0.1	mg/L	

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Analytical Report

Client:	CONESTOGA-ROVERS & ASSOCIATES	**Date Collected:**	12/16/05
Project ID:	Braidwood Exelon # 016841-09	**Time Collected:**	16:15
Sample ID:	GW-121605-RG-VB1-1D	**Date Received:**	12/19/05
Sample No:	5-4609-004	**Date Reported:**	12/27/05

Analyte		Result	R.L.	Units	Flags
Chloride	**Method: 4500Cl, E**				
Analysis Date: 12/20/05					
Chloride		50	5	mg/L	
Total Metals	**Method: 6010B**		**Preparation Method 3010A**		
Analysis Date: 12/23/05			Preparation Date: 12/20/05		
Sodium		27.7	0.1	mg/L	

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Analytical Report

Client:	CONESTOGA-ROVERS & ASSOCIATES	**Date Collected:**	12/13/05
Project ID:	Braidwood Exelon # 016841-09	**Time Collected:**	9:05
Sample ID:	GW-121305-BL-17D	**Date Received:**	12/19/05
Sample No:	5-4609-005	**Date Reported:**	12/27/05

Analyte		Result	R.L.	Units	Flags
Chloride	**Method: 4500Cl, E**				
Analysis Date: 12/20/05					
Chloride		< 5	5	mg/L	
Total Metals	**Method: 6010B**		**Preparation Method 3010A**		
Analysis Date: 12/23/05			Preparation Date: 12/20/05		
Sodium		3.5	0.1	mg/L	

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Analytical Report

Client:	CONESTOGA-ROVERS & ASSOCIATES	**Date Collected:**	12/15/05
Project ID:	Braidwood Exelon # 016841-09	**Time Collected:**	12:53
Sample ID:	GW-121505-JS-BL10D	**Date Received:**	12/19/05
Sample No:	5-4609-006	**Date Reported:**	12/27/05

Analyte		Result	R.L.	Units	Flags
Chloride	**Method: 4500Cl, E**				
Analysis Date: 12/20/05					
Chloride		26	5	mg/L	
Total Metals	**Method: 6010B**		**Preparation Method 3010A**		
Analysis Date: 12/23/05			Preparation Date: 12/20/05		
Sodium		22.6	0.1	mg/L	

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Analytical Report

Client:	CONESTOGA-ROVERS & ASSOCIATES	**Date Collected:**	12/15/05
Project ID:	Braidwood Exelon # 016841-09	**Time Collected:**	14:37
Sample ID:	GW-121505-JS-BL11D	**Date Received:**	12/19/05
Sample No:	5-4609-007	**Date Reported:**	12/27/05

Analyte		Result	R.L.	Units	Flags
Chloride	**Method: 4500Cl, E**				
Analysis Date: 12/20/05					
Chloride		6	5	mg/L	
Total Metals	**Method: 6010B**		**Preparation Method 3010A**		
Analysis Date: 12/23/05			Preparation Date: 12/20/05		
Sodium		4.7	0.1	mg/L	

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Analytical Report

Client:	CONESTOGA-ROVERS & ASSOCIATES	**Date Collected:**	12/15/05
Project ID:	Braidwood Exelon # 016841-09	**Time Collected:**	15:32
Sample ID:	GW-121505-JS-BL12D	**Date Received:**	12/19/05
Sample No:	5-4609-008	**Date Reported:**	12/27/05

Analyte		Result	R.L.	Units	Flags
Chloride	**Method: 4500Cl, E**				
Analysis Date: 12/20/05					
Chloride		5	5	mg/L	
Total Metals	**Method: 6010B**		**Preparation Method 3010A**		
Analysis Date: 12/23/05			Preparation Date: 12/20/05		
Sodium		3.5	0.1	mg/L	

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Analytical Report

Client:	CONESTOGA-ROVERS & ASSOCIATES	**Date Collected:**	12/15/05
Project ID:	Braidwood Exelon # 016841-09	**Time Collected:**	16:05
Sample ID:	GW-121505-JS-BL13D	**Date Received:**	12/19/05
Sample No:	5-4609-009	**Date Reported:**	12/27/05

Analyte		Result	R.L.	Units	Flags
Chloride	**Method: 4500Cl, E**				
Analysis Date: 12/20/05					
Chloride		< 5	5	mg/L	
Total Metals	**Method: 6010B**		**Preparation Method 3010A**		
Analysis Date: 12/23/05			Preparation Date: 12/20/05		
Sodium		2.8	0.1	mg/L	

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Analytical Report

Client:	CONESTOGA-ROVERS & ASSOCIATES	**Date Collected:**	12/15/05
Project ID:	Braidwood Exelon # 016841-09	**Time Collected:**	16:42
Sample ID:	GW-121505-JS-BL14D	**Date Received:**	12/19/05
Sample No:	5-4609-010	**Date Reported:**	12/27/05

Analyte		Result	R.L.	Units	Flags
Chloride	**Method: 4500Cl, E**				
Analysis Date: 12/20/05					
Chloride		5	5	mg/L	
Total Metals	**Method: 6010B**		**Preparation Method 3010A**		
Analysis Date: 12/23/05			Preparation Date: 12/20/05		
Sodium		3.0	0.1	mg/L	

STANDARD TAT

CONESTOGA-ROVERS & ASSOCIATES
8615 W. Bryn Mawr Avenue
Chicago, Illinois 60631
(773)380-9933 phone
(773)380-6421 fax

SHIPPED TO (Laboratory Name): First Environmental

REFERENCE NUMBER: 016841-09

PROJECT NAME: Braidwood Exelon

CHAIN-OF-CUSTODY RECORD

SAMPLER'S SIGNATURE: Rachel Greenfield **PRINTED NAME:** Rachel Greenfield

SEQ. No.	DATE	TIME	SAMPLE IDENTIFICATION No.	SAMPLE MATRIX	No. OF CONTAINERS	PARAMETERS: Inorganic Pesticides									REMARKS
	12/16/05	8:50	GW-121605-RG-MW-105D	Water	2	X	X								5-4609-001
		9:18	GW-121605-RG-BL-15D		2	X	X								002
		4:55	GW-121605-RG-BL-16D		2	X	X								003
		16:15	GW-121605-RG-VB1-1D		2	X	X								004
TOTAL NUMBER OF CONTAINERS					6										

RELINQUISHED BY: ① Rachel Greenfield	DATE: 12-19-05 TIME: 8:00	RECEIVED BY: ② Helen Monroe	DATE: 12/19/05 TIME: 12:00
RELINQUISHED BY: ②	DATE: TIME:	RECEIVED BY: ③	DATE: TIME:
RELINQUISHED BY: ③	DATE: TIME:	RECEIVED BY: ④	DATE: TIME:

METHOD OF SHIPMENT: Hand Delivery **AIR BILL No.**

White -Fully Executed Copy
Yellow -Receiving Laboratory Copy
Pink -Shipper Copy
Goldenrod -Sampler Copy

SAMPLE TEAM: Rachel Greenfield

RECEIVED FOR LABORATORY BY: Helen Monroe
DATE: 12/19/05 TIME: 1200

1001-F URCE)GN-CO004

<6°C on ice

STANDARD TAT

CONESTOGA-ROVERS & ASSOCIATES
8615 W. Bryn Mawr Avenue
Chicago, Illinois 60631
(773)380-9933 phone
(773)380-6421 fax

CHAIN-OF-CUSTODY RECORD

SHIPPED TO (Laboratory Name): First Environmental

REFERENCE NUMBER: 016841-09

PROJECT NAME: Broadway Center

SAMPLER'S SIGNATURE: Julie Luzwick PRINTED NAME: Julie Luzwick

SEQ. No.	DATE	TIME	SAMPLE IDENTIFICATION No.	SAMPLE MATRIX	No. OF CONTAINERS	Sulfide	Chloride	REMARKS
	12/14/05	9:05	GW-121305-BL-17D	W	2	1	1	[illegible]
	12/15/05	12:55	GW-121505-JS-BL10D		2	1	1	006
		14:37	BL11D		2	1	1	007
		15:32	BL12D		2	1	1	008
		16:05	BL13D		2	1	1	009
		16:42	BL14D		2	1	1	010
TOTAL NUMBER OF CONTAINERS					12			

RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:	DATE:	TIME:
① Julie Luzwick	12-14-05	8:00	② [illegible]	12/15/05	1300
②			③		
③			④		

METHOD OF SHIPMENT: AIR BILL No.

White	-Fully Executed Copy	SAMPLE TEAM: J. SCHUMER	RECEIVED FOR LABORATORY BY: [illegible]
Yellow	-Receiving Laboratory Copy	J. LUZWICK	DATE: 12/15/05 TIME: 1300
Pink	-Shipper Copy		
Goldenrod	-Sampler Copy		

1001 URCE)GN-CO004

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January 04, 2006

Ms. Julie Luzwick
CONESTOGA-ROVERS & ASSOCIATES
8615 West Bryn Mawr Avenue,
Chicago, IL 60631

Project ID: 16841-09 Braidwood Exelon
First Environmental File ID: 6-0018
Date Received: December 27, 2005

Dear Ms. Julie Luzwick:

The above referenced project was analyzed as directed on the enclosed chain of custody record.

All analyses were performed in accordance with established methods and within established holding times. All Quality Control criteria as outlined in the methods and current IL ELAP/NELAP have been met unless otherwise noted. QA/QC documentation and raw data will remain on file for future reference. Our certificate is number 001201: 02/17/05 through 02/28/06.

I thank you for the opportunity to be of service to you and look forward to working with you again in the future. Should you have any questions regarding any of the enclosed analytical data or need additional information, please contact me at (630) 778-1200.

Sincerely,

William Mottashed
Project Manager

First Environmental Laboratories, Inc.

IL ELAP / NELAC Accreditation # 100292

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Analytical Report

Client:	CONESTOGA-ROVERS & ASSOCIATES	**Date Collected:**	12/19/05
Project ID:	16841-09 Braidwood Exelon	**Time Collected:**	10:15
Sample ID:	GW-121905-MB-VB-1	**Date Received:**	12/27/05
Sample No:	6-0018-001	**Date Reported:**	01/04/06

Analyte		Result	R.L.	Units	Flags
Chloride	**Method: 325.2**				
Analysis Date: 12/29/05					
Chloride		18	5	mg/L	
Total Metals	**Method: 6010B**		**Preparation Method 3010A**		
Analysis Date: 01/03/06			Preparation Date: 12/28/05		
Sodium		10.4	0.1	mg/L	

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Analytical Report

Client:	CONESTOGA-ROVERS & ASSOCIATES	**Date Collected:**	12/20/05
Project ID:	16841-09 Braidwood Exelon	**Time Collected:**	12:25
Sample ID:	GW-122005-JL-VB6-1	**Date Received:**	12/27/05
Sample No:	6-0018-002	**Date Reported:**	01/04/06

Analyte		Result	R.L.	Units	Flags
Chloride	**Method: 325.2**				
Analysis Date: 12/29/05					
Chloride		12	5	mg/L	
Total Metals	**Method: 6010B**		**Preparation Method 3010A**		
Analysis Date: 01/03/06			Preparation Date: 12/28/05		
Sodium		7.0	0.1	mg/L	

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Analytical Report

Client:	CONESTOGA-ROVERS & ASSOCIATES	**Date Collected:**	12/20/05
Project ID:	16841-09 Braidwood Exelon	**Time Collected:**	14:00
Sample ID:	GW-122005-JL-VB6-1D	**Date Received:**	12/27/05
Sample No:	6-0018-003	**Date Reported:**	01/04/06

Analyte		Result	R.L.	Units	Flags
Chloride	**Method: 325.2**				
Analysis Date: 12/29/05					
Chloride		17	5	mg/L	
Total Metals	**Method: 6010B**		**Preparation Method 3010A**		
Analysis Date: 01/03/06			Preparation Date: 12/28/05		
Sodium		12.7	0.1	mg/L	

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Analytical Report

Client:	CONESTOGA-ROVERS & ASSOCIATES	**Date Collected:**	12/20/05
Project ID:	16841-09 Braidwood Exelon	**Time Collected:**	14:40
Sample ID:	GW-122005-JL-VB7-1	**Date Received:**	12/27/05
Sample No:	6-0018-004	**Date Reported:**	01/04/06

Analyte		Result	R.L.	Units	Flags
Chloride	**Method: 325.2**				
Analysis Date: 12/29/05					
Chloride		59	5	mg/L	
Total Metals	**Method: 6010B**		**Preparation Method 3010A**		
Analysis Date: 01/03/06			Preparation Date: 12/28/05		
Sodium		33.9	0.1	mg/L	

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Analytical Report

Client:	CONESTOGA-ROVERS & ASSOCIATES	**Date Collected:**	12/20/05
Project ID:	16841-09 Braidwood Exelon	**Time Collected:**	15:40
Sample ID:	GW-122005-JL-VB8-1	**Date Received:**	12/27/05
Sample No:	6-0018-005	**Date Reported:**	01/04/06

Analyte		Result	R.L.	Units	Flags
Chloride	**Method: 325.2**				
Analysis Date: 12/29/05					
Chloride		11	5	mg/L	
Total Metals	**Method: 6010B**		**Preparation Method 3010A**		
Analysis Date: 01/03/06			Preparation Date: 12/28/05		
Sodium		5.5	0.1	mg/L	

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Analytical Report

Client:	CONESTOGA-ROVERS & ASSOCIATES	**Date Collected:**	12/20/05
Project ID:	16841-09 Braidwood Exelon	**Time Collected:**	16:25
Sample ID:	GW-122005-JL-VB8-1D	**Date Received:**	12/27/05
Sample No:	6-0018-006	**Date Reported:**	01/04/06

Analyte		Result	R.L.	Units	Flags
Chloride	**Method: 325.2**				
Analysis Date: 12/29/05					
Chloride		25	5	mg/L	
Total Metals	**Method: 6010B**		**Preparation Method 3010A**		
Analysis Date: 01/03/06			Preparation Date: 12/28/05		
Sodium		13.2	0.1	mg/L	

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Analytical Report

Client:	CONESTOGA-ROVERS & ASSOCIATES	**Date Collected:**	12/22/05
Project ID:	16841-09 Braidwood Exelon	**Time Collected:**	8:50
Sample ID:	GW-122205-JL-VB4-1A	**Date Received:**	12/27/05
Sample No:	6-0018-007	**Date Reported:**	01/04/06

Analyte		Result	R.L.	Units	Flags
Chloride	**Method: 325.2**				
Analysis Date: 12/29/05					
Chloride		19	5	mg/L	
Total Metals	**Method: 6010B**		**Preparation Method 3010A**		
Analysis Date: 01/03/06			Preparation Date: 12/28/05		
Sodium		12.3	0.1	mg/L	

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Analytical Report

Client:	CONESTOGA-ROVERS & ASSOCIATES	**Date Collected:**	12/22/05
Project ID:	16841-09 Braidwood Exelon	**Time Collected:**	9:40
Sample ID:	GW-122205-JL-VB5-1	**Date Received:**	12/27/05
Sample No:	6-0018-008	**Date Reported:**	01/04/06

Analyte		Result	R.L.	Units	Flags
Chloride	**Method: 325.2**				
Analysis Date: 12/29/05					
Chloride		6	5	mg/L	
Total Metals	**Method: 6010B**		**Preparation Method 3010A**		
Analysis Date: 01/03/06			Preparation Date: 12/28/05		
Sodium		7.7	0.1	mg/L	

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Analytical Report

Client:	CONESTOGA-ROVERS & ASSOCIATES	**Date Collected:**	12/22/05
Project ID:	16841-09 Braidwood Exelon	**Time Collected:**	10:20
Sample ID:	GW-122205-JL-VB5-1D	**Date Received:**	12/27/05
Sample No:	6-0018-009	**Date Reported:**	01/04/06

Analyte		Result	R.L.	Units	Flags
Chloride	**Method: 325.2**				
Analysis Date: 12/29/05					
Chloride		16	5	mg/L	
Total Metals	**Method: 6010B**		**Preparation Method 3010A**		
Analysis Date: 01/03/06			Preparation Date: 12/28/05		
Sodium		14.9	0.1	mg/L	

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Analytical Report

Client:	CONESTOGA-ROVERS & ASSOCIATES	**Date Collected:**	12/22/05
Project ID:	16841-09 Braidwood Exelon	**Time Collected:**	16:00
Sample ID:	GW-122205-JL-VB7-1D	**Date Received:**	12/27/05
Sample No:	6-0018-010	**Date Reported:**	01/04/06

Analyte		Result	R.L.	Units	Flags
Chloride	**Method: 325.2**				
Analysis Date: 12/29/05					
Chloride		33	5	mg/L	
Total Metals	**Method: 6010B**		**Preparation Method 3010A**		
Analysis Date: 01/03/06			Preparation Date: 12/28/05		
Sodium		34.5	0.1	mg/L	

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Analytical Report

Client:	CONESTOGA-ROVERS & ASSOCIATES	**Date Collected:**	12/22/05
Project ID:	16841-09 Braidwood Exelon	**Time Collected:**	14:15
Sample ID:	GW-122205-JL-VB9-1	**Date Received:**	12/27/05
Sample No:	6-0018-011	**Date Reported:**	01/04/06

Analyte		Result	R.L.	Units	Flags
Chloride	**Method: 325.2**				
Analysis Date: 12/29/05					
Chloride		26	5	mg/L	
Total Metals	**Method: 6010B**		**Preparation Method 3010A**		
Analysis Date: 01/03/06			Preparation Date: 12/28/05		
Sodium		6.9	0.1	mg/L	

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Analytical Report

Client:	CONESTOGA-ROVERS & ASSOCIATES	**Date Collected:**	12/22/05
Project ID:	16841-09 Braidwood Exelon	**Time Collected:**	14:40
Sample ID:	GW-122205-JL-VB9-1D	**Date Received:**	12/27/05
Sample No:	6-0018-012	**Date Reported:**	01/04/06

Analyte		Result	R.L.	Units	Flags
Chloride	**Method: 325.2**				
Analysis Date: 12/29/05					
Chloride		16	5	mg/L	
Total Metals	**Method: 6010B**		**Preparation Method 3010A**		
Analysis Date: 01/03/06			Preparation Date: 12/27/05		
Sodium		11.4	0.1	mg/L	

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Analytical Report

Client:	CONESTOGA-ROVERS & ASSOCIATES	**Date Collected:**	12/22/05
Project ID:	16841-09 Braidwood Exelon	**Time Collected:**	15:20
Sample ID:	GW-122205-JL-VB10-1	**Date Received:**	12/27/05
Sample No:	6-0018-013	**Date Reported:**	01/04/06

Analyte		Result	R.L.	Units	Flags
Chloride	**Method: 325.2**				
Analysis Date: 12/29/05					
Chloride		38	5	mg/L	
Total Metals	**Method: 6010B**		**Preparation Method 3010A**		
Analysis Date: 01/03/06			Preparation Date: 12/27/05		
Sodium		14.8	0.1	mg/L	

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Analytical Report

Client:	CONESTOGA-ROVERS & ASSOCIATES	**Date Collected:**	12/22/05
Project ID:	16841-09 Braidwood Exelon	**Time Collected:**	15:35
Sample ID:	GW-122205-JL-VB10-1D	**Date Received:**	12/27/05
Sample No:	6-0018-014	**Date Reported:**	01/04/06

Analyte		Result	R.L.	Units	Flags
Chloride	**Method: 325.2**				
Analysis Date: 12/29/05					
Chloride		23	5	mg/L	
Total Metals	**Method: 6010B**		**Preparation Method 3010A**		
Analysis Date: 01/03/06			Preparation Date: 12/27/05		
Sodium		19.1	0.1	mg/L	

First Environmental Laboratories, Inc.

IL ELAP / NELAC Accreditation # 100292

1600 Shore Road • Naperville, Illinois 60563 • Phone (630) 778-1200 • Fax (630) 778-1233

Analytical Report

Client:	CONESTOGA-ROVERS & ASSOCIATES	**Date Collected:**	12/23/05
Project ID:	16841-09 Braidwood Exelon	**Time Collected:**	9:00
Sample ID:	GW-122305-JL-VB11-1D	**Date Received:**	12/27/05
Sample No:	6-0018-015	**Date Reported:**	01/04/06

Analyte		Result	R.L.	Units	Flags
Chloride	**Method: 325.2**				
Analysis Date: 12/29/05					
Chloride		17	5	mg/L	
Total Metals	**Method: 6010B**		**Preparation Method 3010A**		
Analysis Date: 01/03/06			Preparation Date: 12/27/05		
Sodium		14.2	0.1	mg/L	

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Analytical Report

Client:	CONESTOGA-ROVERS & ASSOCIATES	**Date Collected:**	12/23/05
Project ID:	16841-09 Braidwood Exelon	**Time Collected:**	9:30
Sample ID:	GW-122305-JL-VB7-3	**Date Received:**	12/27/05
Sample No:	6-0018-016	**Date Reported:**	01/04/06

Analyte		Result	R.L.	Units	Flags
Chloride	**Method: 325.2**				
Analysis Date: 12/29/05					
Chloride		40	5	mg/L	
Total Metals	**Method: 6010B**		**Preparation Method 3010A**		
Analysis Date: 01/03/06			Preparation Date: 12/27/05		
Sodium		24.4	0.1	mg/L	

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Analytical Report

Client:	CONESTOGA-ROVERS & ASSOCIATES	**Date Collected:**	12/23/05
Project ID:	16841-09 Braidwood Exelon	**Time Collected:**	9:30
Sample ID:	GW-122305-JL-VB7-4	**Date Received:**	12/27/05
Sample No:	6-0018-017	**Date Reported:**	01/04/06

Analyte		Result	R.L.	Units	Flags
Chloride	**Method: 325.2**				
Analysis Date: 12/29/05					
Chloride		33	5	mg/L	

STANDARD TAT

CONESTOGA-ROVERS & ASSOCIATES
8615 W. Bryn Mawr Avenue
Chicago, Illinois 60631
(773)380-9933 phone
(773)380-6421 fax

CHAIN-OF-CUSTODY RECORD

SHIPPED TO (Laboratory Name): First Environmental

REFERENCE NUMBER: 16841-09

PROJECT NAME: Braidwood Exelon

SAMPLER'S SIGNATURE: Julie Luzwick PRINTED NAME: Julie Luzwick

SEQ. No.	DATE	TIME	SAMPLE IDENTIFICATION No.	SAMPLE MATRIX	No. OF CONTAINERS	Chloride	Sodium	REMARKS
	12/19/05	1015	GW-121905-MB-VB4-1	W	2	1	1	6-0018-001
	12/20/05	1225	GW-122005-JL-VB6-1	W	2	1	1	002
	↓	1400	↓ VB6-1D	W	2	1	1	003
		1440	VB7-1	W	2	1	1	004
		1540	VB8-1	W	2	1	1	005
	↓	1625	↓ VB8-1D	W	2	1	1	006
	12/27/05	850	GW-122205-JL-VB4-1D	W	2	1	1	007
	↓	940	↓ VB5-1	W	2	1	1	008
		1080	VB5-1D	W	2	1	1	009
		1600	VB7-1D	W	2	1	1	010
		1415	VB9-1	W	2	1	1	011
		1440	VB9-1D	W	2	1	1	012
		1520	VB10-1	W	2	1	1	013
	↓	1535	↓ VB10-1D	W	2	1	1	014
TOTAL NUMBER OF CONTAINERS					28			

RELINQUISHED BY:	DATE / TIME	RECEIVED BY:	DATE / TIME
① Julie Luzwick	DATE: 12/27/05 TIME: 12:00	②	DATE: TIME:
②	DATE: TIME:	③	DATE: TIME:
③	DATE: TIME:	④	DATE: TIME:

METHOD OF SHIPMENT: Hand Delivery AIR BILL No.

White -Fully Executed Copy
Yellow -Receiving Laboratory Copy
Pink -Shipper Copy
Goldenrod -Sampler Copy

SAMPLE TEAM:

RECEIVED FOR LABORATORY BY: Helen Nowak
DATE: 12/27/05 TIME: 1200

13436

1001-0 RCE)GN-CO004

Temp - <6°C on ice

STANDARD TAT

CONESTOGA-ROVERS & ASSOCIATES

8615 W. Bryn Mawr Avenue
Chicago, Illinois 60631
(773)380-9933 phone
(773)380-6421 fax

CHAIN-OF-CUSTODY RECORD

SHIPPED TO (Laboratory Name): First Environmental

REFERENCE NUMBER: 16841-09

PROJECT NAME: Braidwood Exelon

SAMPLER'S SIGNATURE: Julie Luzwick PRINTED NAME: Julie Luzwick

SEQ. No.	DATE	TIME	SAMPLE IDENTIFICATION No.	SAMPLE MATRIX	No. OF CONTAINERS	PARAMETERS: Chloride	PARAMETERS: Sodium	REMARKS
	12/23/05	9:00	GW-122305-JL-VB11-1D	W	2	1	1	6-0018-015
	↓	9:30	GW-122305-JL-VB7-3	W	2	1	1	016
	↓	9:50	GW-122305-JL-VB7-4	W	1	1		017
			TOTAL NUMBER OF CONTAINERS		5			

RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:	DATE:	TIME:
① Julie Luzwick	12/27/05	12:00	②		
②			③		
③			④		

METHOD OF SHIPMENT: Hand Delivery AIR BILL No.

White	-Fully Executed Copy
Yellow	-Receiving Laboratory Copy
Pink	-Shipper Copy
Goldenrod	-Sampler Copy

SAMPLE TEAM:

RECEIVED FOR LABORATORY BY: Helen Morrell

DATE: 12/27/05 TIME: 1200

13434

Temp- <6°C ice

1001-(IRCE)GN-CO004

K

APPENDIX K

CALCULATIONS OF TRITIUM MASS IN GROUNDWATER

The mass of tritium in the groundwater was determined at vacuum breakers VB-1, VB-2, and VB-3 with results of 0.19 Ci, 0.04 Ci, and 2.01 Ci, respectively, or 2.24 Ci total on Site.

The tritium mass was calculated by measuring the areas that the plume covers in the deep and shallow groundwater zones (Figure 6.1 and 6.2). For the shallow groundwater zone, separate areas were determined for tritium results from 200 to 5,000 pCi/L, 5,000 to 10,000 pCi/L, 10,000 to 40,000 pCi/L, and 40,000 to 60,000 pCi/L. For the deep groundwater zone, separate areas were calculated for tritium results from 200 to 5,000 pCi/L, 5,000 to 10,000 pCi/L, 10,000 to 40,000 pCi/L, 40,000 to 60,000 pCi/L, 60,000 to 100,000 pCi/L, and 100,000 to 200,000 pCi/L.

The volume of the plume was calculated for the shallow and deep zones by multiplying the areas by the average depth of water corresponding to either the shallow-screened or the deep-screened sampling location. The depth of water corresponding to each screened location was determined as follows. The depth of the water column was divided halfway between the bottom of the shallow-screen (15 ft bgs) and the top of the deep-screen (20 ft bgs) locations corresponding to 17.5 ft bgs. The average water table elevation on site is 590 ft amsl and the average ground surface elevation on site is 594 ft amsl. Therefore, the division between the shallow zone and deep zone is 576.5 ft amsl (594-17.5) and the shallow-screened interval corresponds to the top 13.5 feet (590-576.5 ft) of the water column and the deep-screened interval corresponds with the bottom 6.5 feet (576.5-570) of the water column, where 570 ft amsl is the average clay till elevation of the site. The volume of each section was multiplied by the porosity (0.30) to determine the amount of water (pore space) in that volume of the aquifer.

The mass of tritium was calculated by multiplying the average tritium result for each area by the volume of groundwater below for both the shallow and deep groundwater zones. The mass of tritium at each vacuum breaker location was calculated by adding the mass from the shallow zone and deep zone. The tritium mass calculations are shown on Table K.1.

DRAFT

TABLE K.1

SUMMARY OF TRITIUM
MASS CALCULATIONS ON SITE
EXELON GENERATION
BRAIDWOOD STATION

Plume Location	Zone	Area (sq.ft)	Average Tritium Result (PiC/L)	Saturated Thickness (ft)	Volume (cu.ft)	Volume (L)	Pore Volume (L)	Mass of Tritium (pCi)	Mass of Tritium (Ci)
VB-1 north	Shallow	34094	2600	13.5	4.60E+05	1.30E+07	3.91E+06	1.02E+10	0.01
VB-1	Shallow	121852	2600	13.5	1.65E+06	4.66E+07	1.40E+07	3.63E+10	0.04
VB-1	Deep	254527	2600	6.5	1.65E+06	4.68E+07	1.41E+07	3.65E+10	0.04
VB-1	Deep	52587	7500	6.5	3.42E+05	9.68E+06	2.90E+06	2.18E+10	0.02
VB-1	Deep	53961	15000	6.5	3.51E+05	9.93E+06	2.98E+06	4.47E+10	0.04
VB-1	Deep	24399	30000	6.5	1.59E+05	4.49E+06	1.35E+06	4.04E+10	0.04
							Mass of Tritium at VB-1:	1.90E+11	0.19
VB-2	Shallow	48347	2600	13.5	6.53E+05	1.85E+07	5.54E+06	1.44E+10	0.01
VB-2	Deep	31417	7500	6.5	2.04E+05	5.78E+06	1.73E+06	1.30E+10	0.01
VB-2	Deep	13808	15000	6.5	8.98E+04	2.54E+06	7.62E+05	1.14E+10	0.01
							Mass of Tritium at VB-2:	3.89E+10	0.04
VB-3	Shallow	3088324	2600	13.5	4.17E+07	1.18E+09	3.54E+08	9.21E+11	0.92
VB-3	Shallow	7781	7500	13.5	1.05E+05	2.97E+06	8.92E+05	6.69E+09	0.01
VB-3	Shallow	60270	7500	13.5	8.14E+05	2.30E+07	6.91E+06	5.18E+10	0.05
VB-3	Shallow	48769	15000	13.5	6.58E+05	1.86E+07	5.59E+06	8.39E+10	0.08
VB-3	Shallow	42093	30000	13.5	5.68E+05	1.61E+07	4.83E+06	1.45E+11	0.14
VB-3	Shallow	34100	50000	13.5	4.60E+05	1.30E+07	3.91E+06	1.96E+11	0.20
VB-3	Deep	34283	7500	6.5	2.23E+05	6.31E+06	1.89E+06	1.42E+10	0.01
VB-3	Deep	2580144	2600	6.5	1.68E+07	4.75E+08	1.42E+08	3.70E+11	0.37
VB-3	Deep	37710	15000	6.5	2.45E+05	6.94E+06	2.08E+06	3.12E+10	0.03
VB-3	Deep	52756	30000	6.5	3.43E+05	9.71E+06	2.91E+06	8.74E+10	0.09
VB-3	Deep	8283	50000	6.5	5.38E+04	1.52E+06	4.57E+05	2.29E+10	0.02
VB-3	Deep	5084	50000	6.5	3.30E+04	9.36E+05	2.81E+05	1.40E+10	0.01
VB-3	Deep	6281	80000	6.5	4.08E+04	1.16E+06	3.47E+05	2.77E+10	0.03
VB-3	Deep	1550	80000	6.5	1.01E+04	2.85E+05	8.56E+04	6.85E+09	0.01
VB-3	Deep	3522	150000	6.5	2.29E+04	6.48E+05	1.94E+05	2.92E+10	0.03
							Mass of Tritium at VB-3:	2.01E+12	2.01
							Mass off Trtitium at VB-2 and VB-3:	2.05E+12	2.05
							Total Mass of Tritium on Site:	2.24E+12	2.24

APPENDIX L

BIOSCREEN MODELING RESULTS OF TRITIUM TRANSPORT

CONESTOGA-ROVERS & ASSOCIATES

651 Colby Drive, Waterloo, Ontario, Canada N2V 1C2
Telephone: (519) 884-0510 Fax: (519) 884-0525
www.CRAworld.com

TECHNICAL MEMORANDUM

TO:	James Gosnell, Exeton	REF. NO.:	016841-11/ev/10
FROM:	Nicholas Fitzpatrick/Beiyan Zhang PNF	DATE:	March 6, 2006
C.C.:	Phil Harvey		
RE:	**BIOSCREEN Modeling of Groundwater Concentration of Tritium, Exelon Generation Braidwood Station, Braceville, Illinois**		

The purpose of this memorandum is to present results of an evaluation of the potential for off-Site migration of tritium above drinking water standard in the groundwater downgradient of Braidwood Station (Site), specifically in the area of Vacuum Breakers VB-2 and VB-3. The Site hydrogeological information was used to predict the length and width of the plume above the drinking water standard (20,000 pCi/L).

BIOSCREEN

The modeling analysis was conducted using the analytical solute transport model BIOSCREEN developed by the United States Environmental Protection Agency (USEPA) for use at petroleum hydrocarbon release sites (USEPA, 1996; and Newell et al., 1997). BIOSCREEN is a three-dimensional solute transport model that calculates advective, dispersive solute migration under uniform groundwater flow conditions. BIOSCREEN can represent the processes of solute advection, dispersion, adsorption, and first-order biodegradation. The analytical solute transport model developed by Domenico (1987) forms the basis of the solution in BIOSCREEN.

In this particular case, radioactive decay of tritium was modeled using the first-order biodegradation term available in BIOSCREEN. The equations that govern radioactive decay are the same model biodegradation.

BIOSCREEN requires data entry including an average linear groundwater flow velocity, contaminant plume length, retardation and biodegradation (or radioactive decay, in this case) constants, and a source area condition. BIOSCREEN then calculates contaminant concentrations in groundwater at a specified time along the plume centerline over a specified distance downgradient from the source area. BIOSCREEN allows the entry of observed contaminant concentrations at specified distances downgradient from the sources area to which the calculated plume centerline concentration and concentration may be compared. BIOSCREEN also calculates contaminant concentration in groundwater at transverse distance.

REGISTERED COMPANY FOR ISO 9001 ENGINEERING DESIGN

MODELING SCENARIO

Parameters related to the hydrogeological properties for the modeling analysis are described below. Figure 1 shows BIOSCREEN input parameters.

Longitudinal and transverse dispersivity were estimated using an empirical relationship between the plume length and dispersivity. The formula implemented in BIOSCREEN to estimate dispersivities was used, which can give typical to lowend dispersivities based on plume length (USEPA, 1996).

A retardation factor of 1.0 was used in this simulation. Tritium binds readily with oxygen to form TOH or T_2O molecules and therefore travels at roughly the same speed as groundwater.

The natural decay of tritium can be described using a first-order decay rate. Tritium's half-life is 12.3 years (USEPA, 2004). This half-life was used to calculate the first-order decay rate from the formula used in BIOSCREEN.

Hydraulic conductivity was set to 0.0254 centimeters per second (cm/s) (72 ft/day) based on slug tests performed at the Site in October 2005. Groundwater levels were used to estimate the hydraulic gradient at the site based upon January 2006 groundwater contours (Figure 2). The hydraulic gradient is measured to be 0.0014 ft/ft., which was based on groundwater elevations in monitoring wells MW-106D and G-2D.

SOURCE DESCRIPTION

The drinking water standard for tritium is 20,000 pCi/L (USEPA & IEPA, 35 IAC 620). Any tritium concentration above this level was considered to be part of plume. The existing plume in the groundwater was input as a source, and BIOSCREEN was run to steady-state to determine what the concentration of tritium would be downgradient of the source.

The tritium source was divided into three zones based on the distribution of tritium concentration. Figure 3 shows the plume source concentration distribution. The plume source was input into BIOSCREEN with five zones. Table 1 shows the source zone widths and concentrations used in the BIOSCREEN simulation. Zone 3 represents the central zone of the plume or highest concentration zone. Zone 2 and 4 are symmetrical, representing the second high concentration zone. Similarly, Zone 1 and 5 are symmetrical, representing the lowest concentration zone. The median concentration of each zone were used as zone concentration in BIOSCREEN.

The model was run to determine the distance from the source to the points where the tritium concentration for drinking water standard is met (20,000 pCi/L), and plume widths at various distances.

MODEL RESULTS

Steady state was achieved in 30 years. The distance from the source to drinking water standard for tritium concentration is approximately 1,137 feet. Figure 4 presents the simulated tritium concentration vs. distance. Figure 5 illustrates the simulated plume above the 20,000 pCi/L drinking water standard.

REFERENCES

Domenico, P. A. An Analytical Model for Multidimensional Transport of a Decaying Contaminant Species, *Journal of Hydrology*, 91, pp. 49-58, 1987.

Newell, J. C., R. K. McLeod, and J. R. Gonzales. *BIOSCREEN: Natural Attenuation Decision Support System – Version 1.4 Revisions*. Groundwater Services, Inc., Air Force Center for Environmental Excellence, July 1997.

Nicholas, J. R. and R. W. Healy. *Tritium Migration from a Low-Level Radioactive-Waste Disposal Site Near Chicago, Illinois U. S. Geological Survey Water-Supply Paper 2333*, Denver, CO, 1988.

USEPA. *BIOSCREEN: A Natural Attenuation Decision Support System User's Manual Version 1.3 EPA Report No. EPA/600/R-96/087*, Office of Research and Development, Cincinnati, OH, 1996.

USEPA. *EPA – Tritium – Information Page*. www.epa.gov/radiation/radionuclides/tritium.htm, November 30, 2004, accessed on February 14, 2006.

TABLE 1

PLUME SOURCE WIDTHS AND CONCENTRATIONS USED IN BIOSCREEN SIMULATION
EXELON GENERATION BRAIDWOOD STATION
BRACEVILLE, ILLINOIS

BIOSCREEN Input			*Tritium Concentration Range (pCi/L)*
Zone Number	*Zone Width (feet)*	*Concentration (pCi/L)*	
1	60	40,000	20,000 to 60,000
2	36	80,000	60,000 to 100,000
3	96	150,000	100,000 to 200,000
4	36	80,000	60,000 to 100,000
5	60	40,000	20,000 to 60,000

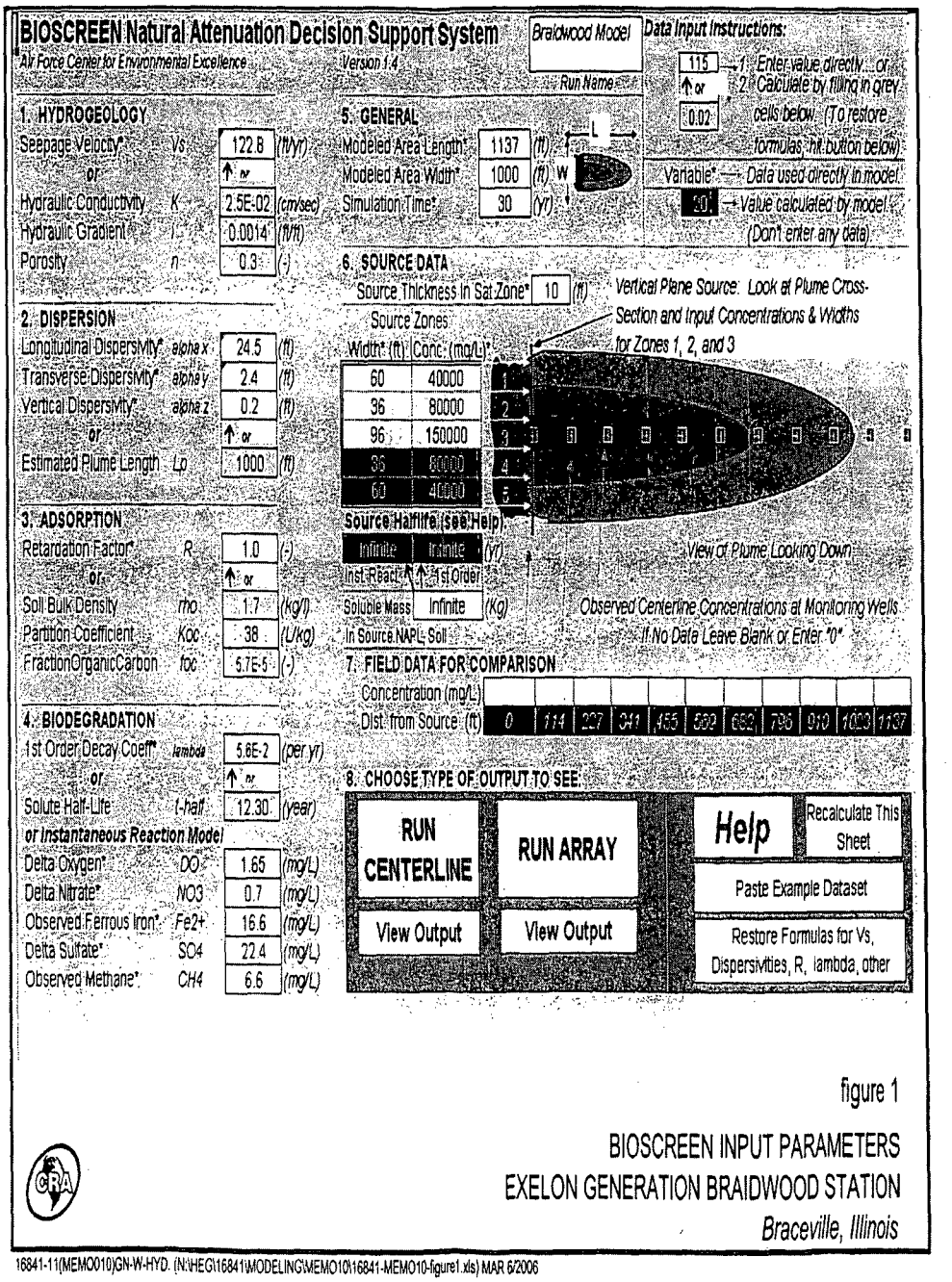
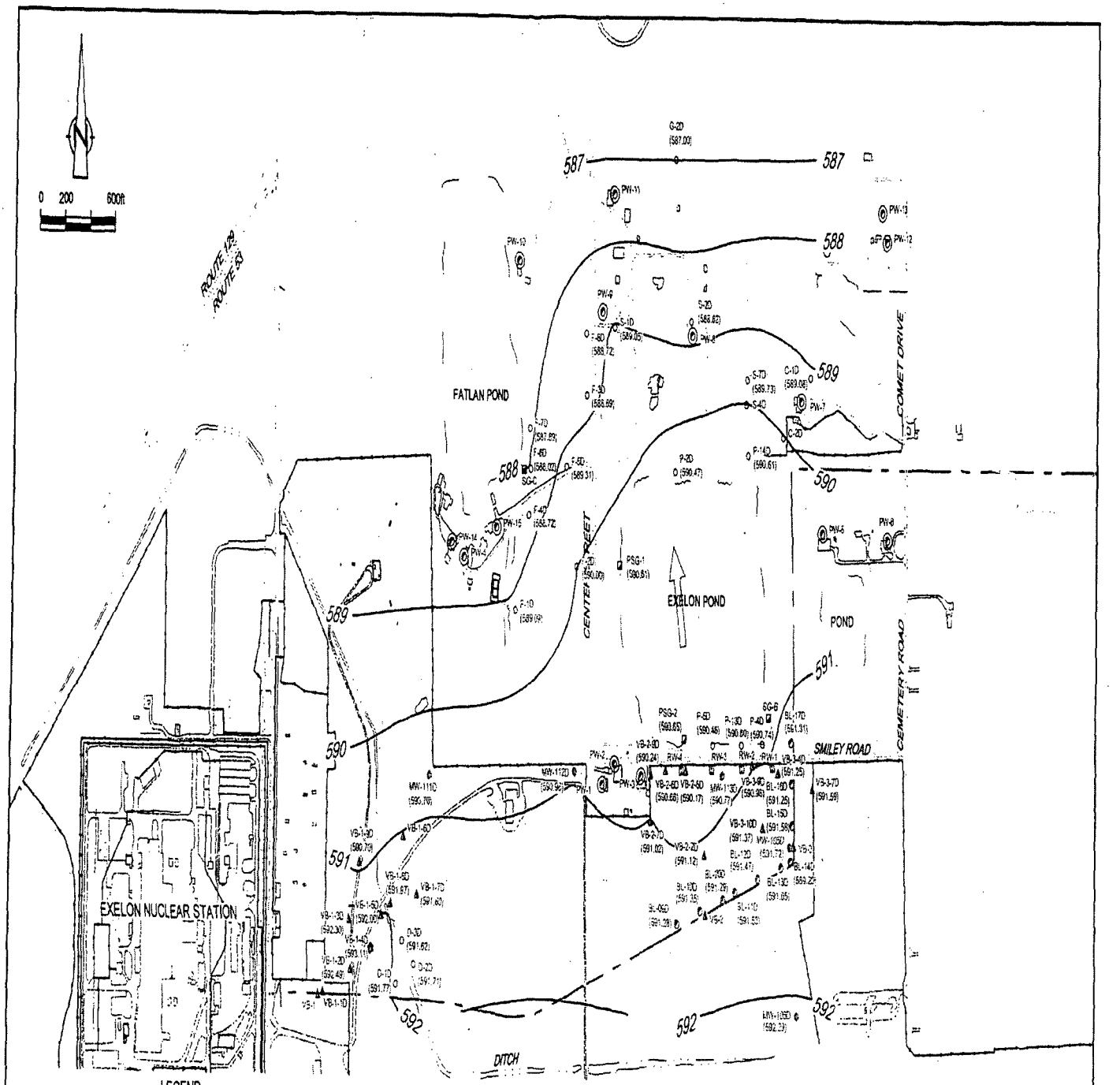


figure 1

BIOSCREEN INPUT PARAMETERS
EXELON GENERATION BRAIDWOOD STATION
Braceville, Illinois

16841-11(MEMO010)GN-W-HYD. (N:\HEG\16841\MODELING\MEMO10\16841-MEMO10-figure1.xls) MAR 6/2006



LEGEND

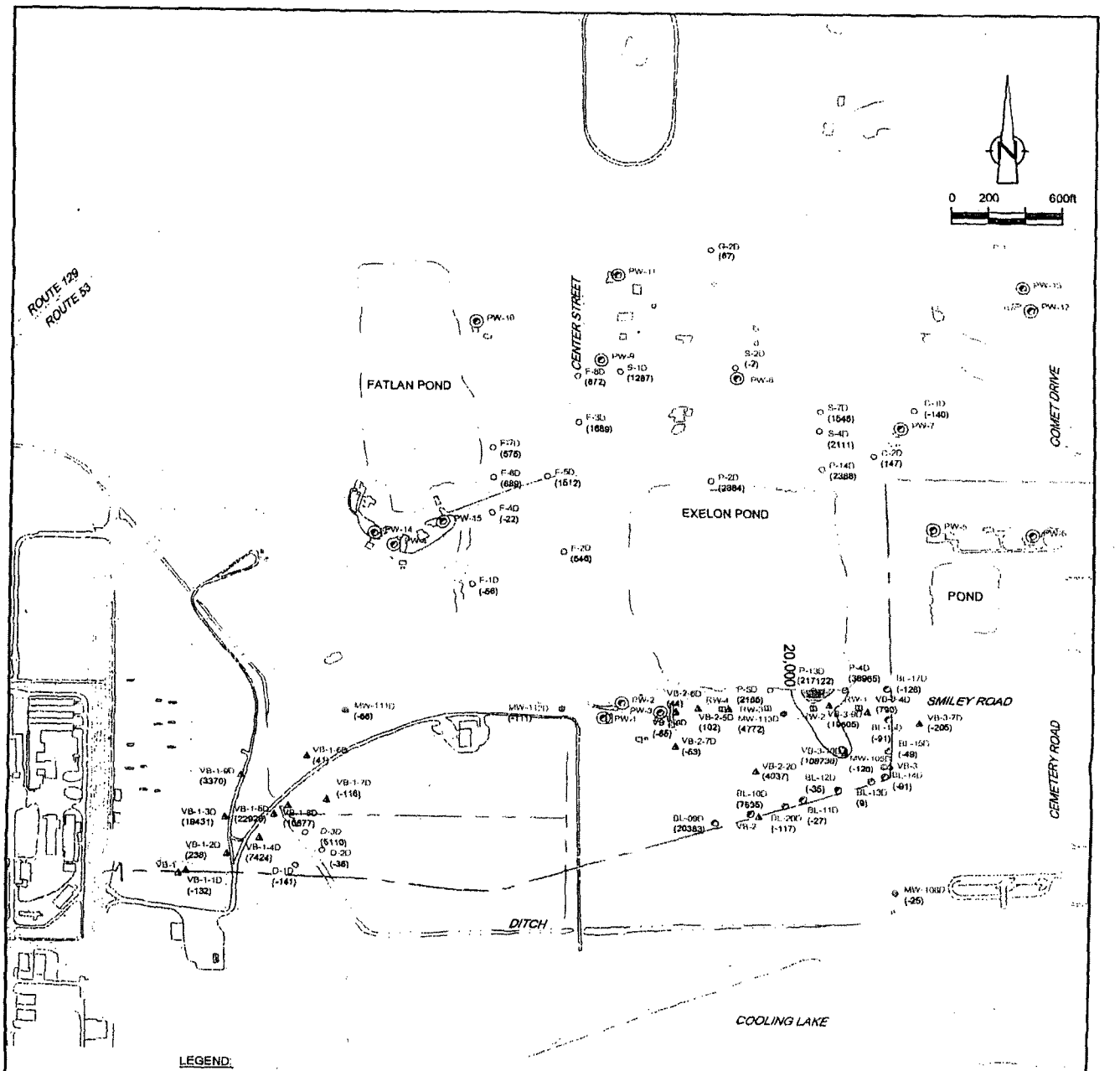
	EXISTING FENCE LINE
	BLOW DOWN LINE
	PLANT PROPERTY LINE
BL-17D	BLOW DOWN LINE SAMPLING LOCATION
VB-2	VACUUM BREAKER LOCATION
VB-3-7D	VACUUM BREAKER SAMPLING LOCATION
MW-112D	MONITORING WELL LOCATION
SG-2	STAFF GAUGE LOCATION
PW-5	PRIVATE WELL LOCATION
P-4D	TEMPORARY WELL LOCATION
RW-2	RECOVERY WELL LOCATION
(590.58)	GROUNDWATER ELEVATION (ft AMSL)
591	GROUNDWATER ELEVATION CONTOUR (ft AMSL)
	GROUNDWATER FLOW DIRECTION

NOTE:
STAFF GAUGE ELEVATIONS TAKEN ON JANUARY 1, 2005.
MONITORING WELL DATA TAKEN JANUARY 3, 2006 TO JANUARY 24, 2006.

figure 2

GROUNDWATER LEVEL CONTOURS - JANUARY 2006
DEEP GROUNDWATER ZONE
EXELON GENERATION BRAIDWOOD STATION
Braceville, Illinois

16841-11(MEMO010)GN-WA002 MAR 06/2006



LEGEND:

EXISTING FENCE LINE
EXISTING PERIMETER DITCH LIMITS
FEEDER DITCH
BLOW DOWN LINE
PLANT PROPERTY LINE
BL-17D DEEP BLOW DOWN LINE SAMPLING LOCATION
VB-3 VACUUM BREAKER LOCATION
VB-3-7D DEEP VACUUM BREAKER SAMPLING LOCATION
MW-113D DEEP MONITORING WELL LOCATION
PW-5 PRIVATE WELL LOCATION
P-4D DEEP TEMPORARY WELL LOCATION
PW-8P POND SAMPLING LOCATION
RW-2 DEEP RECOVERY WELL LOCATION
(2,484) TRITIUM RESULT IN GROUNDWATER (pCi/L)
200 TRITIUM CONTOUR

TRITIUM RESULTS 200,000 TO 250,000 (PICOCURRIES/LITER)
TRITIUM RESULTS 100,000 TO 200,000
TRITIUM RESULTS 60,000 TO 100,000
TRITIUM RESULTS 20,000 TO 60,000

NOTE:
BACKGROUND TRITIUM CONCENTRATION: 200 pCi/L
DRINKING WATER STANDARD FOR TRITIUM: 20,000 pCi/L
TRITIUM DATA FOR SAMPLES COLLECTED THROUGH JANUARY 30, 2006. CONTOURS WERE GENERATED USING LOG VALUES.

figure 3
ESTIMATED TRITIUM SOURCE
DEEP GROUNDWATER ZONE
EXELON GENERATION BRAIDWOOD STATION
Braceville, Illinois

16841-11(MEMO010)GN-WA003 MAR 06/2006

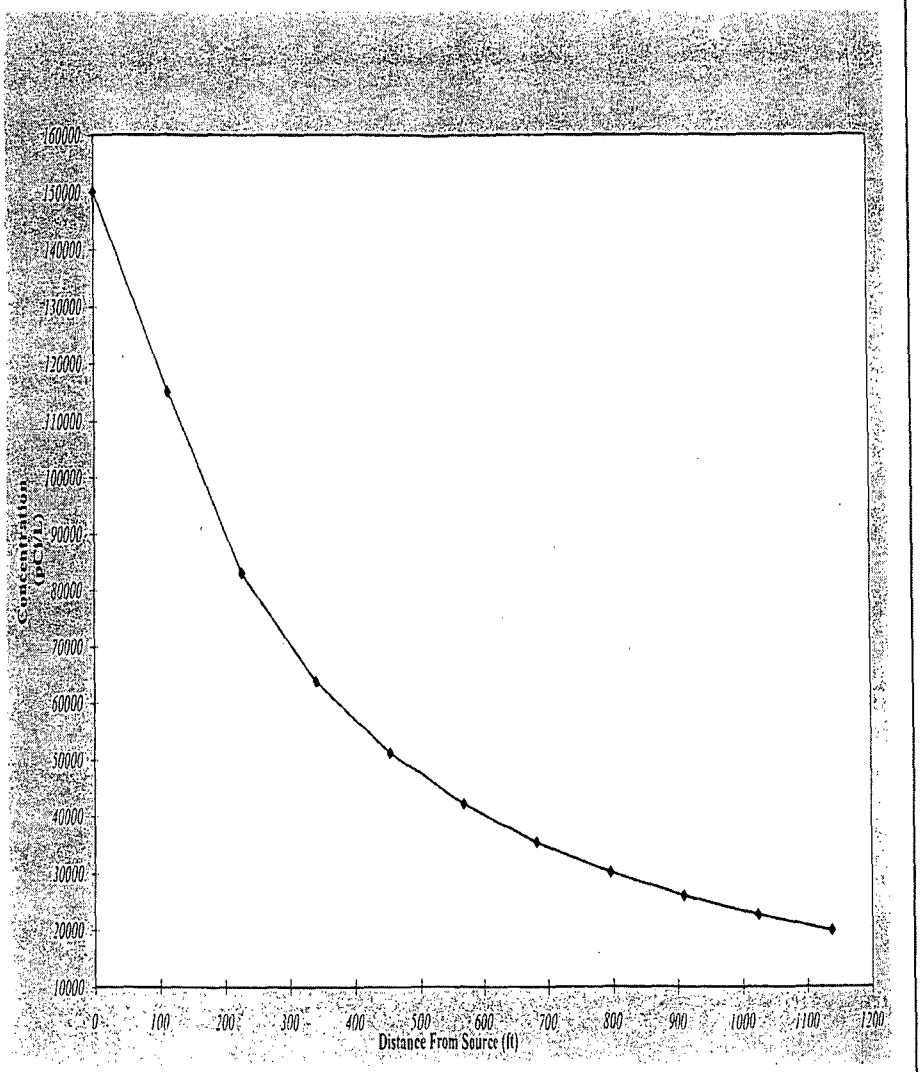


figure 4

CONCENTRATION FOR TRITIUM SOURCE OUT TO DRINKING WATER STANDARD

BRAIDWOOD STATION

Braceville, Illinois

15841-11(MEMO010)GN-W-HYD. (N:\HEG\15841\MODELING\MEMO10\15541-MEMO10-figure3.xls) MAR 5/2006

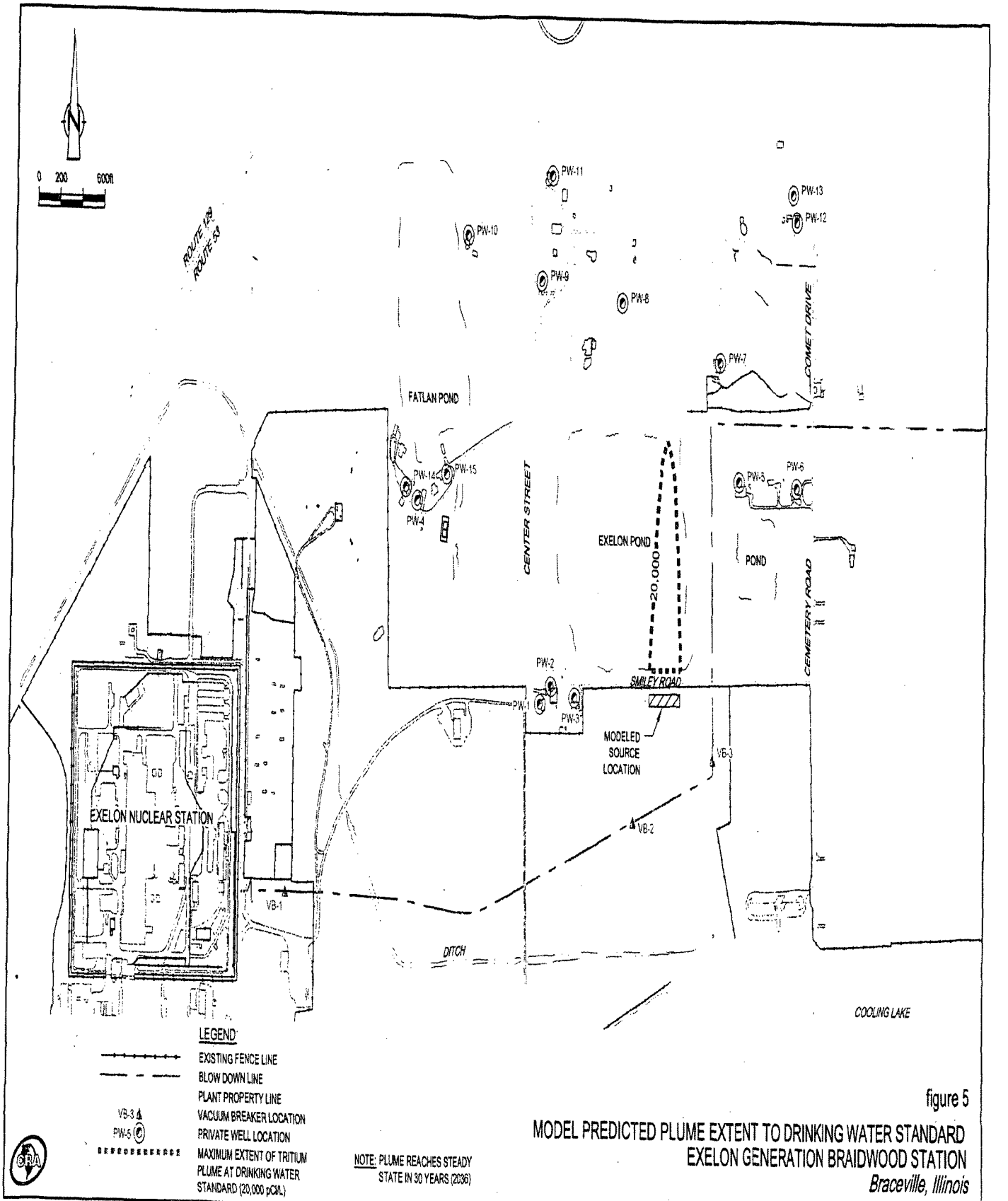


figure 5

MODEL PREDICTED PLUME EXTENT TO DRINKING WATER STANDARD
EXELON GENERATION BRAIDWOOD STATION
Braceville, Illinois

16841-11(MEMO010)GN-WA004 MAR 07/2006